

Metso Conveyor Solutions  
Trellex Belt Cleaning



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The ABC 95 blade is specially developed to efficiently clean belts in the pulp and paper industry.

# Trellex Belt Scrapers

Tailor made blades for optimum performance in all applications

Belt cleaning isn't just a question of esthetics, but rather an important determining factor if efficient, safe and profitable conveying is to be achieved. Metso Minerals has developed a new belt cleaning product range called ABC – Absolute Belt Cleaning. Our goal was to provide technical solutions that gave the products high efficiency, long wear life and a minimal need for maintenance. The new products have been tested for a long time - under tough conditions – and have proven to meet the very high goals we set at the start of the development process.

## High efficiency ensures minimum spillage

The parameters that affect the efficiency are, among other things, the scraper to belt contact angle, the contact area and the contact pressure per surface unit. On the new ABC scrapers these values are kept as close to the ideal as possible, throughout the wear life of the blades. Because of that, these scrapers show a constant and very high cleaning efficiency from installation and throughout their

wear life. To further increase the efficiency of the scraper, the blades are divided into segments, which can move independently of each other. Reduced spillage leads to less wear on the conveyor and its components and great clean-up cost savings.

## Long wear life for lowest cost per ton

The life expectancy of a scraper is very much dependent upon its efficiency. The more material that passes between the scraper and the belt the higher the wear rate becomes. Thanks to the high and constant cleaning efficiency of our new scrapers the amount of material still adhering to the belt after the scraper can be reduced to a minimum. Consequently its wear life is extended and the cost per ton low.

## Minimal maintenance needs for trouble free operation

Since the blade to belt contact pressure remains almost constant throughout the entire wear life of the scraper blade, there is

no need to re-tension the spring tensioner and the need for maintenance is reduced to an absolute minimum. The belt cleaning system is designed to operate in a dirty and demanding environment, and the blades are shaped in such a way that build-up of material on the blades is prevented.

## High reliability during the entire life of the scraper

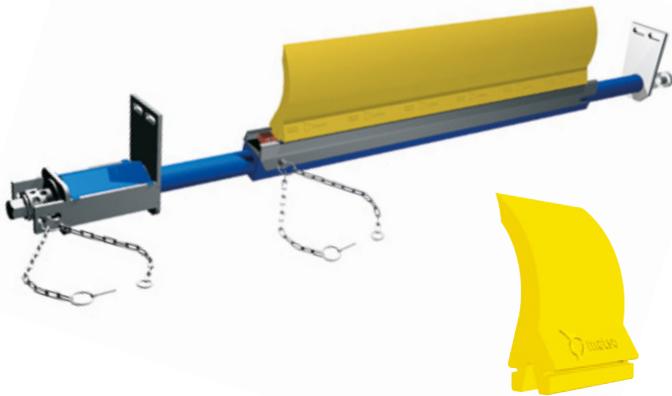
The ABC scrapers are made of Trellex's own polyurethane material, which has outstanding wear properties. Using polyurethane means that an aggressive scraping angle can be used without any risk of damaging the belt. The special design of the new blades means no reinforcing metal parts are needed. The base of the blade is securely held in place in a specially designed aluminum cassette.

# Trellex Pre-Cleaners



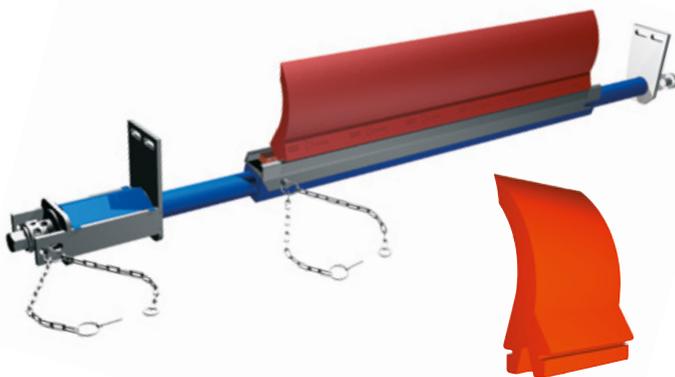
## ABC 70

The new Trellex ABC 70 blade has a unique, patented design. It's built up by two polyurethane materials with different degrees of hardness. The outward facing side is made of a soft 70° Shore A material, offering remarkable wear resistant properties while the inward facing side is made of a harder, 65° Shore D, material giving the blade the rigidity required. The wear life of this blade is very long, which makes it a natural choice for applications where abrasive material is handled, for example in certain mines and quarries. The soft polyurethane material forms a lip that follows the contour of the belt, making it very efficient in wet applications as well. Thanks to the saw tooth shaped profile, a sharp scraping edge can be maintained throughout the life of the scraper.



