

Innovative Solutions Canada Program

Challenge EN578-170003/30: Postal Small Packet and Package Inspection

Attachment 1

Questions and Answers #1 to #18

This document contains questions and answers related to this challenge.

Question #1:

Is there a drawing available for the existing x-ray system so the proposed solution can satisfy this requirement?

"Easily replace existing x-ray system entrance and exit tunnel"

Response #1:

Drawings of the x-ray system are unavailable, however the measurements of the entrance and exit tunnel are provided.

The tunnel is 0.75m wide

The tunnel is 55 cm high (note the curtains are hung from 71 cm)

Question #2:

Could you please provide the following measurements?

- a) The length of infeed tunnel
- b) The length of outfeed tunnel;
- c) The height off the floor for the surface of the conveyor the mail will be traveling on;
- d) The width of the moving portion of the conveyor

Response #2:

- a) The infeed tunnel pass through is 0.75m wide x 0.5 m long x 55 cm high (note the curtains are hung from 71 cm)
- b) The outfeed tunnel pass through is 0.75m wide x 0.5 m long x 55 cm high (note the curtains are hung from 71 cm)
- c) Standard height is 32" (0.813 m) from floor to belt but this may vary at different locations (from 30" – 35").
- d) The moving belt width is 0.75 m.

Question #3:

- a) Is the need to replace existing conveyors or just modify?
- b) If to modify, is it the same model countrywide or each location has own. I need technical specifications like width, power etc. Some kind of manuals.

c) If to replace, what are requirements to the belt itself from point of x-ray machine like width, speed etc.

Response #3:

The CBSA will consider any solution proposed.

Notwithstanding, it is not clear that the conveyors themselves are the primary issue. Small packages are impeded only when passing through the leaded curtains at the entrance and exit.

For the purposes of this process, the bounds of any solution should fit within the footprint of the x-ray (i.e., all conveyors upstream or downstream should remain the same).

Question #4:

Are the parcels only boxes or are there envelopes too?

Response #4:

There is no standard shape or size. A large proportion of the packages are actually in bags with very limited packing material (e.g., unlined courier bags).

Question #5:

How do the parcels get on the conveyor belt in the first place?

Response #5:

It depends on the line of mail being processed. Generally speaking they are loaded in bulk and mechanically spaced upstream of the conveyor.

Question #6:

Do the parcels have to lay flat (bottom) or could they stay on their side?

Response #6:

No restrictions; though keeping them on a side without having them fall over may be difficult.

Question #7:

Should there be some distance between each parcel?

Response #7:

Ideally, but not necessarily.

Question #8:

Should the parcels all be in one row or, in the case of small boxes, could they fill up the width of the belt?

Response #8:

Packages can be distributed across the width of the belt.

Question #9:

Are people, including operators, in the room with the x-ray equipment?

Response #9:

X-ray operators and other staff work in close proximity to the x-ray machines; radiation safety for these personnel is an Essential Outcome of this challenge.

Question #10:

I understand that an operator has the option to stop the belt for verification. Does he/she stop for each parcel or is the belt constantly moving?

Response #10:

Operational details will be provided (if required) after contract award. Note response to Q3.

Question #11:

If the belt is normally moving, is it a constant speed (how fast?) or could it be regulated?

Response #11:

When moving it moves at 0.2 m/s. Note response to Q3.

Question #12:

After the operator decides that the parcel is good or with question, how are they sorted, mechanically or by person?

Response #12:

Operational details will be provided (if required) after contract award. Note response to Q9.

Question #13:

If the operator decides that the parcel is in question, should a sticker be applied on it?

Response #13:

Operational details will be provided (if required) after contract award.

Question #14:

What is the distance from the belt location where parcels are loaded to the x-ray machine to the place where boxes are unloaded?

Response #14:

Highly variable, depending on mail stream being inspected. Note response to Q3.

Question #15:

What is length of the belt inside x-ray machine?

Response #15:

Variable depending on equipment type; nominally 2.62 m (103")

Question #16:

How much space along the belt could be used if we are talking about modification of existing conveyors?

Response #16:

Note response to Q3.

Question #17:

This challenge is to solve the problem of how to line up parcels and hold them in position to the end. Is this the only problem or are there more?

Response #17:

This is incorrect. The problem to be solved is: how to contain radiation emissions within the x-ray while enabling continuous flow of unimpeded mail. Refer to the challenge description <https://www.ic.gc.ca/eic/site/101.nsf/eng/00062.html>. The Canada Border Services Agency (CBSA) is seeking a radiation shielding solution that will enable the continuous flow and processing of small packets and packages in/out of an x-ray systems without being impeded (i.e., stopped, slowed, or redirected) on a conveyor belt.

Question #18:

The mandatory outcomes and background sections note radiation shields. Is it enough that people will not be people close to the x-ray machine or are additional barriers to reduce/stop radiation required?

Response #18:

This assumption is incorrect.

Note response to Q17.