

communications

Security & Detection Systems

CX-450M

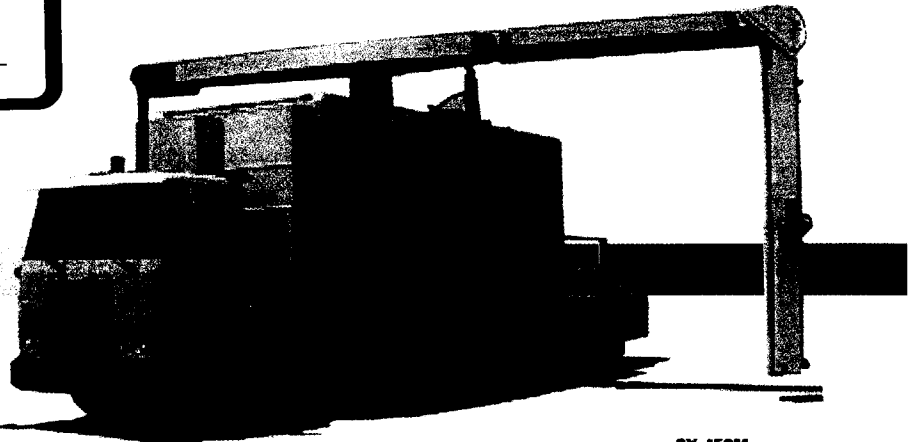
Mobile Cargo X-ray Inspection System

The **CX-450M** is a self-contained mobile cargo inspection system that can be used to detect stowaways, improvised explosive devices (IEDs), weapons, drugs and contraband. The **CX-450M** is designed to meet the detection requirements of custom inspectors, border patrols, sea and port security personnel, military security forces, and other law enforcement agencies.

The **CX-450M** is the ideal solution when inspection space is limited, mobility is required, cargo is the target, and rapid throughput is essential. The **CX-450M** sets itself apart from other mobile systems by producing a superior transmission image, which is essential when examining an object as wide as a truck.

Operated by a crew of three, a driver, ground controller, and inspector, the **CX-450M** is simple to operate. Spacious accommodations not only provide a comfortable working environment but also allow for easy access to equipment.

L-3 offers a complete range of solutions from rapidly deployable mobile systems like the **CX-450M**, to high throughput, deep penetration fixed site systems delivered as turnkey projects. Rather than just promote a single solution, we at L-3 work with the customer to identify their operational and security needs and deliver the most cost effective solution.



CX-450M

Features

- 450 kVp X-ray Tube
- Road Legal – No Permits Required for On-Road Use
- Rapid Deployment
- Simple to Maintain – Easy Access to All Equipment
- Scans Trucks up to 4.45 m (14.6') High and 2.79 m (9.2') Wide
- Fully Air-Conditioned and Sound-Proofed Operator Control Room
- Internationally Supported Volvo™ Chassis
- Scans Forwards or Backwards
- Image Archiving
- Color Image Printer

Options:

- Right-Hand Drive
- European Chassis
- Second Inspector Position
- Remote Data Link
- Wireless Link to Remote Inspection Station
- Automatic Collision Avoidance Sensors
- Chemical, Biological, Radiological and Trace Detection*
- Additional Options Available Based On Customer Requirements

* In development



CX-450M

Technical Specifications

General

Maximum Scan Size:.....4.45 m (14.6') H x 2.79 m (9.2') W
Scan Speeds:.....user selectable: 7.0, 15.0 or 22.5 cm/sec
 (15, 30 or 45 ft/min)

X-ray Source:

Voltage:.....450 kVp constant potential tube
Duty Cycle:.....100%
Cooling:.....circulating oil
X-ray Sensor:.....2848 CdW04 scintillators
Dose per Inspection:.....<50uSV (5 mR)

Physical Specifications:

Weight:.....28,840 kg (63,000 lb)
Construction:.....steel frame

Imaging Performance:

