



Fortress Metal Detectors



SYSTEM INSTALLATION GUIDE CONVEYOR - METAL DETECTOR SYSTEM

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SYSTEM INSTALLATION GUIDE

Conveyor - Standard Metal Detector System (End of line)

End of line metal detection is generally the preferred option, as at this point product has been packaged and there is no further risk of contaminants.

For a number of reasons, as defined above, this is not always feasible.

- Physical restrictions - no space available
- Package type/material - foil lids or trays
- Package Size - too large for detection standard
- Critical points - machinery protection or raw ingredients

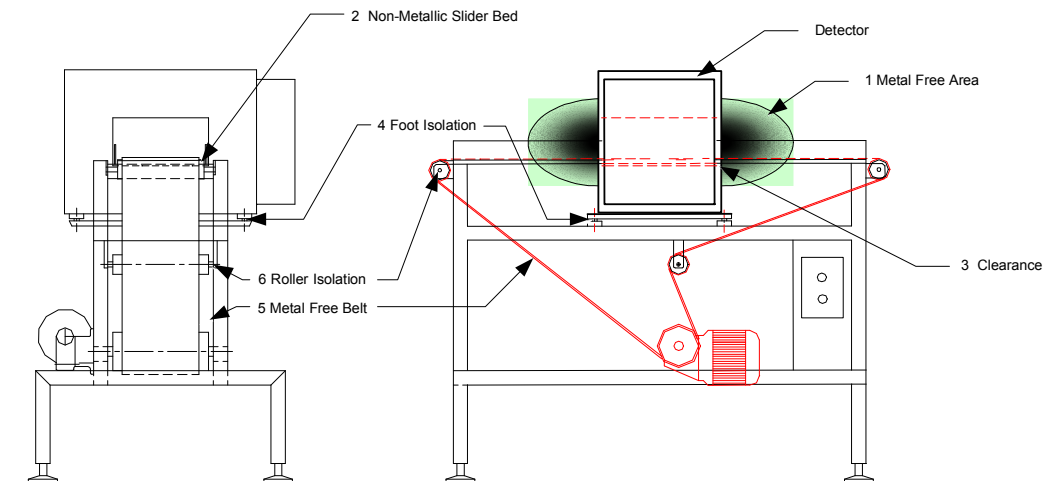
Design Issues

Basic purpose of a conveyor system is to move product through the detector and successfully reject contaminated product. In order that the optimum performance is achieved from the system there are a number of design issues which should be taken into consideration.

Detector Performance

Manufacturers will generally supply recommendations for achieving the best performance from the metal detector - they should always be applied.

- Isolated Rollers - prevent ground loops
- High quality Belt - metal free, interlocked finger join, plastic modular belt
- Low vibration and Static
- Adequate metal free area



Reliable Reject

The selected reject device must be suitable for:

- Pack - size, weight & shape
- Presentation - pitch, line speed and belt width

The following table gives a general guideline to which design will be best suited to your application. The figures may vary slightly with manufacturer.

<u>Type</u>	<u>Suited for</u>	<u>Max. Wt</u>	<u>Notes</u>
Air Blast	Light consumer packs biscuits, chocolate bars. High throughput	i.e 1 kg	Unsuitable for loose product, boxes curved surfaces and some bagged product
Diverter Arm	Medium to light packs. Medium throughput	5 kg	Product generally enters bin diagonally - must ensure it will fit !
Pusher/Ram	Medium packs High throughput	7 kg	Unsuitable for loose or fragile product
Stop on Detect	Large bags or boxes, hand fed or bulk material. Slow throughput	25 kg	Requires an operator to contaminated product
Retracting Band/Carriage	Small product in lines or of irregular shape. Medium throughput.	2 kg	Dimensions are for whole line or batch of products

The following additions are also recommended to ensure reliable rejection of contaminated product.

- Registration photo eye - to ensure correct timing
- Enclosed area from detector to reject - to avoid pack removal
- Lockable bin - ensure contaminated packs are quarantined

Testing

In addition to ensuring the metal detector is functioning correctly, the complete system functionality should be checked as part of the procedure.

This basically involves ensuring that the reject device is operating correctly and contaminated product is correctly handled.

This is generally proved by the following methods:

- Placing the test piece at the leading edge of the product
- Placing the test piece at the trailing edge of the product
- Passing successive test packs
- Passing alternate test packs

For all the above the system should be observed to ensure that the reject system operates correctly.

Other Considerations

In addition to regular manual testing additional fail safe methods can be incorporated into the system design.

- Reject confirmation / Bin Full sensors
 - Air Pressure Failure
 - Fault / Shut down
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