Achieve the highest level of pharmaceutical quality assurance

Thermo Scientific POWERx D165 X-ray inspection system for glass contaminant detection

ThermoFisher
S C I E N T I F I C

State-of-the-art X-ray sources, detectors and image analysis software

The Thermo Scientific™ POWERx™ D165 X-ray inspection system is designed for maximum penetration and speed, offering pharmaceutical manufacturers a powerful quality assurance solution.

Dual-beam inspection for close to 100% detection probability in glass containers

Detecting glass contaminants in glass containers with an X-ray system can be challenging. The POWERx D165 dual-beam X-ray system utilizes two X-ray beams that scan each container from a different angle, eliminating blind spots found in other systems.

Horizontal-beam system

Suitable for inspection of short, upright glass containers the dual-detection system design detects glass in small glass vials. The probability of detection of contaminants in the bottom and side of containers is close to 100%. With the dual-beam system it's also possible to detect thin, flat glass fragments or slivers.

Accurate product handling

The POWERx D165 Pharma X-ray system comes as standard with a conveyor system designed to ensure stability, correct product spacing and maximum probability of contaminant detection. A built-in rejection system is also included. The handling system can be customized if required.

The POWERx D165 system inspects glass vials from two angles, finding contaminants in one view that are not visible in the other and increasing the probability of detection.
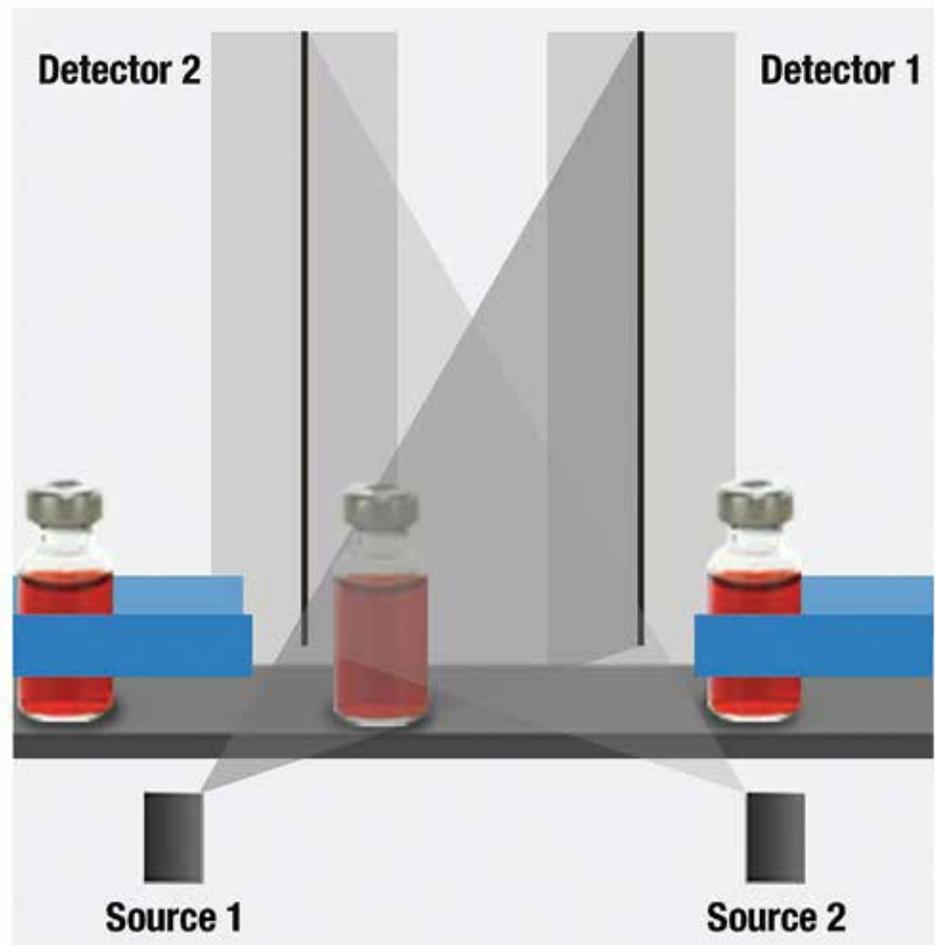
The dual-beam X-ray configuration maximizes probability of detection while significantly reducing false detections.