Resolution:.....2 mm wire (13 AWG)
Penetration:.....100 mm steel
Video Display:.....24" Flat Screen
Image Archiving:.....at least 1000 images

Environmental:

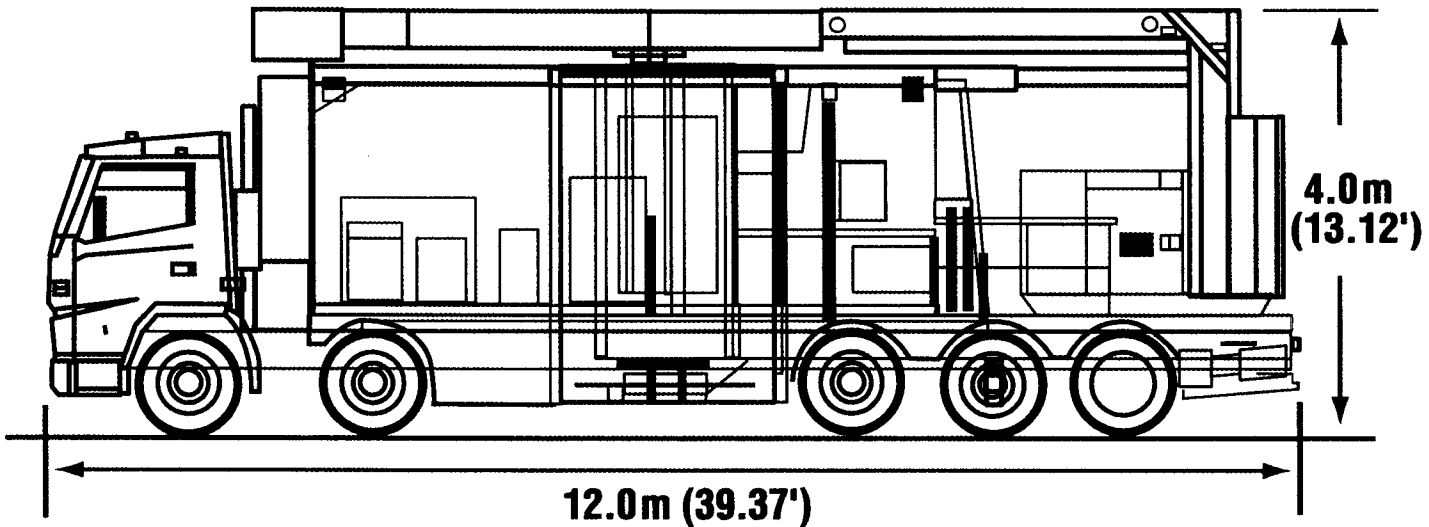
Operational Temperature:.....-15°C to 40°C (+5°F to 104°F)
Storage Temperature:.....-20°C to 70°C (-4°F to 158°F)
Relative Humidity:.....<96%
 Precipitation in the form of rain, snow, mist, hail, and
 glazed frost will not influence system operation

Radiation Safety

All L-3 Communications Security and Detection Systems' X-ray systems are certified to be in full compliance with all radiation safety requirements and external emissions limits as specified in the United States Code of Federal Regulations, Title 21, Section 1020.40 (21CFR1020.40) that apply to our products.

Design Policy

L-3 Communications Security and Detection Systems reserves the right to change specifications in the course of continuous improvement. Specifications are provided for reference only and actual equipment may differ slightly from the description given.



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communications

Security & Detection Systems

CX-2500M

Mobile Cargo X-ray Inspection System

L-3 Communications Security and Detection Systems offers the **CX-2500M**, the most innovative, mobile X-ray screening system on the market today.

Over the past 17 years L-3 Security and Detection Systems has designed and manufactured a wide variety of cargo inspection systems for worldwide customers. Earlier mobile systems were engineered to detect stowaways, weapons, drugs, and contraband. Today our state-of-the-art high-energy mobile system goes beyond these threats and addresses concerns like that of improvised explosive devices (IEDs) and radiological threats secreted in passenger vehicles, cargo trucks and sea containers. The **CX-2500M** is designed to meet the detection requirements of custom inspectors, sea and port security personnel, military security forces, and other law enforcement agencies.

