



Bulk-Handling Conveyors

Course 331: Bulk-Handling Conveyors

Covers belt conveyors that carry coal, sand, gravel, grain and other loose materials. Acquaints the trainee with the terminology, basic structure, and operation of these systems. Includes detailed coverage of belts, belt cleaners, idlers, and feed/discharge devices, as well as an explanation of how to install, maintain, replace, and troubleshoot these components.

TPC Training is accredited by IACET to offer **0.5 CEU** for this program.



Lesson 1: Conveyor Components

Topics

Conveyor Profiles; Conveyor Pulleys; Conveyor Idlers; Bulk-Handling Conveyor Belts; Conveyor Drive Packages; Support Components

Objectives

- Describe the basic operation of a bulk-handling belt conveyor and identify its major components.
- Name and explain the function of the different pulleys used in belt conveyors.
- Describe four popular conveyor drive-package arrangements.
- Explain the purpose and the operation of at least four of the support components of a bulk-handling belt conveyor.

Lesson 2: Bulk-Conveyor Belting

Topics

Conveyor-Belt Components; Belt Plies; Storing Conveyor Belts; Handling the Belt; Installation; Squaring Belt Ends and Cutting; Belt Fasteners; Vulcanized Splicing; Tensioning the Belt; Test Run; Retensioning; Preventive Maintenance; Replacing a Belt; Repairing Damaged Sections; Troubleshooting Conveyor Belts

Objectives

- Describe the composition and structure of the three components of a bulk-handling conveyor belt.
- State correct storage and handling procedures for bulk conveyor belts.
- Detail the installation of a belt in a bulk conveyor system, including splicing and tensioning.
- Name the five points that require special attention in a preventive maintenance program for a belt conveyor system.

Lesson 3: Belt Cleaners and Idlers

Topics

The Need for Belt Cleaners; Blade Belt Cleaners; Brush Belt Cleaners; Plow-Type Belt Cleaners; Belt Cleaning by Rollover; Using Deck Plates; Self-Cleaning Return Idlers; Wing Pulleys; Installing Belt Cleaners; Testing; Preventive Maintenance; Inspection and Maintenance; Troubleshooting Belt-Cleaning Devices

Objectives

- Describe the design and placement of blade, brush, and plow belt cleaners and the applications for which each one would be used.
- Name and describe the different types of blade belt cleaners.
- Describe the process of belt cleaning by rollover.
- Explain how devices such as wing pulleys, self-cleaning return idlers, and deck plates function as parts of a belt cleaning system.
- Describe the appropriate safety precautions to take when installing or maintaining belt cleaners.
- List the essential features of preventive maintenance and inspection for a belt cleaning system.

Lesson 4: Feed and Discharge Devices

Topics

General Considerations; Factors in Loading; Discharge Factors; Using Skirting Devices; Skirtboard Heights; Skirtboard Edgings; Intermediate Skirting; Hoppers; Hopper Accessories; Chutes at Loading Points; Chutes at Discharge Points; Spouting; Inspection and Preventive Maintenance; Troubleshooting

Objectives

- Explain two important factors in efficient conveyor loading and how they are affected by the two ways (directions) in which belt conveyors are loaded.
- Describe the construction and the purpose of skirtboards.
- Differentiate between a deadbed and a bed of fines and detail the use of both in chute loading of conveyors.
- Name and explain the operation of three special types of discharge spouts.

Lesson 5: Safety and Troubleshooting

Topics

Conveyor Characteristics; Conveyor Identification; Conveyor System Profiles; Loading and Discharge Points; Emergency Controls; Working Near Running Conveyor Systems; Preparing for Conveyor Maintenance; The Belt; Idlers; Pulleys; Conveyor Drive Systems; Cleaning Up After Maintenance; Test Running; Common Problems and Possible Remedies

Objectives

- Differentiate between a conveyor profile and a system profile.
- Point out the special hazards for workers at conveyor loading and discharge points.
- Explain the function and operation of the following emergency controls: electrical interlocks, backstops, level switches, pull-cords, and conveyor belt alignment switches.
- Name at least five safety measures employees should take to protect themselves when working on or near bulk-handling conveyors.
- Describe the three-step procedure for preventing accidental startup of a conveyor during maintenance work.
- Name at least one specific chore or safety caution required in maintenance work on each of the following: belts, idlers, pulleys, and drive systems.
- Identify common problems (and their probable causes) found in troubleshooting idlers, pulleys, takeup bearings, and conveyor drives.