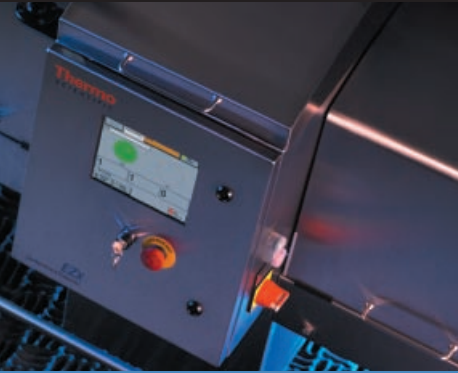


# Eight Reasons to Step Up from Metal Detection to the Thermo Scientific EZx™ Contaminant Detection System



The basic principle of X-ray is well known today because of its long-term use in the healthcare industry. What is not so well known by many food production and quality professionals is what X-ray can do to improve contaminant detection capability as compared to traditional metal detectors. Described below are eight compelling reasons to seriously consider stepping up to the latest technology utilized in the Thermo Scientific EZx—an easy-to-use and cost effective X-ray inspection system.

## 1 Detect contaminants by “seeing through” metallized film/foil packs

Shelf life and product appearance have always been important in the packaging business. This is why the use of metallized film or foil packaging is growing fast. These materials provide a better vapor and UV-light barrier extending shelf life and also enabling big improvements in the color and quality of the product branding. The problem with these materials is they obviously trigger sensitive metal detectors, rendering them useless. EZx, on the other hand, has no problem seeing right through these packages to detect very small contaminants inside. An X-ray final inspection, such as this, provides the ultimate in foreign object detection and is a key reason EZx is being used by many companies employing the latest packaging technology.



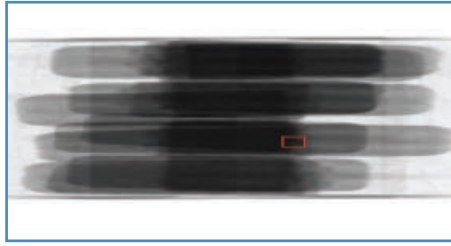
**Many types of metallized film and foil packaging are used today**

## 2 Find more than just metal contaminants, all metals are equal too

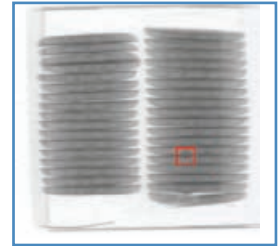
X-ray measures density, so when coupled with computer analysis, X-ray systems like EZx can find any contaminant that is dense or has sharp edges, such as glass, stone, plastic and bone. An additional benefit, as compared to metal detectors, is most metals (ferrous, non-ferrous and stainless steel) are created equal because their densities are so similar. So unlike metal detectors, you don't have to trade-off detection capability by metal type. Finally, in many cases X-ray is more sensitive than a metal detector due to its advanced image generation and detection technology. For instance, in a classical metal detector application where 2.5-3.5 mm SS can be detected, many times X-ray can easily detect <2mm.



1.5mm metal in breadsticks



2.5 mm stone in ice cream

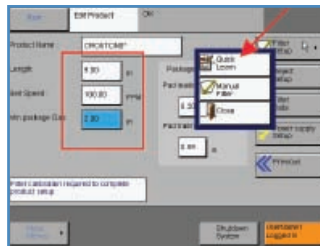


1.5mm glass in cookies

Note: Color of graphic denotes what image processing algorithm located the contaminant

## 3 Set up/test new products in minutes utilizing an intuitive, graphical interface

Teaching a metal detector the product phase angle (what reactive and resistive signals to ignore) is anything but intuitive. Prior to doing this you usually have to select the right frequency and gain. With EZx, things are totally different. Utilizing QuickLearn, all you do is tell the system about your package size and line rate, pass a few sample packages through the machine (while viewing their images on the screen to make sure the computer is seeing the right thing) and quickly test the system to verify it can find the size/type of contaminants you care about. After less than five minutes you are ready to go. During run-time if a contaminant is found, you can also view, zoom and save that image for further review, archive and root cause analysis. Try that with a metal detector.



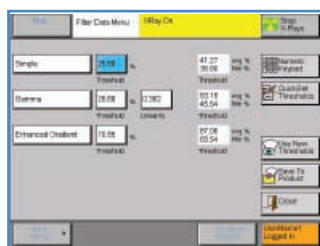
Set speed/package length and push QuickLearn



Easily test your application and view images

## 4 Don't worry about phasing out products or trying to track changes any more

With metal detectors, products that are wet, salty and conductive are hard to ignore. They look like metal to the receivers in a metal detector. Additionally, frozen or hot products can change over the course of the day when in production, which usually means you have to try and track them or compromise detection by reducing your sensitivity settings. With EZx this isn't the case. The system doesn't care about the electrical "state" of the product or its temperature. During setup all you do is run a large enough sample of products so the system adjusts for the worst case and you are set to go. And if for some reason something does change with time, you can quickly view what the product looks like to the system now and make adjustments online while the system is running.