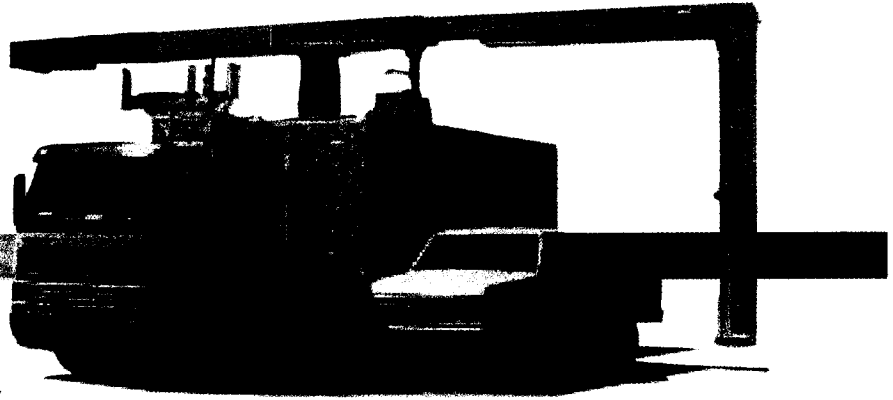
The **CX-2500M** is an ideal solution where inspection space is limited and mobility is a requirement. Unlike a large, fixed inspection system, a single mobile unit is capable of scanning at multiple locations within a region. The **CX-2500M** is built on a superior chassis using the best design, materials and craftsmanship available on the market today. The **CX-2500M** has been designed to be very easy to operate and quick to deploy, thereby maximizing operational flexibility.

In a Class of Its Own

The **CX-2500M** is the ideal solution when mobility is required, dense cargo is the target, and rapid throughput is essential. The **CX-2500M** sets itself apart from other mobile X-ray inspection systems with its linear accelerator pulsed X-ray source that utilizes detectors and electronics specifically designed for the task. The 2.5 MeV X-ray source offers superior penetration, best-in-class resolution and imaging using proprietary technology specifically designed for the examination of cargo.

The **CX-2500M** is capable of fully scanning parked vehicles in a single pass from 35 centimeters (14") above ground level to its full scanning height of 4.6 meters (15.1'). The end result is an image in a class of its own that provides the inspector with a clear representation of even full-size trucks and densely packed containers. L-3 offers a complete range of solutions from rapidly deployable mobile systems, like the **CX-2500M**, to high throughput, deep penetration fixed site systems delivered as turnkey projects. Rather than just promote a single solution, we at L-3 work with the customer to identify their operational and security needs to come up with the most cost-effective solution.

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CX-2500M scanning pick-up truck

Features

- 3MeV Linear Accelerator
- Ultra High Resolution Imaging, 16 Bit Data Displayed on a High Definition 24" Flat Panel Monitor
- High Throughput - Capable of Scanning at 40 cm/Second (45 ft/Minute)
- Road Legal- No Permits Required for On-Road Use
- Rapid Deployment - Can be Operational in as Few as 15 Minutes
- 2 Inspection Stations
- Simple to Maintain - Easy Access to All Equipment
- DVD Writer for Image Storage

Options:

