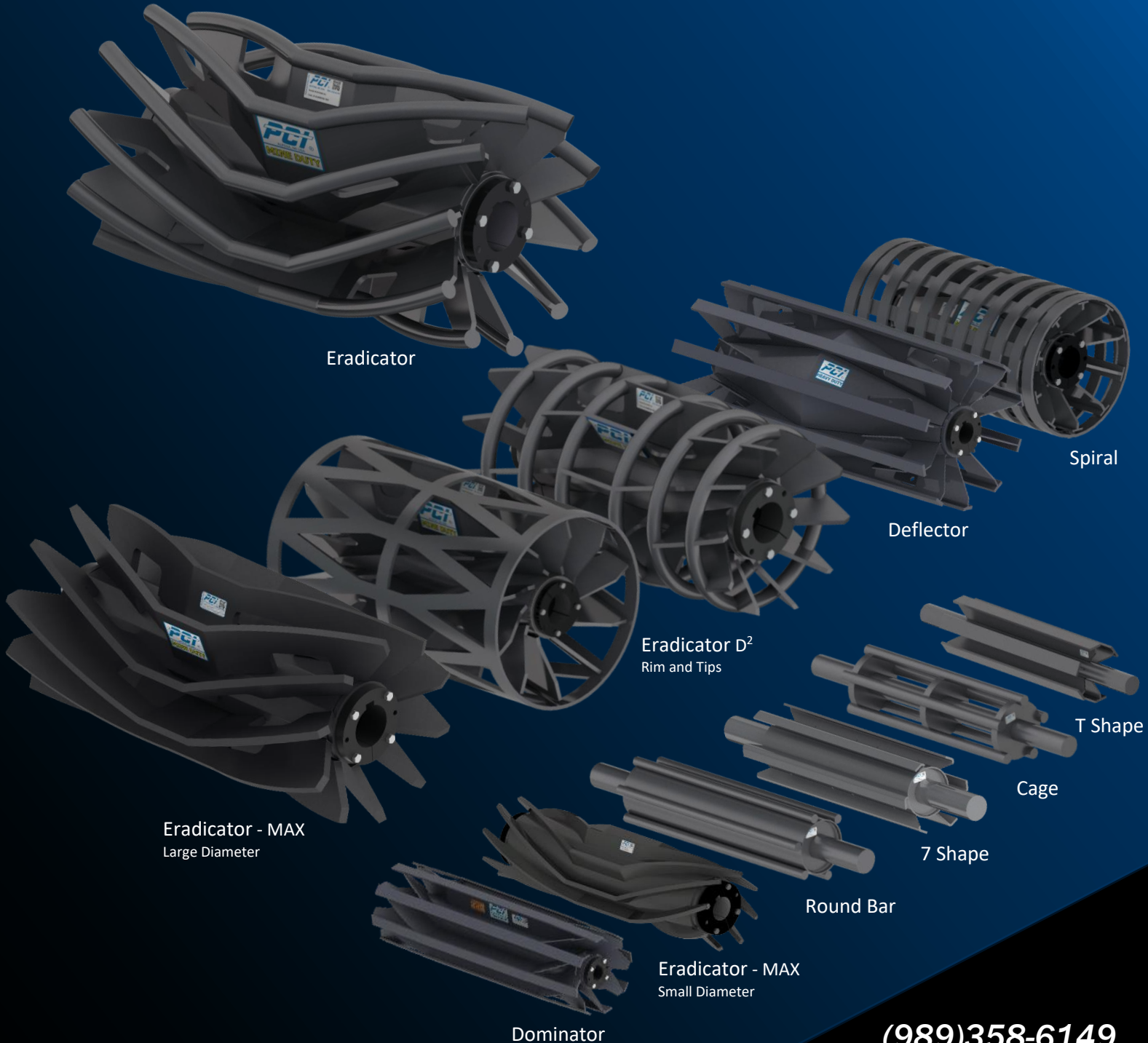


## Built to Last, Built to Perform

North America's largest selection of true self-cleaning pulley solutions ranging from 4" to 60" diameter. PCI's patented technologies are field proven to maximize component life and increase performance.