## ABC 90

This blade is produced in our wear resistant 90° Shore A polyurethane material, which gives it long wear life and makes it an excellent choice for use in industrial applications as well as in medium duty quarry and mining applications.



## ABC 95

A blade made of a somewhat harder polyurethane material, 95° Shore A, specially developed for use in the pulp and paper industry, as well as in wood handling and saw mills. The harder material makes the blade very efficient on belts that have become sticky from wood sap and terpene. The wear resistance is lower than for ABC 70 and 90, but wear life is extended since the material transported in this type of industry isn't particularly abrasive.

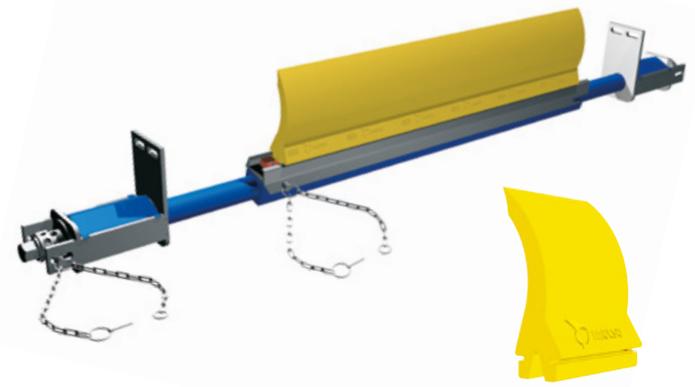
### ABC 70-HD

Just like the ABC 70 blade, the ABC 70-HD is built up from two different polyurethane materials. The outside consists of a soft 70° Shore A material with amazing wear properties and the inside of a harder, 65° Shore D, material, adding necessary rigidity to the blade. This is a scraper blade designed for conveyors with large diameter pulleys and higher belt speed. The wear life of this blade is extensive, making it the natural choice for applications handling abrasive materials, for example, in mining. The soft polyurethane material forms a lip that closely follows the contour of the belt, making it very efficient in wet applications as well.



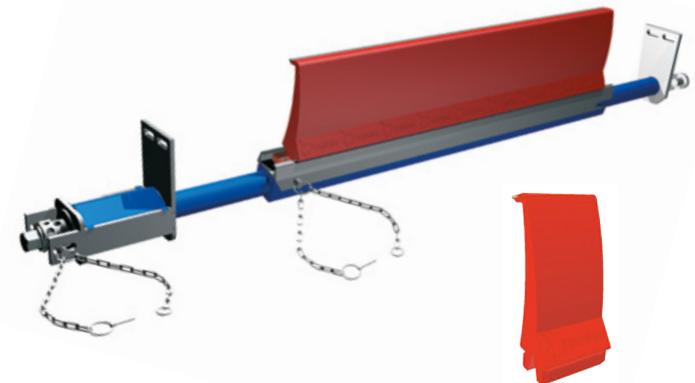
### ABC 90-HD

A large blade intended for larger diameter pulleys and higher belt speeds. The ABC 90-HD scraper blade is made of our wear resistant, 90° Shore A polyurethane material. The ABC 90-HD blade has a design that protects the aluminum cassette from being damaged by bouncing stones. A spring tensioner type S-HD, equipped with a stiffer spring, maintains correct blade to belt contact pressure.

