



## FOUNDATIONS™ TRAINING

HELPING PLANT PERSONNEL  
RUN CLEANER, SAFER AND  
MORE PRODUCTIVE CONVEYORS

L3862



## CLEANER, SAFER, MORE PRODUCTIVE

Belt conveyors are the basic building block of bulk-materials handling. For a plant to be efficient, the conveyor systems must be clean, safe and productive.

The two goals of any bulk-materials handling operation should be to improve conveyor safety and to improve conveyor efficiency.

To better help your operation achieve these goals, Martin Engineering has expanded the Foundations™ training workshop into three programs to fit the needs of individuals and companies with varied levels of experience and responsibility.

All programs offer the opportunity for customization/localization (by prior arrangement) to feature images and discussion of specific equipment, conditions and problems.

Over the past 20 years Martin Engineering has presented over 500 workshops to more than 15,000 participants from bulk-materials-handling operations around the world, enabling workers to operate and maintain cleaner, safer and more productive belt conveyors.

The results of Foundations™ Training:

- Personnel are properly trained
- Belt conveyors are more efficient
- Plant is cleaner, safer and more productive
- Operation is more profitable!

## *Problem Solved™*



# FOUNDATIONS™ BOOK

## THE PRACTICAL RESOURCE FOR CLEANER, SAFER, MORE PRODUCTIVE DUST & MATERIAL CONTROL

As a part of its mission to bulk materials handling operations around the world, Martin Engineering has published the fourth edition of Foundations™, its comprehensive book on improving belt conveyors and controlling fugitive material.

This new edition of Foundations™ is an authoritative reference on “Why” and “How” to improve conveyor productivity. The 576-page hardcover volume is a key resource for controlling fugitive material in facilities that use belt conveyors to handle bulk materials and provides useful information for personnel at all levels from “new hire” laborers to senior engineers and executives.

For more information about the book and its authors, to order a hard copy of the book, to access additional resource materials or to download a FREE digital copy of the entire book, please visit [martin-eng.com/F4](http://martin-eng.com/F4).



# FOUNDATIONS™ TRAINING

The contents of the Foundations™ Book are amplified in a series of training programs discussed on the following pages. These presentations may qualify for Continuing Educations Units (CEUs) or Professional Development Hours (PDHs); they may also qualify as part of the Parts 46/48 Annual Refresher Training.



## BASIC TRAINING

Two-hour basic introduction to belt conveyors and their components and conveyor safety considerations for those employees who are unfamiliar with conveyor belt systems.

*Attendees' feedback:*

*"Very beneficial... no sales pitch involved... just down-to-earth, hands-on training."*

*"Very good knowledge regarding belt conveyors... I still refer to class materials."*





## AUDIENCE

Entry-level employees who are unfamiliar with belt conveyor systems

## DETAILS

One 2-hour session

Crosses cultural boundaries

“Wordless” course materials for illiterate or non-English speaking audiences

Can be presented at customer site or neutral location

## CONTENTS

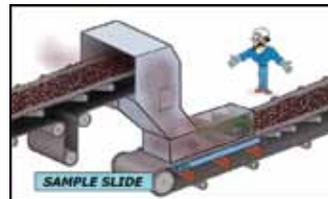
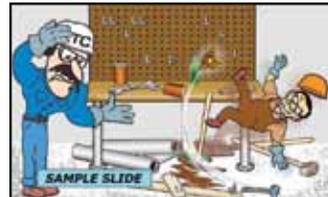
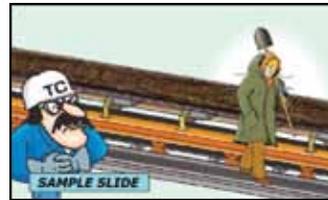
Basic conveyor components

Conveyor safety

Principles of fugitive-material control

## BENEFITS

Improved safety; understanding of the importance of belt conveyors and the impact of conveyor efficiency; appreciation for the cost of fugitive material and the benefit of clean operations





# OPERATIONS AND MAINTENANCE

Full-day (6-8 training hours), in-depth session covering methods to improve the safety, performance and the payback of belt conveyors by controlling fugitive material and improving system efficiency. Optional customized second-day program also available.

