



# DEX™

## 3D & 2D x-ray

# Vision Engine

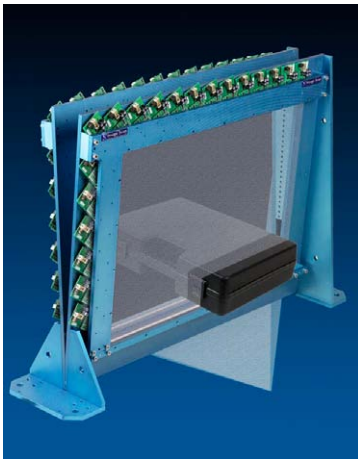
### Product Overview



The DEX 3D & 2D x-ray Vision Engine is a complete system of components (hardware, electronics and software) designed to enable Original Equipment Manufacturers (OEMs) to integrate x-ray inspection into their product manufacturing and handling systems. Its modular construction allows designs to be cost effectively tailored to meet your specific inspection needs and to be readily integrated into your existing equipment.

Incorporating a number of unique technological features, the DEX 3D & 2D x-ray Vision Engine provides unparalleled imaging capability - making it "best in class" in terms of image quality. Designed for automatic and manual inspection, the DEX Vision Engine is offered in both conventional 2D and 3D configurations. Typically used in conveyed applications, the DEX 3D & 2D x-ray Vision Engine provides the real-time ability to see features concealed within products. Employing novel dual-energy x-ray analysis (DEXA) detector technology we developed for the x-ray screening security sector, it is possible to differentiate between organic and inorganic materials such as wood and metals; meat and bone; glass and fluids, etc.

Although designed as a general purpose inspection tool, the DEX camera's resolution, speed and size of inspection chamber make it highly suitable for inspecting medical devices, drug delivery products, packaged pharmaceuticals, automotive, aerospace and military components.



### Applications

The DEX 3D & 2D x-ray Vision Engine's resolution, speed and range of sizes make it ideal for inspecting

- Hand baggage & parcels
- Medical devices
- Drug delivery products
- Packaged pharmaceuticals
- Automotive components
- Aerospace and military components
- A wide range of other items



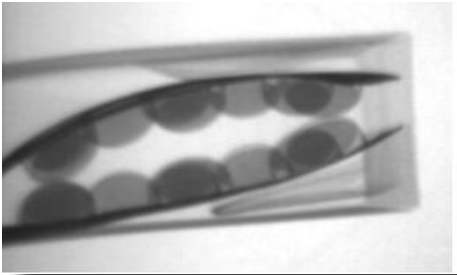


# DEX

## 3D & 2D x-ray

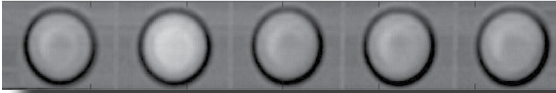
# Vision Engine

### Key Benefits of the DEX Camera



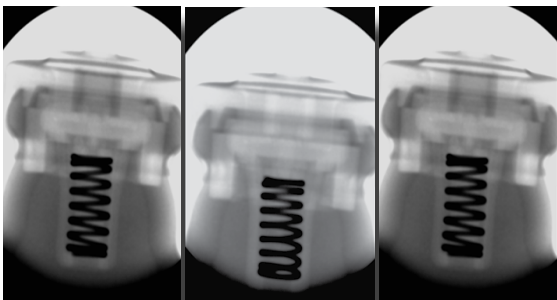
*Blister packs and leaflet*

### Image processing & display



*Blister packpack with missing pill*

### Standard features of the DEX 3D & 2D X-ray Vision Engine system



*Asthma Inhaler*

### Description

### Application design service

# 3DX-RAY



- Cost-effective solution – the modular design of our hardware and software enables the rapid design and production of equipment for your specific needs
- High speed – continuous image collection does not require stop/start image acquisition and thus maintains production flow
- Reduced product liability issues – 100% inspection
- Improved customer satisfaction – 100% inspection ensures only 'good' products leave your factory gates
- Reduced production costs – identify and correct concealed faults on the production line
- Lower after sales support costs – identify potential faults before the customer does

Software supplied with DEX systems generates image data that can either:-

- Be accessed directly by customers who wish to use their own image processing and display software
- Provide the input to our tailored solutions for image display
- Provide fully automated pass/fail inspection systems
- High resolution – typically better than 100 micron resolution
- 2D and 3D options available
- Automated fault detection
- In-line inspection rates up to 80 metres/minute
- Suitable for OEMs
- Available as turnkey systems
- Comprehensive application support provided
- Modular design for maximum flexibility and ease of upgrade
- Cost effective (comparable to visible light inspection systems)
- Safe and robust – integral x-ray screening ensures safe and easy operation

The DEX 3D & 2D x-ray Vision Engine comprises a number of elements including an x-ray source and one or more detector arrays, image acquisition electronics and imaging software. The objects under inspection move continuously through the system generating real-time two-dimensional or three-dimensional x-ray images (depending on the detector and software configuration).

