



# **SAFETY FIRST™ PRODUCTS & SOLUTIONS**

L3856



# PROBLEM







## HAZARDS OF CONVEYORS

Conveyors are one of the best productivity-enhancing tools available, but conveyor injuries cost employers millions of dollars annually. The main hazards related to belt conveyors are mechanical, including moving components (e.g., idlers, pulleys, belt) that can cause damage by entrapment in nip points, abrasion and burns; and pinching zones (e.g., feeder, skirt-board, skirt-board seal) that can cause damage by shearing and crushing. All of these hazards are preventable with the right training, preparation and safety precautions.

Because of the size of their material cargos, the speed of their operation and the amount of energy they consume and contain, conveyors have shown to be a leading cause of industrial accidents, including serious injuries and fatalities.

A report from the Mine Safety and Health Administration (MSHA) in the United States examined conveyor accidents in metal/nonmetal mines recorded over the four-year period from 1996 to 2000. During this time span, there were 459 accidents of which 22 were disabling and 13 were fatal.

42% of the reported injuries (including 10 fatalities) occurred while performing maintenance, lubricating or checking the conveyor.

39% of the reported injuries (including 3 fatalities) occurred while cleaning or shoveling around the belt conveyors.

In South Africa, the Conveyor Belt Systems Safety in Mines Research Advisory Committee's report examined more than 3000 accidents (including 161 belt conveyor fatalities) between 1988 and 1999. In findings that echoed the MSHA report, the document noted that "people working on moving conveyors, inadequate guarding and ineffective locking out stand out as major causes of conveyor accidents." According to the report, injuries most frequently result from people working at the tail pulley, head pulley, idlers and loading chutes.



# SOLVED

MARTIN



## THE MARTIN SOLUTION

On average, forty miners are injured each year by material falling from belt conveyors. Although these injuries are generally not serious, almost half result in lost work time. Over a five-year period, the average number of lost-work days per injury was 12 at metal and nonmetal mines and 23 at coal mines.

The use of skirt boards can limit the amount of material that falls from conveyors. The skirt boards should be placed at “high-risk” areas along the belt line, where these types of accidents are more likely to occur.

Realigning belts is one of the highest-risk activities involving conveyors. When alignment is attempted on a moving belt, workers can get hands, tools or

clothing caught in machinery, be struck by components or be pulled into pinch points where they may lose a limb or be crushed. Utilizing track-mounted impact and support cradles and troughing idlers will simplify installation and maintenance.

Most importantly, don't take chances around conveyor belts. Don't perform work that will expose you to pinch points, like clearing material from a roller, while the belt is moving. Only work on a conveyor that is properly locked and tagged out.

Install guards or devices to prevent inadvertent contact with pinch points.

Provide training for workers who work near conveyor systems.



# SAFETY FIRST™ PRODUCTS

In the last 10 years, employee safety has come to the forefront. We agree this is a good idea. Governing bodies are expanding regulatory pressures and requirements and enforcing large fines for violators. That's why safety has been designed into our products and solutions since 1944.



## **EVO® IMPACT CRADLE**

Rugged cradle cushions high levels of loading impact. Individual, short-length bars are ergonomic and absorb impact while minimizing belt friction. Track-mounted to simplify installation and maintenance.



## **EVO® TROUGHING IDLER IMPACT**

Absorbs impact and helps control and train the belt. Requires minimal space for installation and service. Track-mounted to simplify installation and maintenance.



## **EVO® SLIDER CRADLE**

Stabilizes belt line to eliminate spillage and prevent entrapment. Low-friction bars provide double-sided wear life. Track-mounted to simplify installation and maintenance.



## **EVO® RETURN ROLLER**

Requires minimal rigging and heavy lifting. Sliding track-mounted design reduces risk of injury and allows for quick and easy replacement. Designed to allow for service from one side of the conveyor.



## **EVO® EXTERNAL WEAR LINER**

Installs outside the skirtboard to simplify installation and service. Allows inspection and maintenance without confined space entry. No open space between liner and seal to capture material.



### **MARTIN® THERMO SAFETY SHIELD**

Manual slide gate safety valve allows timely maintenance on air cannons in high-temperature processes without requiring the tank be dismantled. Shelters workers from exposure to severe heat, gases and high-temperature material.



### **MARTIN® TWIST™ TENSIONER**

Can be used on either pre-cleaners or secondary cleaners. Twist the housing the specified number of notches (determined by belt width) and lock in place. If blades pull through, the tensioner's coupling rolls over, releasing pressure and reducing the risk of harm.



### **CARTRIDGE-MOUNT SECONDARY CLEANERS**

#### **MARTIN® SQC2S™ CLEANER • DT2 CLEANER & DT2 CLEANER XHD • SAF2™ CLEANER**

Easy and safe cartridge removal procedure: remove pin, slide out cartridge, service and return. Compact secondary belt cleaner design allows installation in close quarters; narrow profile resists material buildup.



### **MARTIN® CARRYBACK CAPTURE SYSTEM**

Allows for the addition of secondary and tertiary cleaners outside the head chute and returns removed carryback to the cargo stream. Reduce worker risks and cleanup costs through the movement of carryback away from moving parts and confined spaces.