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# CONVEYOR PULLEYS

## Self-Cleaning Wing Pulleys



### What design factors impact life and longevity of a Wing Pulley?

Also known as self-cleaning pulleys, wing pulleys are primarily used on the tail end of bulk handling systems. Typical robust wing construction incorporates support gussets, and sometimes outer support rings, both of which act as braces for the wing members under heavier loads. Because loose debris tends to reside on the underside of the belt, causing damage to one or more components, inadequate construction can lead to undesirable performance, shortened life and even failure. Maximized component longevity equates to three critical areas:

$$\text{WEAR LIFE} = \text{Clean Out Rate} + \text{Geometry} + \text{Material}$$

## 1) CLEAN OUT RATE

### WHY IS CLEANOUT RATE IMPORTANT?

The faster a properly sized wing pulley cleans out loose debris, the longer it will last. It is that simple. Recirculating particulate detracts from the life of the conveyor belt, idlers, and bearings. Self-cleaning pulleys with proven cleanout designs work to lengthen the life of your system components by quickly ejecting particulate that wear and damage exposed surfaces.

### DOES DEBRIS SIZE IMPACT PULLEY SELECTION?

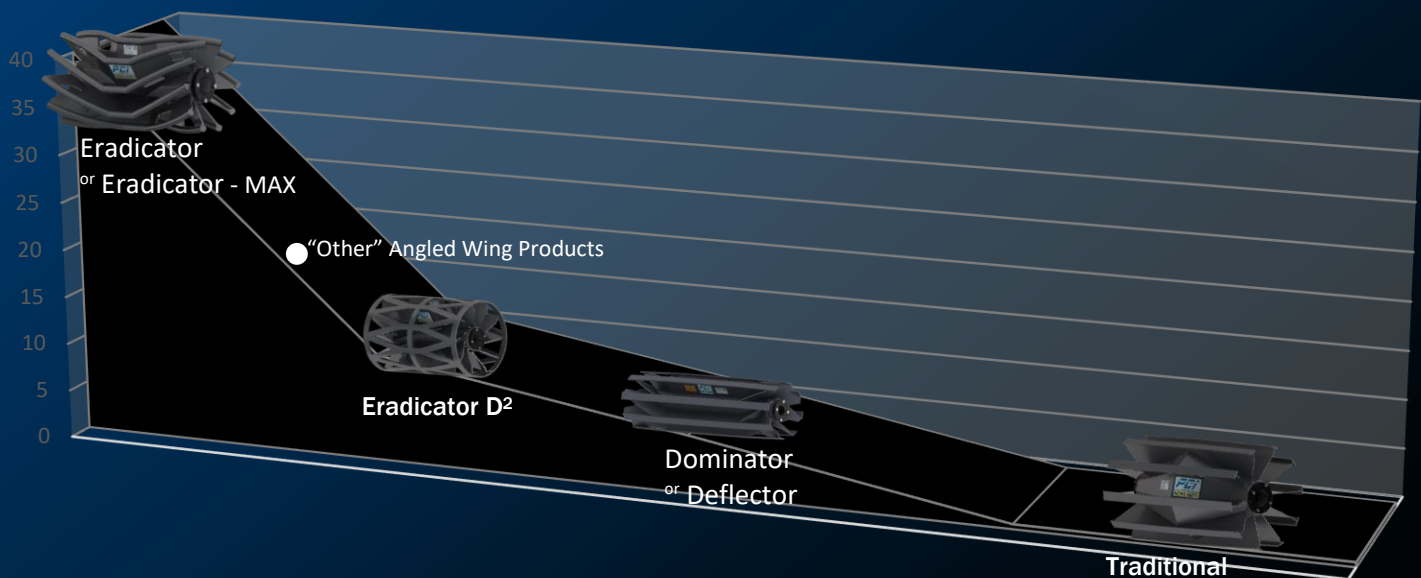
The size of the open voids in the construction of a self-cleaning wing pulley determines its degree of cleanout efficiency. Wing pulleys with larger openings are best suited for eliminating debris.