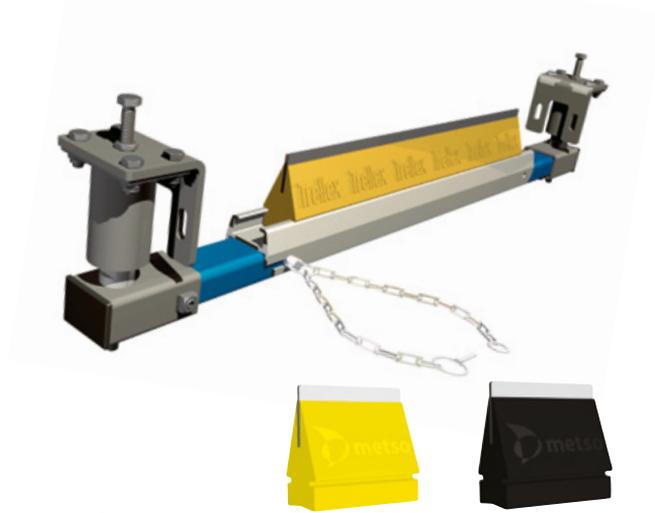


### ABC HMS

This scraper blade is available with Tungsten carbide tips. This is a very wear resistant material and the HMS blades are recommended for belts transporting sharp, cutting materials. They can also be used in applications handling abrasive materials, for example in quarries and mines. These hard metal scrapers should be installed at a ninety degree angle to the belt/pulley and a self-adjusting spring tensioner type S used to create the correct blade to belt contact pressure. Trellex Pre-cleaner ABC HMS is not recommended for belts with mechanical splices.

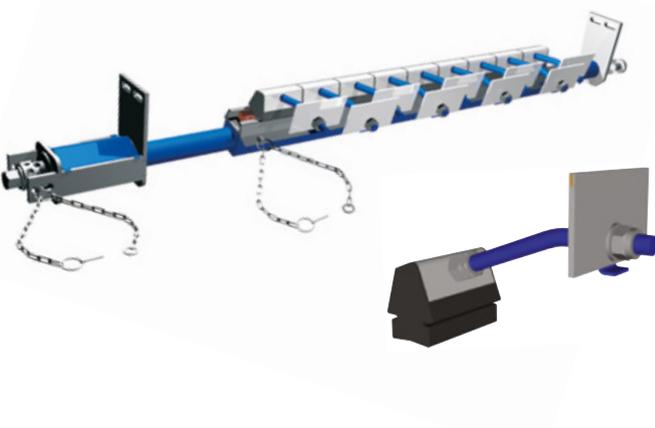


# Trellex Secondary Cleaners



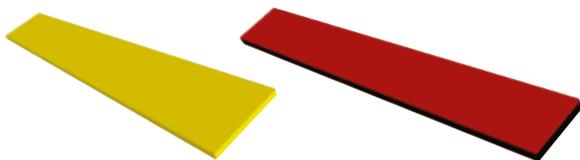
## T-Cleaner HMS and HS

Can be used together with a Pre-Cleaner for best cleaning efficiency, or as a stand-alone scraper if the conveyed material is fine and relatively dry. This scraper is installed just behind the point where the belt leaves the pulley. The T-Cleaner is available with two different blade materials. The HMS blade has a tip made of Tungsten carbide. This blade has very good wear resistance and it is recommended for applications handling abrasive materials in, for example, quarries and mines. The HS blade consists of heat-treated steel. This blade is intended for other types of applications where less abrasive materials are handled, for example, in the pulp and paper industry. What both blades have in common is that a metal blade vulcanized into a rubber mount, allows each blade to move independently from each other, thereby assuring optimum cleaning efficiency. The T-Cleaner blade should be installed perpendicular to the belt and a self-adjusting spring tensioner type NT or NT-HD used to provide correct blade to belt contact pressure. Trellex T-Cleaners also work well on reversible belts.



## Arm-Cleaner HMS and HS

The Arm-Cleaner can, just like the T-Cleaner, be used together with a Pre-Cleaner for best cleaning efficiency or as a stand-alone scraper if the conveyed material is fine and relatively dry. Sometimes the type of conveyor the scraper is going to be installed on can determine the choice between a T-Cleaner and an Arm-Cleaner. Due to differences in design and tensioning systems, the two scrapers have different attachment points. The Arm-Cleaner is suitable for belts handling hot materials. The scraper blade is available in two different versions - see T-Cleaner above. One thing both blades have in common is that the metal blade is vulcanized into a rubber mount, which lets each blade move independently thereby assuring optimum cleaning efficiency. The Arm-Cleaner blades overlap each other reducing the risk of stripes on the belt. A spring tensioner type S provides the right blade to belt contact pressure.



## Trellex® Easy Clean and One-piece PU blade

Sometimes a less sophisticated type of belt scraper is sufficient to clean belts in light duty. Trellex Easy Clean and One-piece PU blade are two wear resistant scraper blades intended for less demanding applications. The Easy Clean blade is a composite scraper that has a core of wear resistant Trellex 60 rubber. A reinforcing layer of polyethylene has been applied on both sides of the rubber to maintain a ninety-degree blade to belt contact angle. The One-piece PU blade is manufactured of polyurethane and has long wear life. Both these scrapers can be supplied in various widths, heights and lengths. As a tensioning device for these blades a counterweight or an elastomer or metal spring can be used.



