

# SELECTING THE RIGHT BELT CLEANER

---

A Comprehensive Guide



# TABLE OF CONTENTS

## 01

### INTRODUCTION

Discover the key factors to consider when choosing a belt cleaner to ensure optimal performance.

## 02

### BELT SPEED

Understand why belt speed matters and how to factor it into your belt cleaner selection.

## 03

### BELT AND MATERIAL PATH WIDTH

Learn why properly matching the belt cleaner blade width to the material path is important.

## 04

### HEAD PULLEY DIAMETER

Determine if the belt cleaner is correctly sized to the head pulley to avoid poor belt cleaning performance.

## 05

### MATERIAL TYPE

Assess the type of material being conveyed to determine what kind of specially-formulated urethane will provide the best results.

## 06

### APPLICATION TEMPERATURE

Review how the operating temperature affects blade wear and cleaning performance.

## 07

### SPLICES

Explore what types of splices are most compatible with belt cleaners and how to properly prepare them.

## 08

### SECONDARY AND TERTIARY CLEANERS

See how multiple-cleaner systems provide unsurpassed carryback removal.

**\* EXCLUSIVE BELT CLEANER SELECTION CHECKLIST INCLUDED**



# INTRODUCTION

## BELT CLEANERS ARE NOT ONE-SIZE-FITS ALL

In order for your belt cleaners to effectively remove carryback, they must be well-suited to their application. Choosing the right belt cleaner requires assessment of several different factors. Belt speed, belt width, head pulley diameter, material type, material path width, types and quantity of splices, and application temperature all influence which cleaner will be the most effective.

# BELT SPEED

**FASTER BELTS  
REQUIRE  
STRONGER  
MAINFRAMES**

Each belt cleaner is unique. This means that every belt cleaner and every mainframe is designed and manufactured with a variable amount of strength.

When a conveyor system's belt speed exceeds the maximum range of a belt cleaner, it can cause the cleaner to vibrate, deflect, and possibly bend the mainframe. Correctly matching the belt speed of the conveyor to an appropriate belt cleaner is crucial to ensuring proper blade-to-belt contact and maintaining optimal cleaning performance.

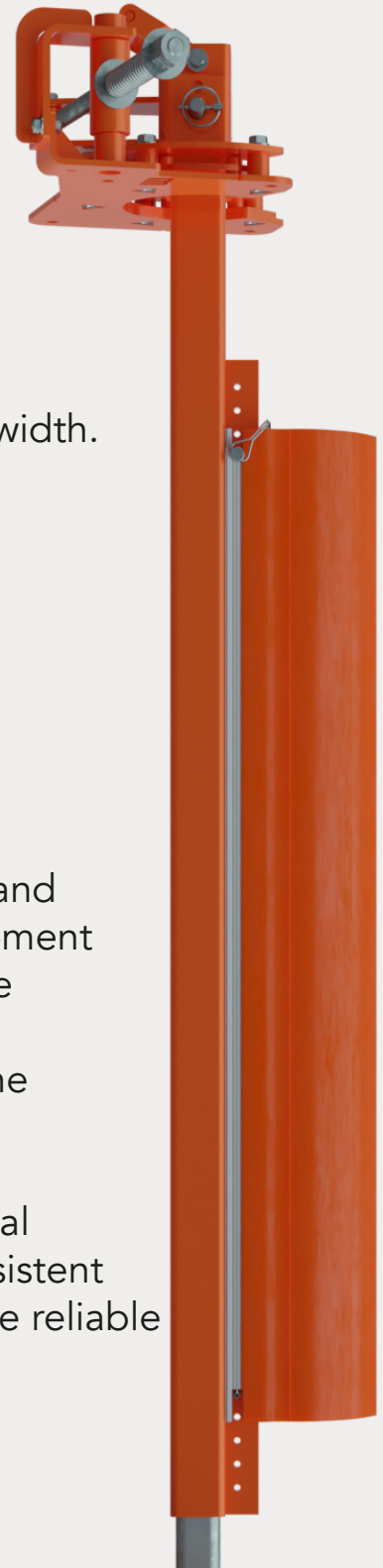
# BELT AND MATERIAL PATH WIDTH

Accurately specifying the blade width for a belt cleaner requires knowing both the belt width and the troughing angle. This ensures that the cleaner matches the material path and delivers consistent performance.

- Blades for flat belts should be 2 inches less belt width.
- Blades for belts with a 20° trough angle should be 4 inches less belt width.
- Blades for belts with a 35° trough angle should be 6 inches less belt width.
- Blades for belts with a 45° trough angle should be 8 inches less belt width.

Improper blade sizing can lead to subpar cleaning and uneven blade wear. A common issue is the development of a “smiling” blade—where the center of the blade wears faster than the edges due to poor alignment with the material flow. This uneven wear shortens the cleaner’s effective life and reduces performance.

By properly matching the blade width to the material path, the urethane wears evenly and maintains consistent contact with the belt. This solid contact helps ensure reliable material removal throughout the cleaner’s lifespan.