### DOES PULLEY CONTACT AFFECT VIBRATION AND NOISE?

Wing pulley to belt contact directly affects belt vibration and noise. While vibration plays an important role in knocking particulate off the belt, too much can cause damage to system components and increase operational noise. Wing pulleys designed to achieve continuous contact with the conveyor belt work to optimize vibration and decrease noise.

### DOES CONVEYOR BELT DIRECTION LIMIT WING PULLEY CHOICES?

The design of the wing pulley will influence its performance in applications where the conveyor belt runs in both directions. Reversing applications require a wing pulley designed to not only eliminate the unwanted debris but assist in tracking the belt in both directions as well. Products such as the Eradicator D<sup>2</sup> excel in these environments.



# CONVEYOR PULLEYS

## Self-Cleaning Wing Pulleys

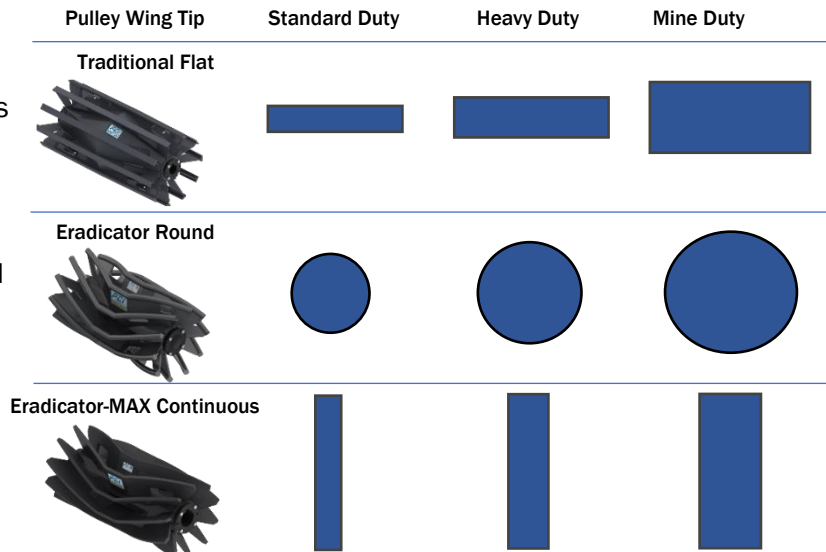


## 2) GEOMETRY

Once clean out rate is maximized, the next life and longevity variable is component geometry. There is little uniformity across the industry for component thicknesses or minimum requirements. Profile (shape) and thickness of these contact surface components has significant impact on wear life surfaces of both the pulley and the belt.

PCI wing pulleys feature increased tip thickness as you graduate through the series.

Example, Heavy Duty tips are thicker than Standard Duty but not as robust as Mine Duty.