Lift off the old blade cassette and slide a new one in place. That's how easy and quick it is to replace the scraper blades – without tools!

## Nothing but benefits



### Modular system

Metso's belt cleaning system is an efficient way to keep conveyor belts clean. The axle and fastening details are made of sturdy structural steel, and are powder coated to resist wear and corrosion. The belt cleaning system is available for most belt widths. The individual blades are mounted in an aluminum alloy cassette. Blade replacement is quick since the tensioning device doesn't have to be removed. Having a complete blade cassette in stock reduces down time and makes maintenance more efficient. The aluminum profile in which the scraper blades are mounted is anodized to resist corrosion in tough working environments. Axles and cassettes are also available in stainless steel for installations in aggressive environments.

### Quick blade replacement

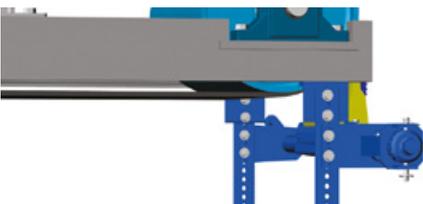
- Loosen the tensioner
- Remove the locking pin
- Replace the old blade cassette with a new one
- Insert the locking pin
- Apply correct spring tension

### A mere four parts

The modular system consist of just four parts:

- Steel axle
- Aluminum profile
- Scraper blades
- Tensioning device

## Accessories



### Universal mount

To simplify the installation of our Pre-Cleaners Metso has developed a universal mount. It makes it easier to find the right position for the scraper axle, which is important since the position of the axle affects the performance, efficiency and wear life of the scraper.



Primary Cleaners - Recommended for wet, sticky and coarse materials						
	Pre-Cleaner ABC 70	Pre-Cleaner ABC 90	Pre-Cleaner ABC 95	Pre-Cleaner ABC 70-HD	Pre-Cleaner ABC 90-HD	Pre-Cleaner HMS
<b>Application Summary</b>	Abrasive materials in for example mining, smelters and quarries, wet applications.	Industrial applications, less abrasive materials in for example quarries and mining.	Pulp and paper, wood handling and saw mills. Other non abrasive organic materials.	Larger scraper for high speed belts carrying abrasive materials in for example mines, coal terminals. Wet applications.	Larger scraper for less abrasive high speed mining applications, lignite, coal terminals.	Heavier Carbide than HMS for cut-ting and abrasive materials like recy-cled glass, crushed flintstone etc. Sticky materials.
<b>Belt Width</b>	500–2000 mm	500–2000 mm	500–2000 mm	650–2400 mm	650–2400 mm	500–2000 mm
<b>Belt Speed</b>	<3.5 m/s	<3.5 m/s	<3.0 m/s	3.0–6.5 m/s	3.0–6.5 m/s	<3.5 m/s
<b>Temperature Range</b>	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
<b>Head Pulley Dia.</b>	Ø 350–600 mm	Ø 350–600 mm	Ø 350–600 mm	Ø 600–1200 mm	Ø 600–1200 mm	Ø 300–800 mm
<b>Tensioner</b>	BW 500-1200 mm single S BW 1400-2000 mm dual S	BW 500-1200 mm single S BW 1400-2000 mm dual S	BW 500-1200 mm single S BW 1400-2000 mm dual S	BW 650-1200 mm single S- HD BW 1400-2400 mm dual S-HD	BW 650-1200 mm single S-HD BW 1400-2400 mm dual S-HD	BW 500-1200 mm single S BW 1400-2000 mm dual S
<b>Belt clips compatible</b>	X	X	X	X	X	
<b>OK on reversible belts</b>						X
<b>Blade Options</b>	Heat treated steel					
	Polyurethane	X	X	X	X	
	Carbide-Tipped					X
	Rubber/Plastic					
<b>Duty Rating</b>	Medium/Heavy	Light/Medium	Special	Medium-heavy/ Extra heavy	Medium light/ Medium heavy	Medium

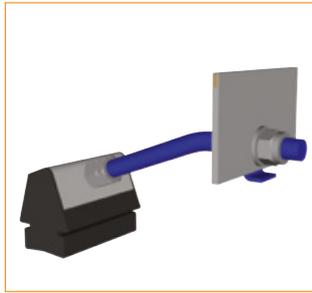
### Trex conveyor belt cleaner selection guide – for highest primary and secondary cleaning efficiency

