

Hoisting Apparatus and Conveyors

radius to deliver packages onto the lower floor without impact or damage

Some gravity-chute conveyors are built in the form of a spiral around a vertical pipe with a slope at the outer edge between 18 and 30 degrees

In removing packages from the delivery end of spiral chutes, workmen frequently injure their hands, which become caught by descending packages or are mashed against others on the delivery table. Where the chute is enclosed, a warning sign should be placed over the delivery end. A simple mechanical or electrical device that will give warning when a package is about to be delivered from the chute is advisable, especially where the packages cannot be plainly seen in descent.

Spiral chutes present a serious fire hazard because they form flues from lower floors to upper floors through which fire will spread quickly. Two methods of eliminating this hazard are in general use: one is to enclose the chute in a tower made of fire-resistant material, such as steel, concrete, or masonry, the other is to provide automatic fire doors (draft checks) where the chute passes through floors.

The enclosed tower has doors at each charging station and a door at the delivery end. The charging station doors should be kept closed, except when charging is being done. The door at the delivery end should close automatically in case of fire.

Shutoff doors (draft checks) are of two kinds—the vertical sliding and the shutter type. Both types should have fusible links so that they will close automatically in case of fire.

Where an open chute is used, a guardrail and toeboard should be provided at each floor. The charging stations should be guarded either by a movable railing or by a hinged door or gate.

Roller or wheel conveyors Gravity roller or wheel conveyors are similar to chute conveyors, except that the angle of slope is much less (2 to 4 per cent). The conveyors, therefore, can be used to convey packages for considerable distances on one floor. If the rollers or wheels are placed radially instead of parallel, the course of travel can be changed from a straight line to a curve.

The principal hazards in the use of roller conveyors are that material may run off the edge of the rollway and fall to the floor, and that loads may run away. A guard railing often is provided on each side of the roller conveyorway, to guide the material and prevent it from running off. Such guardrails are especially advisable at corners and turns and on elevated conveyors under which men must work or pass.

Where heavy loads are conveyed, retarders, brakes, or similar means should be provided to prevent the loads from running away, or a power conveyor on which speed can be controlled should be substituted.

A vertically swinging hinged section of a roller or wheel conveyor should be hinged to that end of a stationary section of the conveyor from which the material is flowing to help block the oncoming material. The open end of the conveyor line should have a stop that automatically projects above the level of the rollers or wheels when the hinged section is opened and automatically retracts when the hinged section is closed.

Where a horizontally swinging hinged section occurs in a conveyor, the open ends of stationary sections (the two ends adjacent to the hinged section) should be equipped with retractable stops to prevent loads from dropping off the conveyor when the hinged section is open.

Live roll conveyors

A live roll (or roller) conveyor consists of a series of rolls over which objects are moved by power applied to all or some of the rolls through belts or chains.

Where installed at floor level or used in working areas, live roll conveyors should be designed to eliminate hazards from pinch points and moving parts, unless other provisions are made to prevent personnel from coming in contact with or crossing the conveyor.

Vertical conveyors

Vertical conveyors handle packages or other objects in a vertical or substantially vertical direction. The Conveyor Code designates three types:

- **VERTICAL RECIPROCATING CONVEYOR** a power- or gravity-actuated unit that receives