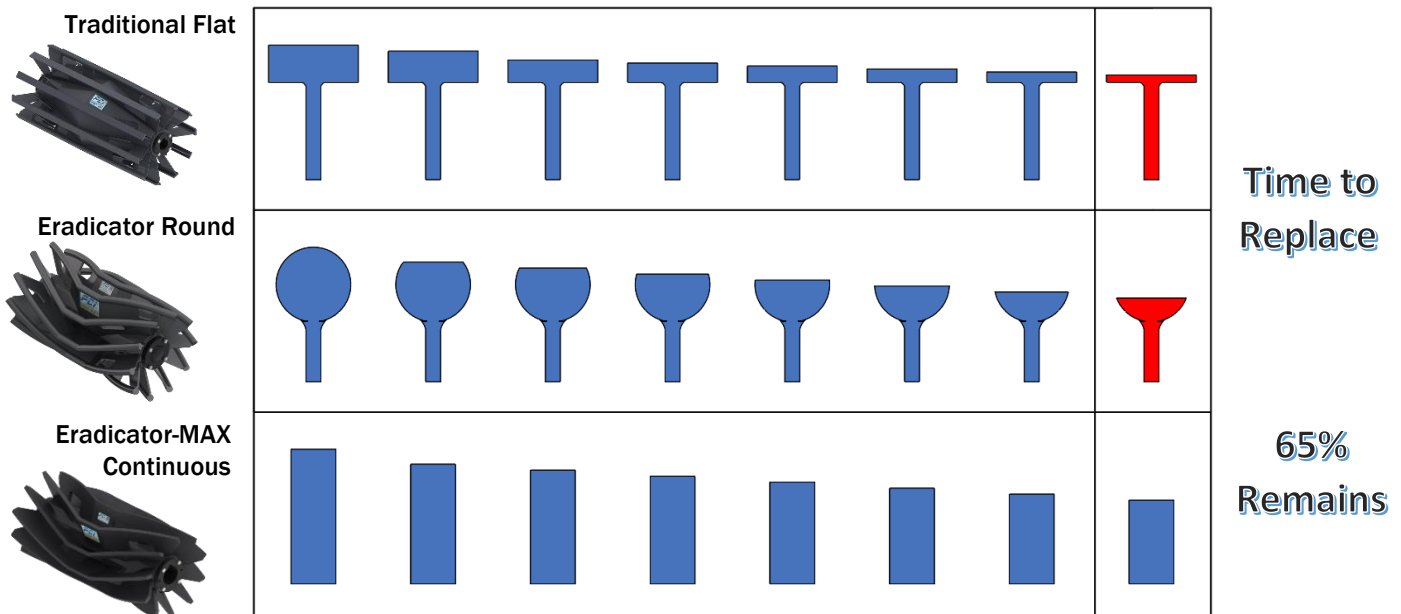
PCI wing pulleys feature various wing tip profiles to address specific application challenges.

Example, round tips provide continuous contact while retaining a beater bar cleaning effect.

Continuous tips extend wear life up to 3 times on all diameters.

## EQUAL WING WEAR

PCI incorporates component geometry factors to maximize rigidity and longevity of our wing pulley members. Reducing the risk of sharp or thinning edges while extending the life of wings equals longer pulley and belt life.