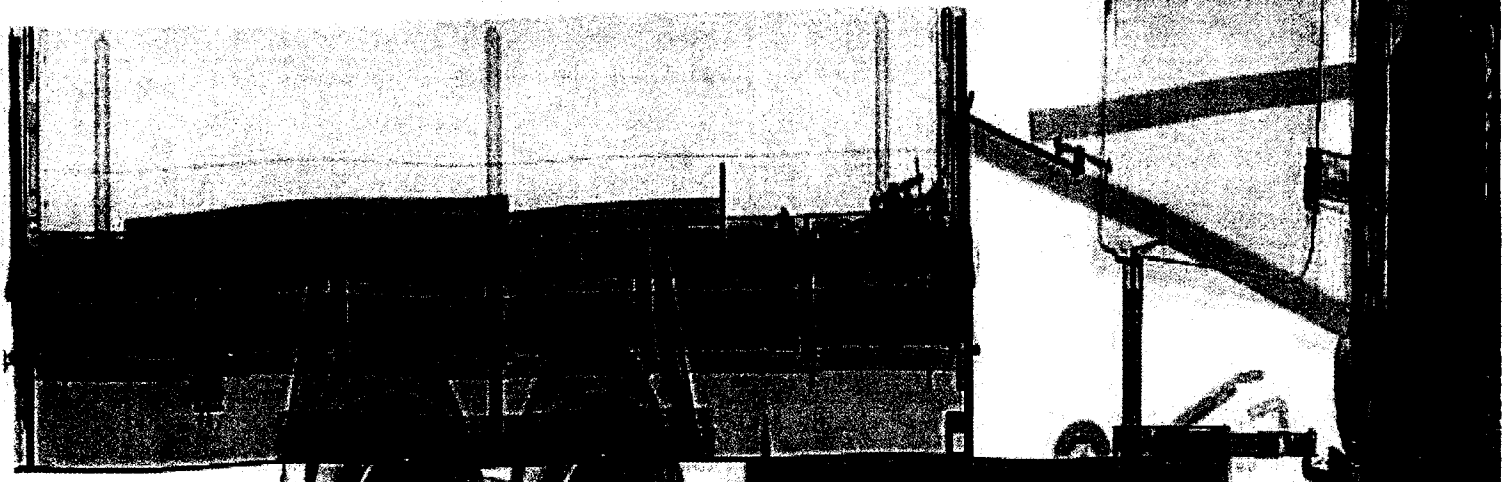
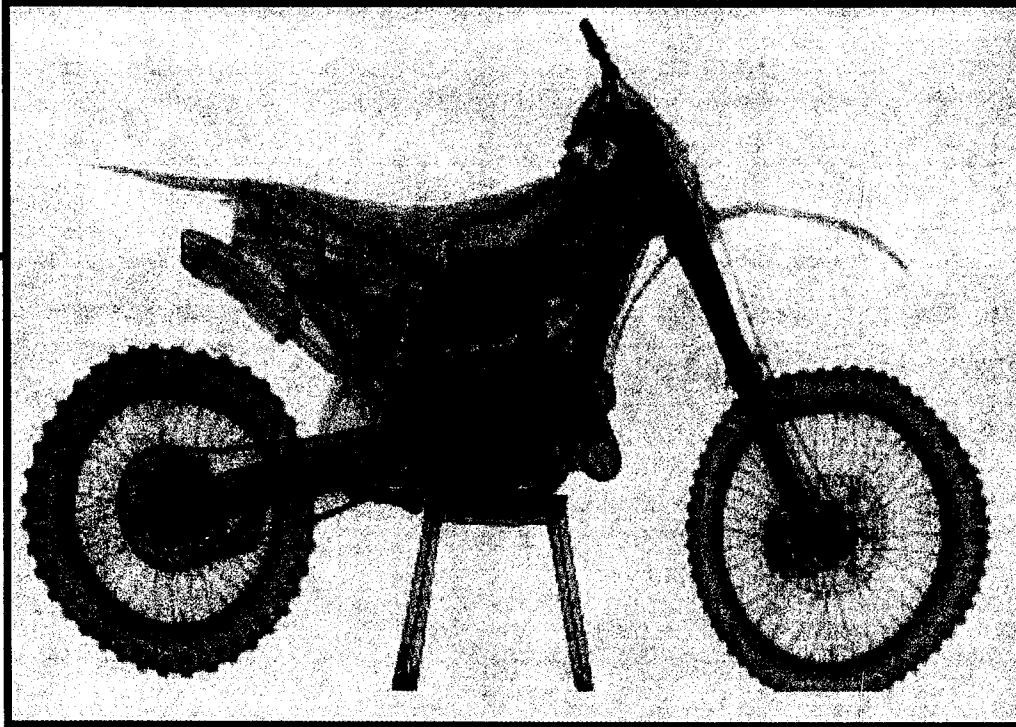
- Right-Hand Drive
- European Chassis
- Viewing Angle of 0 or 10 Degrees
- Wireless Link to Remote Inspection Station
- Automatic Collision Avoidance Sensors
- Microwave Fence to Guard Safety Exclusion Zone
- Color Laser Image Printer
- Chemical, Biological, Radiological and Trace Detection*
- Additional Options Available based on Customer Requirements

