



Manufacturer's of World's Most Advanced Digital Computed Radiography Imaging Technology



PRODUCT SHEET

CIT/160kV-M Portable X-Ray Generator

Portable NDT Industrial Radiography Applications

The Introduction of CIT/160kV-M X-ray generator into the radiographic inspection methods provides the radiographer with ability to have a hand portable and high quality radiography to be conducted. This unit is designed to inspect welds, castings, fabricated assemblies based on metallic or non metallic materials. When this X-ray source is used in conjunction with digital radiography the quality of the image generated is much greater than gamma sources. The smaller focal spot reduces the SFD and hence the exposure time to achieve results.

Also, Digital radiography is gradually replacing conventional film radiography in the NDT field by elimination of consumables like radiography films, chemicals and darkrooms. New possibilities of reusable phosphor imaging plates, easy archiving of digital records, direct and efficient image diagnosis, file sharing, standards and regulations with a wide range of applications and investment costs, are all driving the change from film to digital radiography slowly but surely in the right direction.

CIT has understood this trend and launched a highly portable X-ray generator optimized for digital imaging which is also convenient for conventional films. From aerospace to steel castings, the *CIT/160kV-M* is the right NDT RT tool and its flexibility means it can meet all the various specific needs of NDT operators.



CIT/160kV-M

Benefits

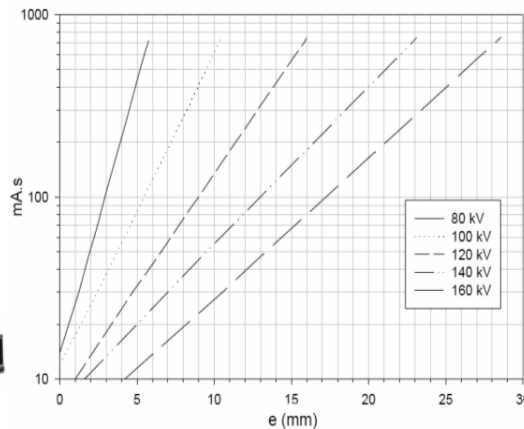
- **All-terrains** - the clever handle design enables *CIT/160kV-M* to be turned on and set up within a matter of seconds on any type of terrain or tripod and can X-ray in any direction.
- **Highly compact** form allows the operator to X-ray objects located in very confined spaces.
- **Remotely operated and battery powered:** compact high voltage part, the light and small remote control and battery power supply gives facility to the operator to carry the *CIT/160kV-M* in one hand only, anywhere from the facility up to the site.
- **Mini focal spot** (0.8 x 0.8 mm) provides very sharp images and possibility to make geometrical enlargement.



Exposure Chart for Steel

The radiography setup parameters used were as follows:

- Film type/speed: AA400
- Film to Focus Distance (FFD): 350mm
- Material type: Fe
- Target film density D: 2.0



CIT/160kV-M Portable X-Ray Generator

With features of portability, beryllium windows, reliability and power supply flexibility, the *CIT/160kV-M* covers a large range of applications such as

- **Non Destructive tests (NDT)**
Welding inspection for shipyards, pipelines, PCB, castings, composite materials (aerospace), food industry.
- **Security, customs, counter surveillance and forensic application**
Suspicious objects control (for example left luggage), stock of military explosives, search for drugs, micros, cameras hidden in different places such as walls, vehicles, furniture.

CIT/160kV-M is product of Madex



Technical Specifications

1. Products Inspected

- Materials inspected
 - Aluminium
 - Steel
 - Ferrous/Non ferrous
 - Composites
- Product type
 - Pipes weld
 - Castings
 - Assembled items
 - With/without cladding

2. Meets the following standards

- Meets all European and international standards and regulations in terms of shielding

3. CIT/160kV-M Specifications

With clever handle design *CIT/160kV-M* can be turned on and set up within a matter of seconds on any type of terrain or tripod and can X-ray in any direction. It's highly compact form allows the operator to X-ray objects located in very confined spaces.

CIT/160kV-M provides right power for digital technologies (CR, DR), which are much more sensitive than films.