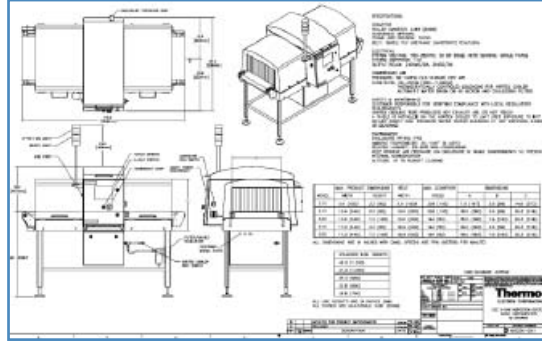
View run-time data and make adjustments while in production

## 5 Compact, complete design means installation is done in hours

EZx is a complete system, ready to be unpacked, powered-up and installed immediately. Its small size makes fitting it into your line easy, too. With start-up assistance, a factory-trained Thermo Fisher Scientific service engineer comes to your facility, connects power and air to the system and typically within the first day EZx is inspecting product. Training for your engineers and operators is delivered and a full radiation safety check (to your local regulations) is performed. And unlike metal detectors, you don't have to worry about noisy power, electromagnetic fields in the area caused by variable frequency drives (VFDs), ground loops in your conveyor or vibration – all of which can make metal detector installation difficult and time consuming.



System with Optional Rejecter



EZx Layout Drawing

## 6 Complete production statistics and image storage are standard

In most production environments keeping complete records of production (type of product, batch number, quantity, etc.) and contaminants detected with metal detectors is daunting. Proprietary networking solutions lock you in to a particular vendor or low-level protocols are available that require custom programming and setup. Or manual, paper-based systems are implemented that are less than ideal. With EZx complete production statistics are saved right on the system for up to one month and can easily be viewed and transferred to any PC via USB memory stick or Ethernet connection (FTP). This means if and when there is a problem, you have complete records including rejected product images saved by an operator.



USB memory stick transfer of data



Typical rejected product image for PC display

Start Date/Time	Product Name	Batch ID	Shift Name	End Date/Time	Total Packages	Total Rejected	Total Contaminated	Total Accepted	Rejected Timestamps
1/10/07 8:31	Test	0	First	1/10/07 9:04	4	1	0	3	2@8:32:28 am
1/11/07 13:33	Test	0	Clear	1/11/07 13:45	5	3	3	2	1@1:33:45 pm
1/11/2007	Test	0	First	1/11/07	3	3	3	0	1@1:45:35 pm

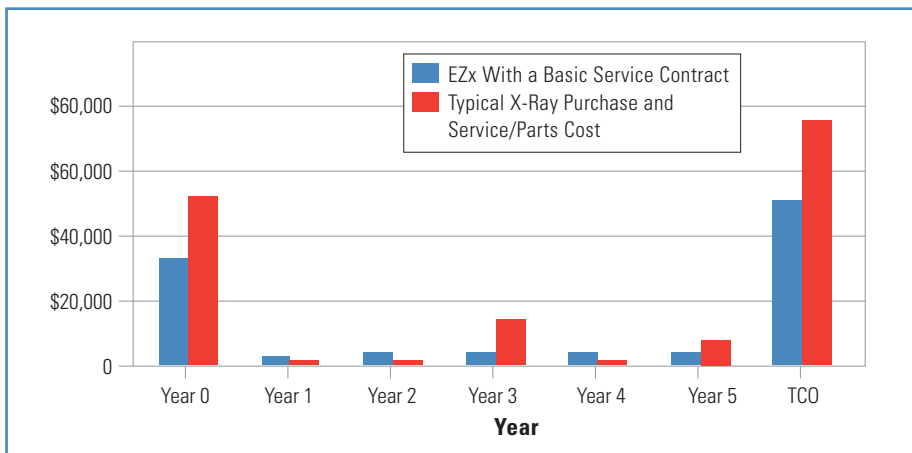
Sample Statistics file

## 7 X-ray systems are now as safe to use as metal detectors

In their early years, X-ray systems producing ionizing radiation were perceived as a potential health hazard. For this reason organizations around the world like the U.S. Food and Drug Administration (FDA) stepped in to set standards (e.g. CFR 21 part 1020) on what safety-related measures and tests are necessary to sell and install an X-ray inspection machine. Now there are thousands of machines inspecting food every day around the world and all of them have been certified to very stringent standards. The EZx has passed all of these tests and is installed in over 20 countries around the world. Also, since X-rays are generated electrically, there are no worrisome active radiation sources that are difficult to manage and dispose of. Today, X-ray systems can be shown to be just as safe as traditional metal detectors.

## 8 X-ray systems today have a very attractive Total Cost of Ownership (TCO)

Years ago X-ray systems cost 5-10 times more than a metal detector, and over the course of five years or more you had to buy many expensive parts such as tubes, detectors and high-voltage power supplies. Those days are over. The EZx contaminant detection system has a low, entry-level price, similar to a metal detector on a high quality conveyor, and several types of service contracts are offered at a minimal cost per month to keep your production running. All of the contracts offer preventive maintenance as well as scheduled replacement of key modules prior to their typical end of life. Regular safety inspections are included, too. Now is definitely the time to look at the benefits of X-ray inspection. The TCO has never been more attractive.



Financial Comparisons of EZx to other X-Ray Detectors

### To upgrade to a Thermo Scientific EZx, please contact us at one of the following locations:

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Australia +61 (0) 8 8208 8200 +61 (0) 8 8234 3772 fax	China +86 (0) 21 6865 4588 +86 (0) 21 6445 1101 fax	India +91 (20) 6626 7000 +91 (20) 6626 7001 fax	Mexico +52 (01) 55 5638 0237 +52 (01) 55 5639 2227 fax	South Africa +27 (0) 11-609-3101 +27 (0) 11-609-3110 fax	United States +1 (800) 227-8891 +1 (763) 783-2525 fax +1 (763) 783-2500 direct
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