* In development



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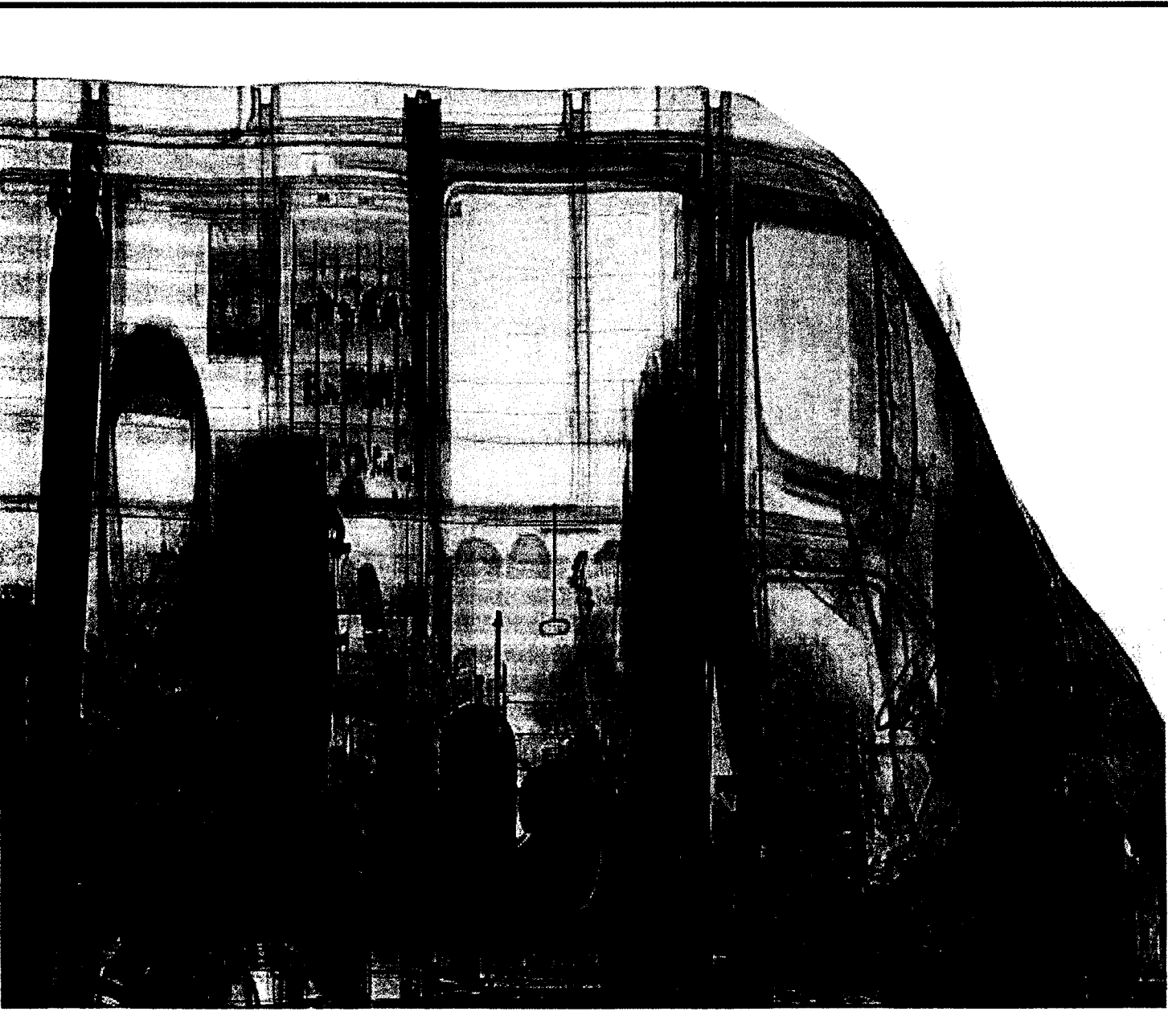
CX-2500M Mobile Cargo X-ray Inspection System