*Attendees' feedback:*

*"Spectacular training presentation. ...Content was excellent; delivery and demeanor made this a most enjoyable and worthwhile experience..."*





## AUDIENCE

Plant employees charged with operating and maintaining belt-conveyor systems as well as the supervisors and managers of these employees

## DETAILS

One day (6 to 8 training hours)

Options include customized content, a customized second-day program, incorporated site survey prior to training program

Can be presented at customer plant, conference center, or Martin Engineering facility

## CONTENTS

Introduction to material handling

Conveyor safety

Belt alignment

Belting and splices

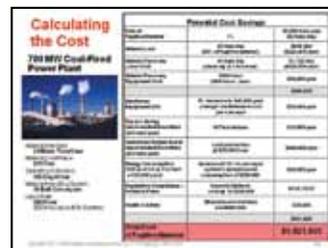
Belt cleaning

Transfer point improvement

Basic dust management

## BENEFITS

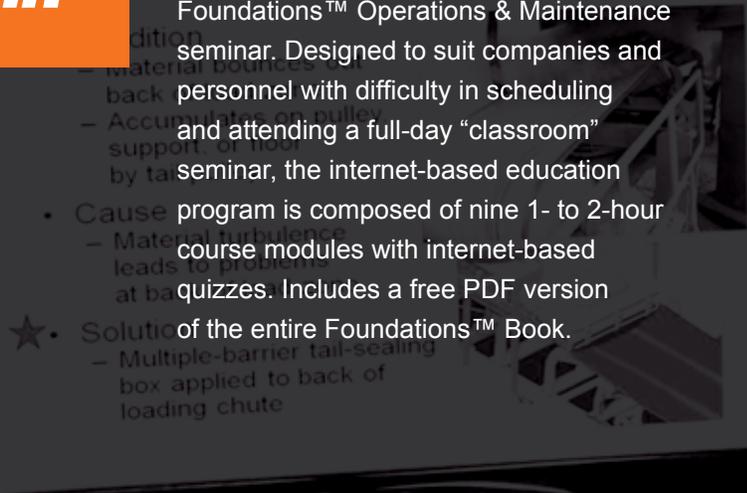
Improved safety; better appreciation of conveyor operations and the cost/benefit relationship of improved systems; better understanding of opportunities presented by advanced conveyor systems for improved performance and greater profitability; better understanding of systems available to improve conveyor operations and how to justify/validate the investment required





# OPERATIONS AND MAINTENANCE ONLINE

Online, self-paced version of the Foundations™ Operations & Maintenance seminar. Designed to suit companies and personnel with difficulty in scheduling and attending a full-day “classroom” seminar, the internet-based education program is composed of nine 1- to 2-hour course modules with internet-based quizzes. Includes a free PDF version of the entire Foundations™ Book.





## AUDIENCE

Companies and personnel with difficulty in scheduling and attending a full-day “classroom” seminar

## DETAILS

Composed of nine course modules, each ending with an internet-based quiz

Each module takes 1 to 2 hours to complete

## CONTENTS

Material handling basics

Conveyor safety

Belt alignment

Belt cleaning

Transfer point improvement

Belts and splices

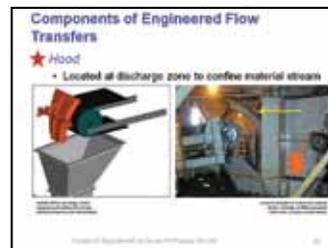
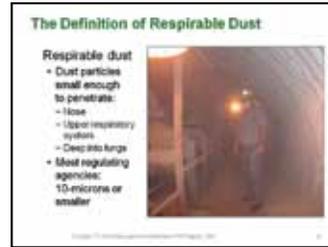
Leading-edge technologies

Dust management

Total material control

## BENEFITS

Flexibility to achieve the same benefits as a traditional classroom operations and maintenance seminar