Support for your project at every step

In safety-critical applications and highly regulated production environments it is important to know your application will be supported. From project design and application verification, through factory testing, commissioning and validation, and on to field service and technical support, Thermo Fisher Scientific will be there to ensure your system performs to your requirements and that your customers are protected.

User-friendly HMI (human-machine interface) is featured to allow compliance with FDA 21 CFR part 11.

Designed for the pharmaceutical production environment

The POWERx D165 system has specific design features for use in pharmaceutical production. The dual-beam design maximizes detection probability, shielding is compliant with 21 CFR part 1020.40 and software offers multi-level password protection, data storage and audit trail features that enable compliance.
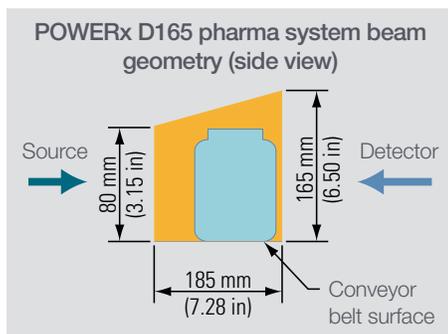
Intuitive touch-screen control

Radiation shielding enables compliance with FDA 21 CFR part 1020.40

Turnkey handling systems included to ensure optimal performance

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POWERx D165 X-ray Inspection System specifications

Application specifications	
Inspectable products	Pharmaceutical glass
Product width and height	185 mm x 165 mm (7.28 in x 6.49 in), maximum. Note: product width determines maximum inspection height, see x-ray beam diagram for details.
Detection sensitivity for metal (Fe, non-Fe and SS) and Glass	Typical sensitivities range from 1 mm to 2 mm (0.04 in to 0.08 in) diameter metal and 2 mm to 4 mm (0.08 in to 0.16 in) diameter glass depending on product density, texture and packaging
Detection sensitivity for other Contaminants (stone, bone, plastic. et.al.)	Application testing is required; results typically range from 2 mm to 5 mm (0.08 in to 0.20 in)
Inspection speed	≤100 m/minute (<_328 ft/minute)

Technical specifications	
X-ray beams	Dual (positioned at 90 degrees)
X-ray power	2 x <_90 kV and 2 x <_10 mA
Detector resolution	0.4 mm
Conveyor height	916 to 1110 mm (36.0 to 43.7 in) as measured from the floor to the bottom of the package being inspected
Software algorithms	Colorimetric thresholds, shape analysis, photometric inspection; application-specific inspection routines possible at additional cost
Human-machine interface	High contrast 15-in color LCD with touch screen
Available languages	English, French, Italian, German, Portuguese, Spanish, Polish
Data export and interfaces	File formats: .mdb, .txt, .tif, .jpg, .bmp; USB and network interfaces
Remote access	Standard, includes software and hardware
Machine weight	1200 kg (2646 lb)
Construction	AISI 304 stainless steel, polished finish
Electrical requirements (not including optional air conditioners)	230 VAC ±10%, 50/60 Hz, single phase
Cooling	External water chiller (X-ray tube) and heat exchanger (cabinet)
Product handling	System includes conveyor, spacing device, reject device and reject bin

Environmental specifications	
Operating temperature/humidity	+5°C to +35°C (+41°F to +95°F); 20-80% non-condensing
Water and dust protection	IP 65 (excluding the chiller)
Air supply requirement	6 bar (87 psi)

Conformance and certifications	
Radiation safety	Certified to emission <0.5 µSv/h excluding input/output tunnels; FDA CFR21 part 1020.40
Pharmaceutical compliance	21 CFR part 11 software; IQ/OQ/PQ validation available

POWERx D165 pharma system beam geometry (side view)

Source — 80 mm (3.15 in) — 165 mm (6.50 in) — Detector — 185 mm (7.28 in) — Conveyor belt surface

Hardware Options

- Customized handling and rejection systems
- Metal and glass test spheres
- UL or CSA safety certification
- Radiation survey meter
- Spare parts kit

Service and Support

- Installation and training included
- 24/7 technical support
- Optional extended warranties and service contracts available

Find out more at **thermofisher.com/powerxd165**

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