Superior Imaging

The extraordinary image produced from the **CX-2500M** is the result of the digitization of X-ray data into 16-bits of information – generating arguably the most detailed image available to the market today – essential when trying to examine dense and complex cargo.

The image generated by the **CX-2500M** automatically appears on a high-definition 24" flat panel operator display. Multiple images can remain in queue until the next operator is available. Over 3000 X-ray images can be stored locally for instant retrieval.



CX-3800M

MOBILE CARGO X-RAY SYSTEM

The L-3 CX-3800M provides the finest quality image and greatest penetration available today in a road legal mobile cargo X-ray inspection system. The CX-3800M is fully self-contained and capable of being driven on roadways to and from inspection locations with its scanning equipment securely stowed.

The state-of-the-art CX-3800M is designed to meet the detection requirements of customs inspectors, border patrols, air and sea port security, military force security, and law enforcement agencies. It is used to verify manifests, detect stowaways and as an effective tool to seek out threats, explosives, weapons, drugs and contraband.

GENERAL

PERFORMANCE

Throughput:	Up to 25 trucks [18 m (59 ft) in length] per hour
Resolution:	18 AWG (1.0 mm) typical best 15 AWG (1.5 mm) guaranteed all locations
Penetration (steel):	270 mm (10.6 in) typical best 200 mm (7.9 in) guaranteed all locations
Contrast Sensitivity:	2% plate [2 mm (0.08 in)] behind 100 mm (3.9 in) steel plate 4% wire ends [4 mm (0.16 in)] behind 100mm (3.9 in) steel plate

PHYSICAL SPECIFICATIONS

Truck Type:	Volvo chassis w/ 12 liter diesel engine (Euro III available) – local homologation and custom configurations available Other chassis options available depending on country (right/left hand drive, etc.)
Overall Length:	12 m (39.4 ft)
Overall Width:	2.5 m (8.2 ft)
Overall Height:	4.0 m (13.2 ft) boom stowed, 5.1 m (16.7 ft) boom deployed
Gross Vehicle Weight (GVW):	27,000 kg (60,000 lbs), estimated

TUNNEL DIMENSIONS

Tunnel Scan Size:	4.6 m (H), 2.8 m (W). Scan height starts at 50 cm Multiple scans are automatically separated into individual images
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POWER

Power Supply:	85 kW integral engine power takeoff (PTO) generator
Transformer:	110kVA isolation transformer with 380V, 400V, and 480V inputs

SCAN DRIVE

Type:	Fully electric, direct drive to axle
Speed:	0.13 m/s, 0.2 m/s, 0.4 m/s

ENVIRONMENT

Operating Temperature Range:	-20° C to +50° C (optional cold climate package to -30° C)
Storage:	-30° C to +50° C
Humidity:	96%, non-condensing (precipitation will not impact system operation)
Materials:	Corrosion resistant

SAFETY

- Complies with US Code of Federal Regulations, 21 CFR 1020.40 Cabinet X-ray Systems
- Meets US and European radiation safety requirements
- X-rays ON visual and audible warning systems
- CCTV surveillance cameras
- Automatic collision avoidance systems
- Wireless perimeter fence
- Emergency-stops in key areas
- Safety interlocks for scan speed, boom position, source positions, doors, e-stops, wireless boundary
- Designed for compliance to UL and CE requirements
- Radiation dosage to operators less than 1.0 $\mu\text{Sv/hr}$ peak in operator's cabin
- Radiation dosage to cargo less than 25 μSv typical