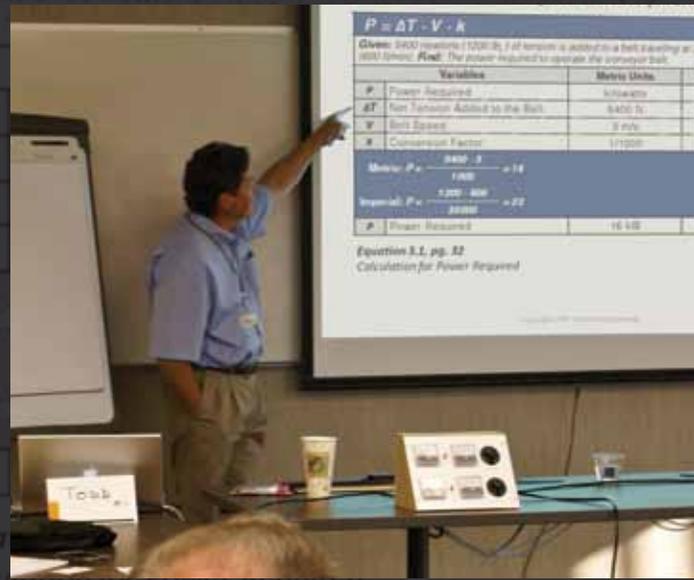
# ADVANCED ENGINEERING

Half- to full-day (4-8 hours) program focused on the improvement of belt-conveyor operations and the justification of the investment in systems to reduce fugitive material, control dust, extend component life and improve the performance of both conveyor systems and plant personnel. Optional customized second day program also available.

*Attendees' feedback:*

*"I thought I knew about conveyor belts until I took this class... Very good presentation."*

*"Simple solutions to ongoing problems... Very useful."*





## AUDIENCE

Engineers and managers responsible for development or management of belt conveyors to handle bulk materials

## DETAILS

Half- to full-day program (4 to 8 training hours)

Optional customized second-day program available

Typically presented at Martin Engineering's Center For Innovation training and R&D facility in Neponset, Illinois, USA

## CONTENTS

Total material control

Applying material science to conveyor design

Better conveyor designs/changing the paradigm

Critical components to control fugitive material

Designs to minimize and systems to control dust

Performance measurements

Demonstrating the payback from system improvements

## BENEFITS

Better understanding of opportunities presented by advanced conveyor systems for improved performance and greater profitability; better understanding of conveyor operations and the cost/benefit relationship of improved systems; better understanding of systems available to improve conveyor operations and how to justify/validate the investment required

$$F = W + \sqrt{2 \cdot k \cdot W \cdot N_s}$$

Example: A large pile of material with a weight density of 470 pounds/100 ft<sup>3</sup> (120 lb/ft<sup>3</sup>) and a friction coefficient of 0.35 is piled up to a height of 100 ft. The required force needed to lift the pile of material.

Parameter	Value	Units
Weight Density	470	lb/ft <sup>3</sup>
Friction Coefficient	0.35	-
Pile Height	100	ft
Force Needed	100,000	lb

Load Zone Sample Problems

Figure 11.16, Page 164  
Sample Problem #1

Parameter	Value	Units
Weight Density	120	lb/ft <sup>3</sup>
Friction Coefficient	0.35	-
Pile Height	100	ft
Force Needed	100,000	lb

Characteristics of Conveyors that Passes the Cleaning System

Parameter	Value	Units
Weight Density	120	lb/ft <sup>3</sup>
Friction Coefficient	0.35	-
Pile Height	100	ft
Force Needed	100,000	lb



#### GLOBAL LOCATIONS

 UNITED STATES

 GERMANY

 SPAIN

 AUSTRALIA

 INDIA

 SOUTH AFRICA

 BRAZIL

 INDONESIA

 TURKEY

 CHINA

 MEXICO

 UNITED KINGDOM

 FRANCE

 PERU

Authorized representatives in over 32 additional countries

#### MARTIN ENGINEERING USA

One Martin Place

Neponset, IL 61345-9766 USA

800-544-2947 or 309-852-2384

[info@martin-eng.com](mailto:info@martin-eng.com)

[www.martin-eng.com](http://www.martin-eng.com)

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