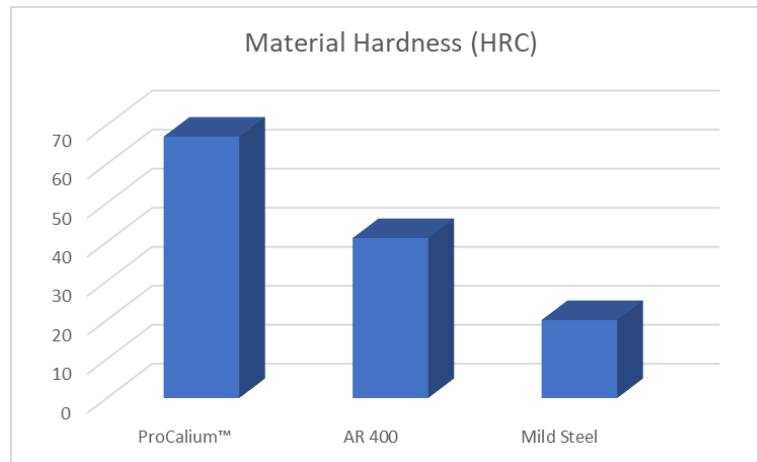
# CONVEYOR PULLEYS

## Self-Cleaning Wing Pulleys



### 3) MATERIAL SELECTION

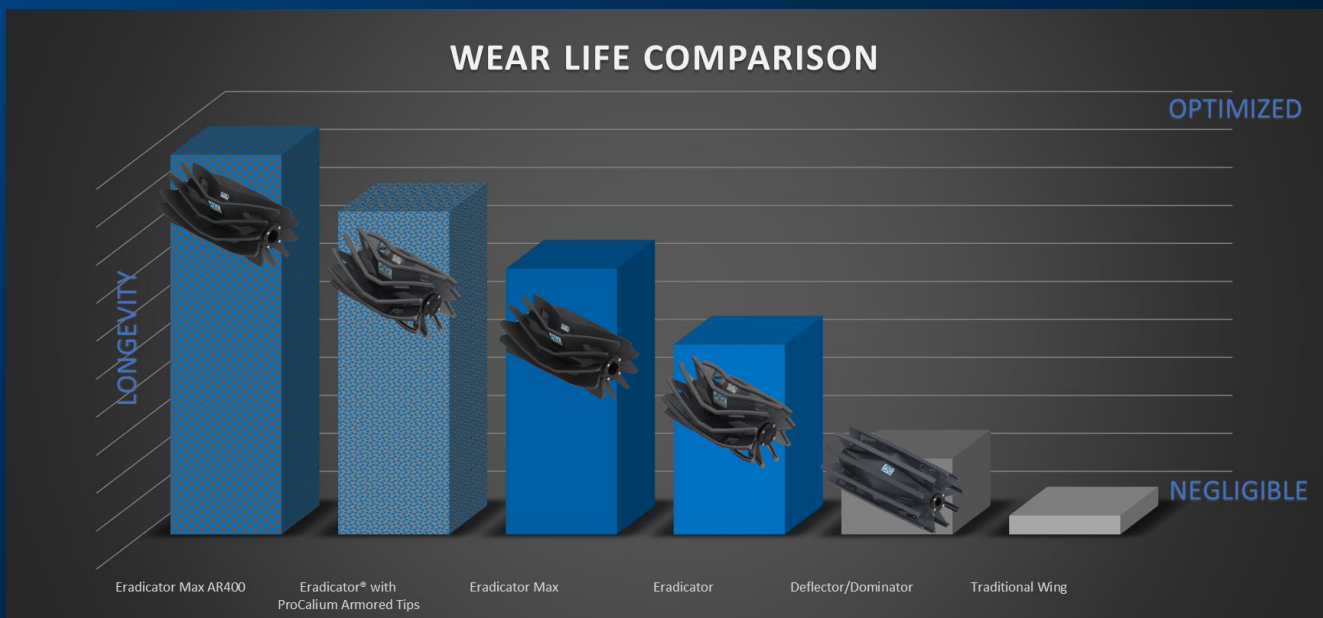
In addition to addressing component geometry, the type of material utilized for contact surfaces has impact on longevity and wear life. Mild steel material is suitable for many and most environments, but in abrasive applications, where downtime is unwanted or maintenance accessibility is limited, use of abrasion resistant materials can prove beneficial to maximize the life cycle of contact surfaces.



### WING PULLEY LONGEVITY EQUATION

PCI has strategically applied critical design factors and patented technology to enhance performance and optimize the life and longevity of North America's largest wing pulley offering referencing the following equation:

$$\text{WEAR LIFE} = \text{Clean Out Rate} + \text{Geometry} + \text{Material}$$



# CONVEYOR PULLEYS

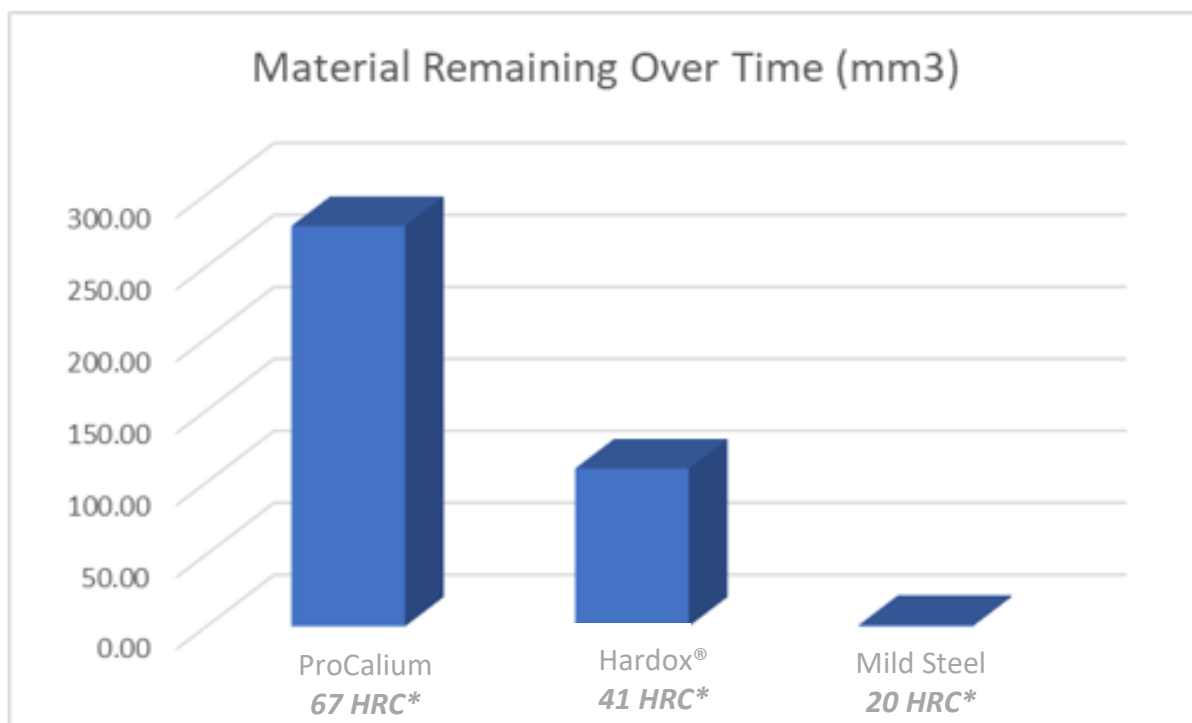
## Focus Flyer

### ProCalium™ Armor- Abrasion Resistance



In materials science, hardness is a measure of the resistance to deformation, such as an indentation or a scratch, induced mechanically either by pressing or abrasion. In other words, the higher the hardness of the material the more resistant it is to abrasion and the longer wear life you will see. PCI has developed abrasion resistant ProCalium Armored Tips to provide you with *cost effective round bar tip solutions!*

## PROCALIUM™ ARMORED TIPS vs. OTHER TIP MATERIALS

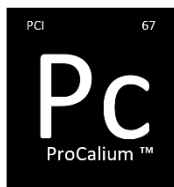


ProCalium was subjected to an ASTM G45-04 volume loss test over time compared to other materials. This graph shows the amount of material remaining after the test.

\*Rockwell Hardness Scale C (HRC) - Hardox is a registered trademark of SSAB

## PROCALIUM™ A Tough Combination that's hard to beat!

PCI ProCalium conveyor pulleys offer abrasion resistant alternatives for wing pulleys with these unique advantages:



**EXCEPTIONAL HARDNESS:** ProCalium Armored Tips are nearly 40% harder than AR400, and 70% harder than Mild Steel. The combination of Eradicator and ProCalium technologies improves pulley life and enhances overall productivity.

**IMPROVED WEAR RATE:** ProCalium has a wear rate that is 88% better than Hardox 400 and 92% better than Mild Steel resulting in lower maintenance expenses and a reduction in costly downtime to improve your bottom line!



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