Metso has a complete range of equipment for primary and secondary belt cleaning. A Pre-Cleaner, in combination with a T-Cleaner or an Arm-Cleaner, is the most efficient solution for smooth belts. If a single cleaner is required, the Pre-Cleaner is recommended for coarse or wet and sticky material, and the T-cleaner or Arm-Cleaner for dry, fine materi-

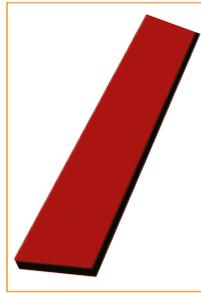
al. For reversible belts, a T-Cleaner is the best solution. For cleated belts carrying dry material, a Trex Belt Brush is the best solution. If you are uncertain, or if your application falls outside the application range described in the table below, please contact your local Metso representative.



T-Cleaner - HMS  
T-Cleaner - HS



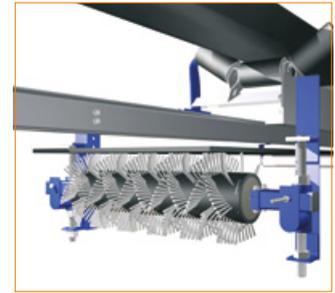
Arm-Cleaner HMS  
Arm-Cleaner HS



Easy Clean



One-piece  
PU blade



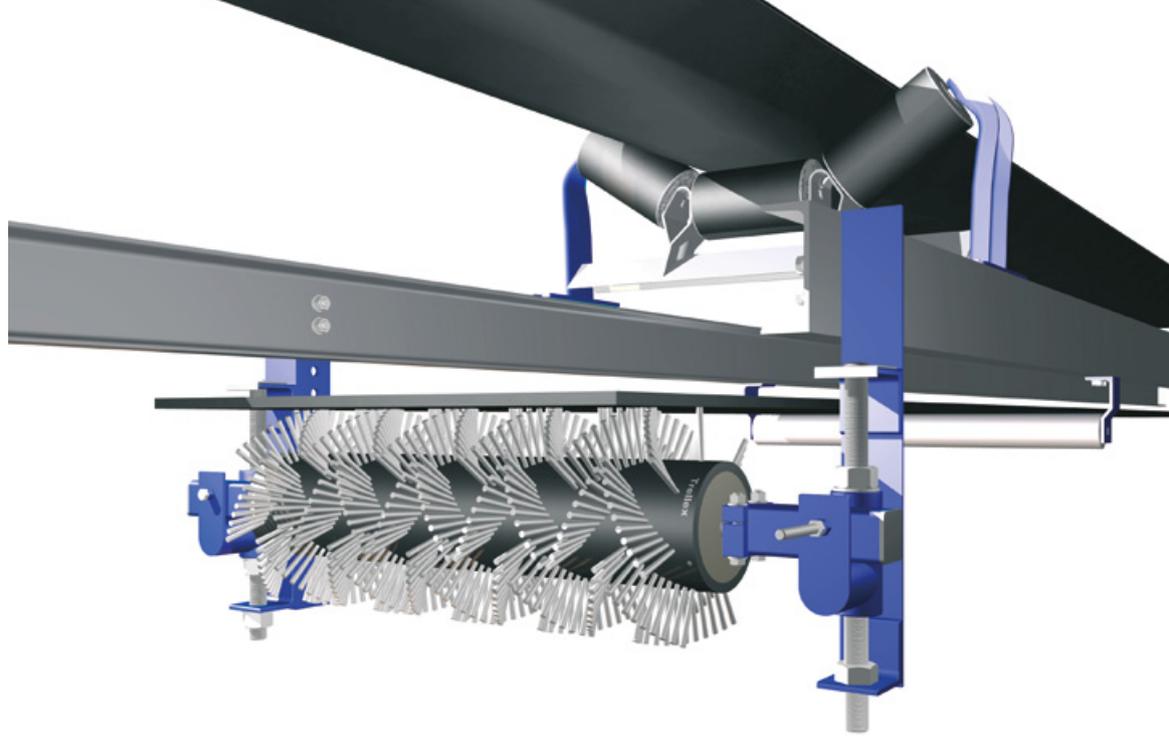
Belt Brush  
ABC 6-12

Secondary Cleaners - Recommended for dry, fine materials

T-Cleaner HMS	T-Cleaner HS	Arm-Cleaner HMS	Arm-Cleaner HS	Easy Clean	One-piece PU blade	Belt Brush ABC 6-12
Industrial applications with abrasive materials in for example quarry and mining.	Non abrasive materials, organic materials, pulp and paper.	Industrial applications with abrasive materials in for example quarry and mining.	Non abrasive materials, organic materials, pulp and paper.	Non abrasive materials, organic materials, pulp and paper. Lighter duty.	Non abrasive materials, organic materials, pulp and paper. Lighter duty.	Dry and small particle size sand and minerals. Organic materials like saw dust and wood chips.
500–2000 mm	500–2000 mm	500–2000 mm	500–2000 mm	300–1200 mm	300–1200 mm	500–2000 mm
<3.5 m/s	<3.0 m/s	<3.5 m/s	<3.0 m/s	<2.5 m/s	<2.5 m/s	<2.5 m/s
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-25 °C to +40 °C
NA	NA	NA	NA	NA	NA	NA
BW 500-1200 mm N BW 1400-1600 mm N-HD BW 1800-2000 mm Pinloc V	BW 500-1200 mm N BW 1400-1600 mm N-HD BW 1800-2000 mm Pinloc V	BW 500-1200 mm single S BW 1400-2000 mm dual S	BW 500-1200 mm single S BW 1400-2000 mm dual S	Counterweight or mechanical tensioner	Counterweight or mechanical tensioner	Tensioner for modular Belt Brush
X	X	X	X	X	X	X
X	X			X	X	
	X		X			
					X	
X		X				
				X		Nylon
Medium/Heavy	Light	Medium/Heavy	Light	Light	Light	Special

Duty Rating	Belt speed (m/s)		Mohs hardness	Mineral	Method of identification
	<3,5	3,0–6,5			
Light	Medium light		1	Talc, Graphite, Sulfur, Mica, Gold	Crushed by a finger nail Scratched by a finger nail
			2	Gypsum, Dolomite	
Medium	Medium heavy		3	Calcite, Magnesite	Scratched by an iron nail Easily scratched by a knife Scratched by a knife
			4	Fluorite, Magnetite	
			5	Apatite, Granite, Pyrite	
Heavy	Extra Heavy		6	Feldspar, Basalt	Hardly scratched by a knife Scratches glass Scratched by quartz Scratched by diamond Cannot be scratched
			7	Quartz, Beryl	
			8	Topaz	
			9	Corundum	
