

Advanced security imaging technology

DebTech, Johannesburg, South Africa

DebTech is the ISO 9001:2008 accredited technology business unit of De Beers, one of the top ranking diamond mining companies in the world. DebTech specialises in the development, manufacture, supply and worldwide support of innovative products and services for applications in diamond exploration, sorting and security.

SCANNEX low dose, full body, X-ray scanner

The Scannex full body, low dose, X-ray scanning system was developed during the early 1990s for the primary purpose of deterring the theft of diamonds by diamond mine employees. The Scannex unit has application in many areas where contraband detection is required, such as airports, international sports events, prisons, border control and other high security installations.

The system produces high resolution and high contrast full body X-ray images of personnel. A single scan takes approximately ten seconds and the person being scanned remains stationary and is protected from the moving parts of the machine. The X-ray level required per scan is equivalent to that experienced on a two hour international flight. This allows an individual to be scanned up to 200 times per year and still not exceed the US Department of Health recommended safe limit for public exposure. The images are displayed on digital monitors and trained image analysts are able to identify items of a non-anatomical nature that may be concealed on or within the body.

To assist in the identification of foreign objects, human anatomical features are de-emphasized in the displayed images. This has the additional advantage of protecting the dignity of the individual being scanned. The display software comes standard with several image enhancement functions to further assist identification of suspect items. The display system is designed such that the viewing monitors can be located remotely from the scanning booth. This not only contributes to the protection of the scanned subject's privacy but also decreases



Walking crutch showing contraband hidden inside.

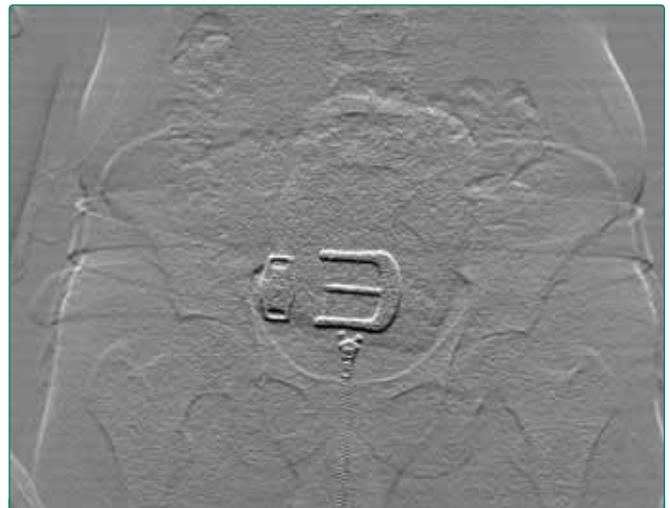


Two dimensional image of contraband strapped to the body.

the opportunity for collusion between the scanned subject, the scanner operator and the image analyst. Up to four monitors may be connected to a single scanner to increase the rate of people being scanned. At the De Beers Namibian operations up to 90 scans per hour have been regularly achieved through one unit.

The Scannex system is optimised to differentiate diamond, a material with relatively low X-ray absorption properties, from human anatomical features. This also enables the system to indicate the presence of other materials with similar low X-ray absorption properties, such as explosives, drugs, plastic fluid containers and syringes. Metallic items, including knives, guns and detonator wire are very prominent in the full body images by virtue of their significantly higher X-ray absorption properties.

For counter terror and border control applications that do not require the high performance characteristics of the original Scannex unit, DebTech is currently developing a smaller footprint and lower capital cost addition to the Scannex range. This is planned to be available late 2012.



Embossed image of contraband strapped to the body.

ABOUT THE COMPANY

DebTech, a Technology division of De Beers Group Services (Pty) Ltd., conducts the full value chain of research, development, delivery and support of technology products.

The product range includes Scannex low X-ray dose body scanners and diamond X-ray sorters. DebTech provides full technical support, including consulting, commissioning, spares and maintenance.

ENQUIRIES

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Scannex Low Dose Full Body X-ray Scanner - Security and Privacy

DE BEERS
A DIAMOND IS FOREVER

Scannex is a low dose X-ray scanner that can produce a high-resolution digital image of the whole body in only 10 seconds.

The **Scannex** machine is highly efficient when used for security purposes as it can reveal items hidden both on and within the body.

Scannex has been proven for more than 15 years in diamond mines in southern Africa

High throughput

- only 10 seconds to produce a full-body scan
- up to 90 scans per hour on a single unit
- can display different images on multiple viewing stations simultaneously
- Application in airports, border control, prisons, mines and refineries

Image quality

- Software enhances hidden items such as explosives, weapons and drugs.

Image analysis

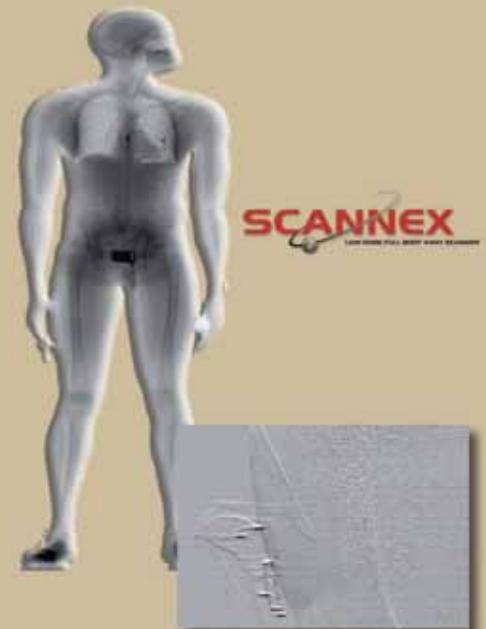
- image analyses in a variety of modes
- zooming, 3D and dynamic contrast adjustment highlight or suppress specific image detail.

Privacy

- viewing station is located away from the scanner
- shows only the body outline, similar to medical X-rays
- human facial features can not be identified
- anonymity and dignity of the person being scanned is respected.

Very low X-ray dosage

- operates at an extremely low absorbed dose of 0.006 milliSievert per scan - high number of scans can be performed per year
- accurate dose measurement through online dose meter
- approved by the South African and Namibian Government Health Departments



Supplied and supported by De Beers DebTech

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