X-RAY SYSTEM

X-RAY SOURCE

- 3.8 MeV Linatron M3™ linear accelerator
- Extremely low leakage
- Wide angle

X-RAY DETECTORS

- 4 mm detector elements (scintillating crystal and photodiodes)
- Low noise design

IMAGING SYSTEM

INSPECTION WORKSTATIONS

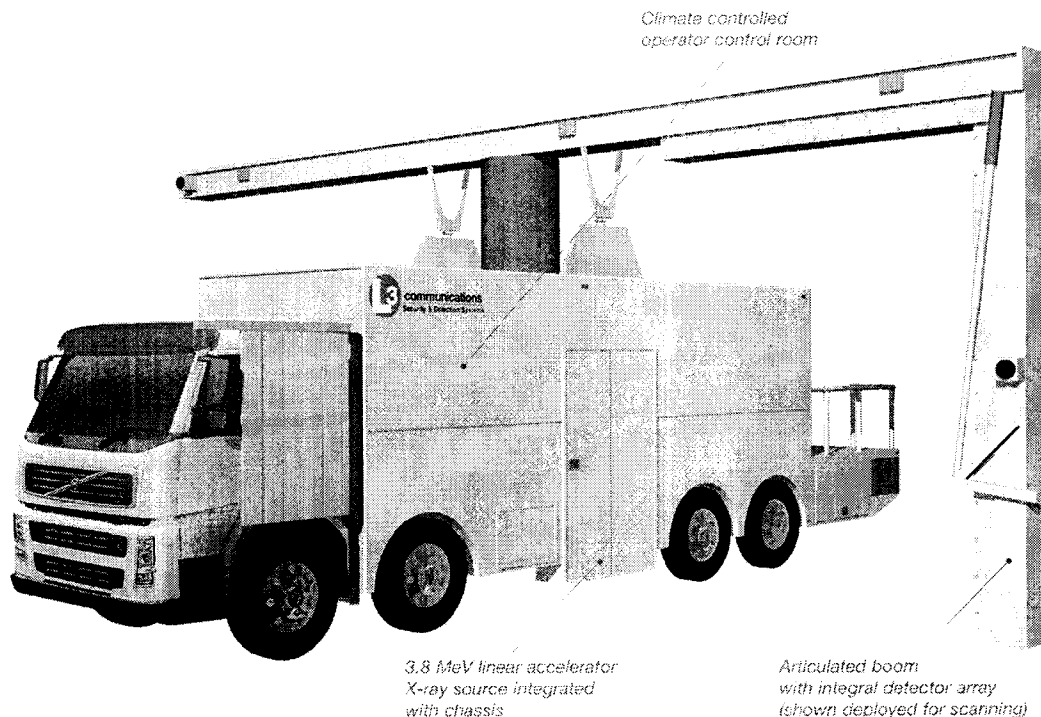
- 16 bit imaging
- High performance Intel computers
- Two image analyst workstations, each with one 24-inch flat panel image display monitor (1920 x 1200 pixel) and one 17-inch manifest display monitor
- Image archiving
- Color printer (optional)
- Optical scanner

IMAGE ANALYSIS

- Pseudo color, contrast, edge enhancement, gray level mapping
- Zoom 1/2, 1X, 2X, 4X, 8X – fit to screen
- Marking of suspicious areas including voice annotation
- Log and square root mapping
- Histogram equalization
- DeepScan imaging algorithm

OPTIONS

- Dual beam angle
- Other chassis options available depending on country (right/left hand drive, etc.)
- Integrated radiation/nuclear threat detection
- Cold climate kit
- Wireless communication (images and diagnostics)
- Remote workstation



L-3 Communications Security and Detection Systems

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