			10	Diamond	





# Trellex Modular Belt Brush ABC 6-12

An efficient solution for cleaning cleated belts

Trellex Modular Belt Brush is an effective solution for cleaning cleated belts. The conveyor belts are kept clean, and carry back and spillage is reduced, which results in lower clean-up costs and less unplanned downtime. The Belt Brush is installed where the belt is flat, normally as close as possible to the drive pulley. The Belt Brush can be combined with a Trellex Pre-Cleaner if used on smooth belts.

## **Brush tube in modules for maximum flexibility**

The brush tube consists of 150 mm long modules, which makes it possible to replace only those modules which are worn. Stock keeping is simplified and efficiency increases since one module size fits all belt widths. A locking ring on each side keeps the modules in place. The modules have fishtails that hook into each other, thereby making it easy to replace all modules from one side. The modules are low weight and can easily be handled by one person. The bristles are placed in a "W" pattern for best possible

cleaning efficiency. The brush tube is corrosion resistant and resists the build up of material.

## **Totally encapsulated drum motor for highest possible reliability**

The Belt Brush is driven by a drum motor, which requires a lot less space than other types driven by external motors. Both the motor and the transmission run in an oil bath. The oil is synthetic and oil replacement doesn't have to take place until after 10,000 hours. The motor is sealed to IP 66/67, which means that pollutants are efficiently prevented from entering the motor. The almost maintenance free construction provides a high degree of operational safety.

## **High quality and low weight**

Careful material selection, modern assembly technique, tight tolerances and computerized assembly control ensure a high and even level of quality. The motor is dynamically balanced and equipped with overheating

protection and a magnetic oil plug. The motor has low power draw and high efficiency. End caps and some other components are made of aluminum, which reduces the weight by up to 40% compared to earlier models. This makes installation and brush module change outs. The motor can be supplied in stainless steel for applications in aggressive environments.

## **Simple and robust suspension for quick brush module change outs**

The all-new suspension is robust and requires minimal space. The suspension comes pre-assembled from the factory, which makes installation quick and easy. The height is easily adjusted for correct contact with the belt. When changing brush modules the axle is released on one side only. The motor is then turned so that the locking ring holding the brush modules can be removed. Work safety is greatly improved and the change out takes little time.

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