# HEAD PULLEY DIAMETER



**KEEP A CONSISTENT  
SURFACE AREA  
CONTACTING THE  
FACE OF THE BELT  
ALONG THE RADIUS  
OF THE PULLEY**

If the belt cleaner is not properly sized to the head pulley of the conveyor it will not maintain the proper angle of attack and surface area contact, resulting in poor cleaning performance and reduced wear life.

Larger head pulleys require larger belt cleaners and blades to properly match their radius while smaller head pulleys require smaller belt cleaners and blades to properly match their radius.

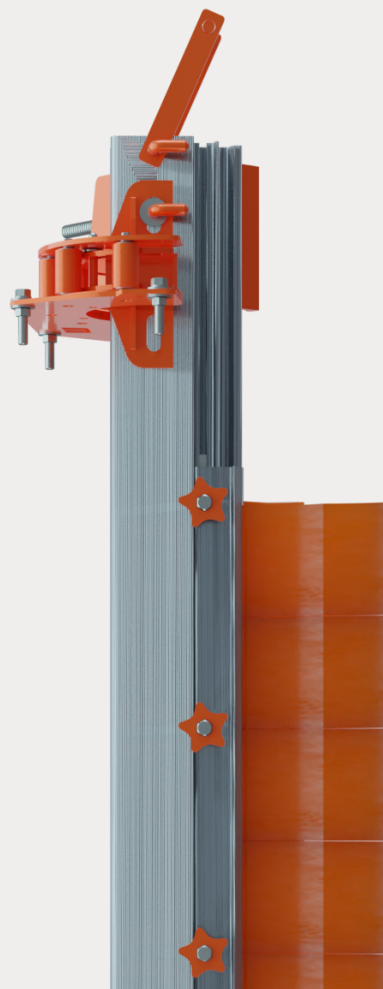
# MATERIAL TYPE

Whether the material you run is dry, muddy, or anywhere in between it is important to base your belt cleaner selection on your operation's material type. Factors like material temperature, moisture, and chemical composition all influence which urethane is needed to keep your blades operating at maximum efficiency.


Be mindful of changes in material characteristics due to changes in the material source or environment.

Specially engineered urethane formulations provide optimal cleaning performance and maximum wear life over different applications.

**MATCHING THE  
RIGHT TYPE OF  
URETHANE BLADE  
TO THE APPLICATION  
ENSURES OPTIMAL  
CLEANING  
PERFORMANCE**



# APPLICATION TEMPERATURE



Urethane blades are formulated to handle certain operating temperatures. Matching the appropriate urethane blade to the conveyor system's operating temperature helps ensure optimal cleaning performance and maximum wear life.

Applications that exceed the blade's acceptable temperature range will suffer unusual wear as the urethane melts under excessive temperatures, leading to poor cleaning performance, premature wear, and shortened blade life.

**MATCH THE  
URETHANE OF  
THE BLADE TO  
THE OPERATING  
TEMPERATURE**



# SPLICES

Types of splices play a part in belt cleaner performance and in potential damage to the blade. A vulcanized splice is the preferred splicing method as far as belt cleaners are concerned. Vulcanized splices allow the cleaner to maximize cleaning performance as well as extend blade life.

A mechanical splice should be skived or properly dressed to allow for proper cleaning and sealing. If impossible to properly recess a mechanical splice, a splice should be dressed by grinding away the high spots or encapsulating

the splice to protect both it and the belt cleaner from impact damage. A damaged/gouged blade due to improper mechanical splices/skiving won't be able to clean as intended.

**ALWAYS CHOOSE  
VULCANIZED SPLICES  
WHEN AVAILABLE**



# DO YOU NEED A SECONDARY? TERTIARY?



Primary belt cleaners with urethane blades typically remove between 50 and 70 percent of material carryback. In some applications, this reduction in carryback is adequate in maintaining clean, safe, and productive conveyor operations. In other instances, secondary and even tertiary cleaners may be required to adequately and successfully ensure optimal cleaning and operation.

Secondary belt cleaners take into consideration the changing dynamics of the belt surface as it rounds the head pulley. Any material that evades the primary cleaner blade will then encounter the secondary, further eliminating carryback issues. Secondary cleaners are specially designed and engineered to provide additional cleaning past the point of discharge to increase overall belt cleaning performance. They run at a different angle compared to a primary cleaner which makes them unsuitable on belts that experience reversing or roll back.

When only water or small particles remain, a tertiary can be used to finish the job. These are installed past the snub pulley, outside of the discharge chute allowing for easy return of material to the main material flow.

**THE ADDITION OF SECONDARY AND TERTIARY  
CLEANERS CAN PROVIDE AS MUCH AS  
90 - 95% OF CARRYBACK REMOVAL.**



# BELT CLEANER SELECTION CHECKLIST

---

What is the speed of the belt?	
What is the width of the material path?	
What is the diameter of the head pulley?	
What type of material are you conveying?	
What is the temperature of the application?	
How many splices are on the belt?	
What kind of splices are present?	

\* Each of these factors are essential in choosing the right belt cleaner for your application. Have these values ready when you contact your Martin Engineering representative.

**MARTIN-ENG.COM | INFO@MARTIN-ENG.COM | 800-544-2947**



# PRODUCT CATALOG

---

Our product catalog contains all product lines and each & every product, making it the perfect resource for bulk material handlers!

**GET YOUR COPY HERE!**