# SAFETY FIRST™ SOLUTIONS

Martin provides a wide variety of safety products and accessories for protecting workers from hazards and risks. Backed by our “Absolutely No Excuses” Guarantee, every Martin product ensures you never have to apologize for performance. Contact us for information on local product pricing.



## MARTIN® DUST CAPS

“Pyramids” prevent material accumulation around conveyor base. Urethane caps slide onto steel structure to eliminate buildup. Sizes and models suitable for new construction or retrofit.



## MARTIN® SAFETY LABELS AND HARD HAT STICKERS

Notifies workers of dangerous areas of physical risk. CEMA-approved, reflective labels for all critical areas surrounding conveyors. Custom logo design and sizes available.



## MARTIN® IDLER ALIGNER

Handle and comb allow for course adjustment, while slots allow for finer tuning. Eliminates the need to tie idlers to surrounding structure. Features a hole for padlock placement to restrict access.



Rubber door



Steel door

## MARTIN® INSPECTION DOORS

Martin® Inspection Doors feature a low profile that minimizes dust accumulation on the door and frame while providing a dust-tight seal. It provides safe and secure entry to critical maintenance areas. The handle of the door stands less than 2 inches (50 mm) above the enclosure wall, so there's minimal “sill” area where material can accumulate.



# SAFETY FIRST™ GUARDING



Conveyors and pulleys should be equipped with metal guarding to deny employees access to areas of the machinery including nip points and moving parts.



## **MARTIN® CONVEYOR GUARDS**

Improves Safety - Mesh guards allow for inspection while keeping workers safely away from moving parts and pinch points.

Simple Installation - Wedge clamps allow panels to be removed and reinstalled quickly. Locking tags included for extra security.

Universal Design - Guards are available in several sizes and can be used in a variety of combinations to fit almost any application. Systems can be easily expanded or relocated as needed. Custom guarding design is available upon request.

Self-Supporting - Rugged modular design installs on supplied angle iron structure and does not need to attach to conveyor equipment.



## **MARTIN® RETURN ROLLER GUARD**

Features quick release pins which allow access to the grease fittings within the return roller without the need to remove the guard. Has openings large enough for fines to fall through, but small enough to prohibit access to moving parts when the conveyor is running.

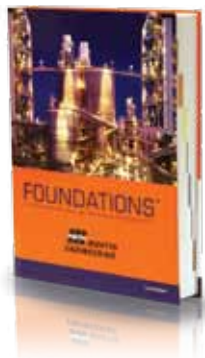


## **MARTIN® RETURN ROLLER BASKET**

Designed to guard the return roller to improve plant safety and productivity. An economical way to improve safety and meet the growing demands of government regulations. Solid steel construction covers all major return roller manufacturers.

# FOUNDATIONS™ SAFETY TRAINING

These workshops, a series of seminars, will train plant operating and maintenance personnel and engineers about belt conveyors – how they work and how to make them work better and safer.



## FOUNDATIONS™ BASIC TRAINING

Basic introduction to belt conveyors and their components, and conveyor safety considerations.

## FOUNDATIONS™ OPERATIONS AND MAINTENANCE

In-depth look at methods to improve the safety, performance and payback of belt conveyors, through controlling fugitive material and improving system efficiency.



*New option! Now available on-line!*

## FOUNDATIONS™ OPERATIONS AND MAINTENANCE ON-LINE

The Operations and Maintenance Workshop is also available as on-line training. The internet-based program is composed of nine modules totaling between 10 and 12 hours of content. Each module concludes with a quiz; finishing all modules earns the learner a certificate of completion.

## FOUNDATIONS™ ADVANCED ENGINEERING

Focused on the improvement of belt conveyor systems, and the justification of the investment in systems to reduce fugitive material, control dust, extend component life and improve the performance of both conveyor system and plant personnel.

# MARTINPLUS® SAFETY SERVICES



Martin offers a comprehensive selection of in-plant services, all focused on improving the handling of bulk materials. These specialized capabilities will improve the safety and productivity of an operation straight to the bottom line.

## MARTINPLUS® INSTALLATION SERVICES

New construction or retrofit, from belt cleaners to engineered belt-to-belt transfers, MartinPLUS® Installation Services handles the installation of material handling systems and components. Focus and experience with material handling systems makes certain project completion is on-time, on-spec and on budget.

## MARTINPLUS® SPECIALIZED MAINTENANCE SERVICES

MartinPLUS® Specialized Maintenance Team will take ownership for the maintenance of your belt conveyors and other systems, with standard packages and customization opportunities to meet your requirements.



## MARTINPLUS® PROCESS IMPROVEMENT SERVICES

From material analysis to silo cleaning, MartinPLUS® offers advanced services that can take your operation to the next level. MartinPLUS® Process Improvement Services looks for the opportunities that will make a critical difference in your plant's performance and profitability.





#### GLOBAL LOCATIONS

 UNITED STATES

 GERMANY

 SPAIN

 AUSTRALIA

 INDIA

 SOUTH AFRICA

 BRAZIL

 INDONESIA

 TURKEY

 CHINA

 MEXICO

 UNITED KINGDOM

 FRANCE

 PERU

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