



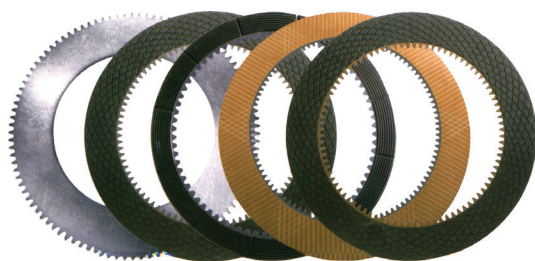
**WESTROCK**  
ORIGINAL QUALITY PARTS

# FRICITION MATERIAL



## WESTROCK® PRODUCTS ARE DESIGNED WITH YOUR EQUIPMENT SYSTEMS NEEDS IN MIND.

- The precise material that your equipment needs depends on the size of the machine and the use and conditions of the application to which it is going to be submitted; therefore the properties of the friction material will be different according to the function and cyclic applications of your machine. At Westrock®, we understand your business and we can help you identify the type of friction material that your equipment needs.
- Westrock® technology uses the appropriate formula in the development of the friction material required for your working conditions, giving reliability and a high level of productivity to your operation, resulting in a reduction of cost with excellent quality. Westrock® engineers understand the importance of material resistance, giving the friction material the proper qualities, with consideration to the oil and other components of the system.
- An incorrect design, or inadequate material, can cause premature wear, noise, overheating, chatter, etc., which can result in many problems. With Westrock® products, you will be buying quality, not more problems.



Separator Plate Graphitic Elastometric Paper Bronze

## WESTROCK® PROVES THE QUALITY OF ITS PRODUCTS THROUGH PERFORMANCE.

- Westrock® has invested millions of dollars in designing, testing and developing formulas of every material used in the friction field for all applications in machines all over the world. It is this process that has carried us through the years and has made us one of the world leaders in friction material.
- All of our Westrock® products are certified with our rigorous quality control systems, assuring the technical specifications required by the OEM.
- Westrock® offers the guarantee of security and reliability of its products through years of real world results in applications all over the globe, providing millions of operational machine hours.

MATERIALS	MACHINES	APPLICATIONS
<b>PAPER</b>	Off-Highway Trucks Wheel Loaders	Brakes Transmission Discs
<b>BRONZE</b>	Track-type Tractors	Brakes
<b>ELASTOMETRIC</b>	Off-Highway Trucks Wheel Loaders	Transmission Discs
<b>GRAPHITIC</b>	Track-type Tractors	Steering Discs
<b>SEPARATOR PLATES</b>	All Machines	All Applications

## MANUFACTURED TO PERFORM

Friction material is the key to the success of the power train. Components manufactured with Westrock® friction materials allow for the proper oil flow and heat dissipation, resulting in greater product life and lower maintenance costs than other brands. Therefore, it is important to select Westrock® components when choosing spare parts for brakes, powershift transmissions or steering clutches. Westrock® friction materials have shown reliability and prolonged performance in many brands of machinery. Westrock® provides guidelines of reusability so that you know what should be replaced - another way in which we help you take control of your costs and operation.

## BUILT TO LAST, EVEN IN SEVERE CONDITIONS

Drive train components function under incredible stress. The capacity to perform under such conditions can signify important savings. Friction material used in Westrock® components have been designed to last until normal overhaul and planned maintenance of the machine, or even longer. Its useful life can be coordinated with other components of the drive train allowing all repairs and changes to be performed at the same time - reducing repair costs and down time.

**Westrock® friction material is designed to meet the needs of power train components for machinery brands such as Caterpillar, Komatsu, John Deere, Clark, Allison and others.**

## ORIGINAL QUALITY PARTS

At Westrock®, we know customer service and the quality of our products go hand-in-hand with a distribution network that ensures you have the parts you need, when and where you need them.

*Let us help you optimize the results of the investment in your equipment.*

*Call us for more information about our brakes, marine transmission discs and plates, or our complete line of drive train components for any brand of equipment.*

**See how Westrock® friction material can help you avoid problems:**

### Material Selection

- The use of unapproved adhesives can result in poor bonding and premature separation of the material.
- Density, weight, hardness, thickness or incorrect composition can affect the capacity of braking or change of direction and can cause premature wear, noise, dragging, or skating resulting in damage to the components in the system.

### Heat Treatment

An incorrect heat treatment can cause premature wear of the grooves resulting in component damage.

### Manufacturing Processes

The incorrect format of material can cause poor alignment, premature wear and an overload of power.

- Incorrect dimensions of the grooves, width and depth can affect the flow of oil and the cooling process, resulting in higher temperatures of operation, friction coefficient loss, wear, glazing and discoloration.
- Incorrect placement of friction material on the core can interfere with the pairing of separator plates, resulting in poor oil flow and premature wear.
- If Westrock® core plate specifications are not met, deformities can result, causing wear and tear on the components.

### Stress Relief

If the products are not properly stress relieved, the separator plate can warp, causing inconsistent wear of the opposing friction surface, resulting in premature wear or failure.

### Finish and Cleaning

- Improper core plate surface finishing can result in a non-uniform, poorly bonded material, potentially causing premature failure.
- A rough, or non-spec finish of the separator plate can cause the rapid wear of the friction disc, noise, skating, dragging and a reduction of the friction coefficient.
- If plates are not properly deburred, the oil filters can become blocked, preventing oil flow, resulting in insufficient lubrication and higher operating temperatures.

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