High voltage part and power control

- 0.1 to 2 mA: 1 mA @ 160 kV, 2 mA @ 80 kV
Possibility to increase mA at lower kV (1 mA @160 kV, 2 mA @80 kV)
- 20-160 kV
- Oil insulated
- Duty cycle 1:4
Right duty cycle for 1D scanners, films, specific insensitive imaging and detection X-ray systems.
- Weight: 15 kg
- Sizes: 282 mm X 278 mm X 188 mm
- 28-35 VDC power entry

4. Application Range Options

The design of the high voltage part of the *CIT/160kV-M* allows our customers to choose

- Tube with **Beryllium window**, Mini focal spot 0.8 x 0.8 mm, 45° x 45°
Allows operators to work at high kV(> 60 kV) to obtain image of thick objects, heavy materials and at large focal film distances as well as very light materials and objects at low kV (20-60kV). So operator also has the possibility to X-ray thin sheet of steel and aluminum, composite materials, electronics, as well as in fields such as reverse engineering process, biology, geology, archeology, where low kV are requested.
- Tube with **Aluminium window**, Mini focal spot 0.8 x 0.8 mm, 45° x 45°
For operators working at relatively high kV (> 60 kV) in order to obtain images of thick objects, heavy materials and at large focal-film distances as with pipes, steel castings etc.
- Other tubes upon request

5. Power supply

- 28-35 VDC
- Lithium Polonium battery with battery charger
30minutes of continuous X-ray
- Universal VAC power supply

6. Stability

For *CIT/160kV-M*, the ripple is 0 Volt which is unique for any portable generator.

7. Safety Features

- Flashing lights and buzzers are available
- Clever security communication protocols ensure safety even in the wireless mode
- Safe transport as *CIT/160kV-M* does not contain any insulating gas under dangerous high pressure
- *CIT/160kV-M* is insulated with oil and not with green house gas

8. Control possibilities

- Integrated keyboard on the generator
- Remote control (cable)
- Remote control with magnets
- Wireless remote control
- Hand-switch
- Computer control (laptop)

**9. Options Extra**

- Fluoroscopy
While the *CIT/160kV-M* is continuously X-raying, the operator can easily change the mA and the kV from the computer or from the remote control. This is very useful for real time DR panel and X-ray amplifiers. Due to Fluoroscopy, the calibration of the DR devices can also be done very quickly.
- Tripod
- Flashing light and interlock key
- Transport suitcase
Carrying suitcase, which can carry the following items :
 - the *CIT/160kV-M*
 - the remote control
 - 2 batteries
 - the battery charger
 - the future security flashing lights



- Training
2 days/5 days training for *CIT/160 KV-M*; will be available for operations and maintenance training.

For ordering/query, please contact CIT UK at info@cituk.com

Product ordering Information

No	Product details	CIT/Part code	Part description	Price Ex VAT (ex-works)
1	Portable X Ray generator	CIT/160kV-M	<ul style="list-style-type: none"> ▪ 0.1 to 2 mA: 1 mA @ 160 kV, 2 mA @ 80 kV ▪ 20-160 kV ▪ Oil insulated ▪ Duty cycle 1:4 ▪ Weight: 15 kg ▪ Sizes: 282 mm X 278 mm X 188 mm ▪ 28-35 Vdc power entry 	
Tube				
2	Beryllium window		For operations range 20-60 kV and >60kV	
3	Aluminium Window		For operations range >60 kV	
Power Supply				
4	Power Supply		<ul style="list-style-type: none"> ▪ 28-35 VDC ▪ Lithium Polonium battery with battery charger ▪ Universal VAC power supply 	
Control Possibilities				
5	Built in Keyboard		Integrated keyboard on generator	
6	Wired Remote Control		Remote control with cable	
7	Wireless Remote Control		Remote control with out cable	
8	Remote control with magnets		Wireless remote control with magnets beneath the remote control	
9	Computer Control		PC control via wireless remote control	
Non Mandatory Options				
10	Fluoroscopy		Enables Operator to change mA and kv while X -raying	
11	Tripod		Mounting of generator	
12	Flashing Light and interlock key		Safety options	
13	Transport Suitcase		Carrying suitcase, which can carry the following items : <ul style="list-style-type: none"> - the CIT/160kV-M - the remote control - 2 batteries - the battery charger - the future security flashing lights 	
Operations and Maintenance Training				
14	2 days Training		Operational and maintenance training for 2-5 personnel	
15	5 days Training		Detailed Operational and maintenance training for 5-10 personnel	