

CORRECT LOADING OF A CTW

1 STAFF TRAINING & SAFETY

• INTRODUCTION

The following key points should be highlighted within the CTW CoP and stipulated in the operator training programme to limit the hazards and reduce the risk for operators who undertake loading of storage systems which feed a CTW.

1.1 Step Conveyor

- a) The operator should load only at the start/loading end or first compartment of the conveyor and never try to fill at any other position.
- b) The operator should never climb or walk on the conveyor at any position along its length.
- c) The operator should be fully trained in manual handling to ensure the safe lifting of work onto the conveyor.
- d) The operator should wear PPE appropriate for the handling of the soiled work and be trained in its use.

1.2 Monorail System

- a) When loading work into a bag the operator should ensure that all items are fully contained in the bag and none left "hanging" over the bag ring such that they could fall out at a later stage of transfer.
- b) The operator should be made aware of key basic observation requirements to supplement the maintenance programme. The Engineering Department should regularly maintain bag assemblies including release mechanisms and cords to ensure a load is not discharged accidentally.
- c) The operator should be aware of the hazard points at the bag loading/discharge stations which should be correctly guarded, interlocked and signed to restrict access.
- d) The operator should be fully trained in the process of manual handling in order to safely transfer linen from carts/belt conveyors into the monorail bag.

Note: The under-guarding of high level monorail systems should be the subject of a risk assessment to determine the risk of a bag or items falling and causing injury. The maintenance or adjustment of the high level monorail, switch points and bags should be evaluated and a mezzanine construction or other means of safe access provided.

2. The Correct Loading of a CTW to Prevent Blockage

There are two common systems for loading a CTW.

- i) Step Conveyor
- ii) Monorail System

This stage of the Continuous Tunnel Washing Line must be strictly controlled to ensure that the correct size of load is always discharged into the CTW from the conveyor or monorail.

Errors or faults at this stage are the most common cause of CTW blockage.

2.1 Step Conveyor

2.1.1 Description

A step conveyor consists of a belt conveyor normally inclined and often with compartments, to feed the classified work from the low level loading point into the CTW chute. The conveyor is floor mounted and accurate weighing of each load is commonly a design feature. If not, then a remote weighing station should be used or a strict item count regime practised.

The operator must receive precise training in how to correctly operate the system and be critically aware of the weighing or counting procedure.

2.1.2 Operation

The operator loads the conveyor or its first compartment to the correct weight for that particular classification and then selects the wash classification code.

Precise training and written instruction must be posted to define the correct load weights for the soil and fabric type to ensure the correct degree of loading for each batch to be charged.

The CTW automatically calls the step conveyor to progress, discharging the load into the CTW and simultaneously encrypting the weight and wash code to the CTW. The conveyor or next compartment being empty is then ready for loading and the cycle is repeated, dictated by the CTW programme.

To ensure accurate weighing of loads the following routine checks should be made:

- a) Test weights should be loaded onto the conveyor or loading compartment to check the accuracy of the load cells. This should be done at monthly intervals and logged.
- b) Sensors should be checked to ensure that the conveyor only ever moves forward by the correct distance or one compartment at a time.

The operator must ensure the correct weight for each classification as shown on the classification/load weight table. There must be no tendency for an operator to overfill occasionally to finish off a classification load.

NB. Item counting for the loading of conveyors is not advised and it is always recommended that conveyors are fitted with an integral weighing device.

2.2 Monorail System

2.2.1 Description

A monorail system consists of a number of fabric bags, each held on a steel former (often circular and of approximately 80 cm diameter) suspended from a trolley which runs on a steel/aluminium rail. The rail is often inclined, allowing the bag to gravitate and the rail network is interspersed with vertical lift conveyors, switching points, junctions and stops. The bags store and transport individually weighed loads automatically around the monorail system to feed a CTW which is so programmed and inter-linked with the monorail control to call for the correct bag from its storage rail on demand.

2.2.2 Operation

i) Loading a Bag

Depending on the complexity of the monorail system there are various methods of loading a bag.

- a) Manually by operator
- b) Automatically by a load chute
- c) Automatically by a belt conveyor

In all these methods an electronic or mechanical weighing mechanism is used with visual and/or electronic data link to ensure regulation of the load.

The following are critical to the correct operation of the CTW line:

- d) Calibration of the weighing station(s) should be carried out monthly and logged.
- e) The load weight used is correct for the particular classification, i.e. fabric type and soil level.
- f) The Operator strictly follows the loading procedure and does not ignore display nor over fill bag.

ii) Discharging a Load into a CTW

When fed by monorail, the CTW signals the monorail when it is ready to receive a load and the intelligent system will control the automatic transfer of the selected bag in the storage system to discharge its load into the CTW chute as and when called.

There is always a risk that due to a mechanical or control fault more than one bag could be discharged into the CTW which can potentially lead to a blockage if not detected.

To eliminate this risk it is recommended that the following are installed on the monorail system.

- a) A secondary weighing position that checks the weight of each load to ensure that it is in the parameters for each classification. Should an oversized bag be detected an alarm is raised.

- b) Occasionally a second bag can discharge as soon as it moves into position, due to a faulty bag release mechanism. These mechanisms along with the 'D' rings at the base of the bag and bag cord must be checked regularly.
- c) A video camera system or a convex mirror can be installed to enable monitoring of the discharge of the load from the bag into the CTW, however this does require the ability of the operator to observe the load drop on every occasion. Other sensing devices to detect multiple or in-correct bag drops could be considered.