The DEX 3D & 2D x-ray Vision Engine system provides numerous options to cover a wide range of inspection requirements. Our sales team personnel are experts in x-ray imaging and are pleased to advise on optimum, minimum cost, system configurations and applications development.

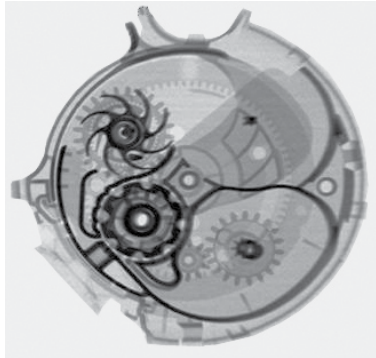


# DEX

## 3D & 2D x-ray

# Vision Engine

### 3DX Camera Technical Specifications:



Discus



Lancet for blood sampling

#### General Image Type

Inspection Tunnel

Resolution  
Penetration  
Conveyor Speed

X-Ray Source  
Anode Voltage

Beam Current  
Anode Material  
Beam Collimation  
Filtration  
Cooling

X-ray Detector  
Type

Detector Resolution  
No of Pixels  
Dynamic Range

Psu/controller  
Controls

PC Interface  
Linescan Speeds/s

Computer Requirement  
Type

Power Requirement (Excludes Computer)

Voltage  
Frequency

Dimensions Excluding Housings  
Camera Dimensions

#### Environmental

Operating Temperature  
Relative Humidity  
WEEE Regulations

#### X-ray Safety

X-ray Emission  
X-ray Safety  
High Voltage Generator

2D, 3D, and stereoscopic versions available  
DEXA materials discrimination options available  
Typical cross-sections range from 1cm x 1cm to 80cm x 100cm standard  
Length up to 1m. Custom tunnel sizes available on request  
Typically 100  $\mu$ m to 10 mm depending on detector specification  
Up to 30 mm steel depending on x-ray source  
Up to 80 m/min depending on x-ray source

A suite of x-ray generators is available to suit different applications. The performance range of the suite is:  
Adjustable in range 4kV to 50kV and 120kV to 160kV  
Other options available on request  
Adjustable to 1mA max  
Tungsten  
40 and 60 degree fan  
0.125mm Be, 1 mm PTFE, 3mm Al  
Sealed oil bath with forced air-cooling

Linear PIN diode array  
100 $\mu$ m, 200 $\mu$ m, 400 $\mu$ m, 800 $\mu$ m, 1.5mm, and 2.5mm  
Application specific  
4096 (12 bit)

On/off, key interlock, beam current, anode voltage  
USB 2.0  
50 to 3500 lines/s

Dual 2.2 GHz P4 with USB 2.0 interface

90 – 264v AC  
50 - 60Hz

Range from 350 x 250 x 200mm to 100 x 120 x 25cm (approximate dimensions only). Other dimensions are available on request

0 to 40°C  
5 to 95% non-condensing  
Reg. No. WEE/AH0116XU

< 1.0  $\mu$ Sv/hr conforms to IRR-99 (UK)  
Compliant with latest IRR-00 (UK)  
Compliant with UL/CSE/IEC950  
FCC PT 15 107/109



**DEX™**

High resolution in-line x-ray inspection

www.3dx-ray.com

**DATA  
SHEET**

**DEX**  
3D & 2D x-ray

**Vision  
Engine**



**World Leaders**

3DX-RAY Ltd is the world leader in real-time 3D and 2D x-ray solutions and we aim to become the world's major supplier of advanced imaging / inspection systems for opaque objects in the security screening and industrial inspection markets.

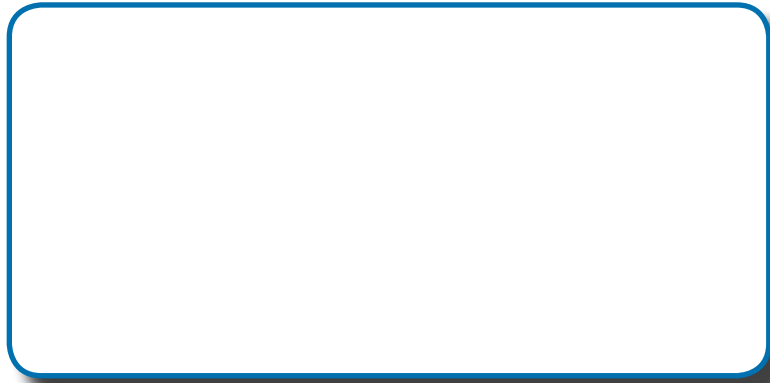
As we grow our range of products and solutions will rapidly expand. For the latest information on our capabilities, please go to our website at: [www.3dx-ray.com](http://www.3dx-ray.com).

3DX-RAY Ltd is a subsidiary of Image Scan Holdings plc, which is quoted on the London Stock Exchange. For further information please go to: [www.ish.co.uk](http://www.ish.co.uk).



*Oil filter*

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