

JUST T'ime



Air Disc Brakes: Advanced Technology, Growing Popularity

Courtesy of Bendix

From tire pressure and temperature monitoring systems to electronic stability control, today's fleets and drivers are equipped with more advanced, high-performing, and efficient technologies than ever before. And when it comes to braking systems, there is growing interest in the benefits of air disc brakes, a long-established technology that's making new inroads in the North American trucking industry.

Turning Air Pressure into Stopping Power

Air disc brakes (ADB) work by converting air pressure into braking force. Air from the vehicle brake system enters the service brake chamber, forcing a pair of clamping brake pads onto the wheel rotor. This clamping action applies braking force to the wheel. Air disc brakes feature an internal automatic adjuster mechanism, which compensates for rotor and brake pad wear, and keeps the running clearance constant.

These mechanical and operational characteristics of air disc brakes give ADBs several advantages over drum brakes.

Air Disc Brakes Have the Edge

One key advantage of air disc brakes is their ability to resist fade—or the reduction of braking performance with increasing heat and use. The hotter a drum brake gets during heavy usage – sustained downhill braking, for instance – the less efficient it is, and the more it can exhibit fade.

Drum brakes have a much lower thermal capacity than air disc brakes, which are internally vented and much more efficient at dissipating heat. This means ADBs are much less prone to brake fade and can maintain high braking performance, even in demanding conditions.

Because ADBs have a more efficient actuating mechanism, there is minimal lag between brake actuation and release.

ADB also offer reduced service time. Once a vehicle's wheels are removed, disc brake pads can be removed in one-quarter of the time it takes to replace drum brake shoes and linings. Air disc brake linings also have a longer life, with many line haul tractors logging a million miles between pad changes.



Attracting Attention

Although they currently represent less than 10% of the Class 8 market in North America, there is growing interest in ADBs for over-the-road applications. Design changes have made trucks more aerodynamic, resulting in decreased drivetrain losses while tire rolling resistance has improved considerably. With these advancements, brake systems must work harder. Increasingly, the industry is turning to the modern air disc brake to meet the demands.

In the U.S., interest in ADBs has also been driven in part by the National Highway Traffic Safety Administration's federal Reduced Stopping Distance (RSD) mandate, which legislated a 30 percent stopping distance reduction—or 250 feet—for most three-axle tractors manufactured after Aug. 2011.

Bendix is North American leader in ADB production with the Bendix® ADB22X™ air disc brake, with standard position on the steer axle of all Peterbilt® Motors Company Class 8 truck models. In November 2013, Bendix reached the 500,000 production milestone with the ADB22X.

The growth has been dramatic as fleets and drivers continue to seek improvements in safety, performance, and cost of ownership, air disc braking systems offer solutions that meet – and exceed – the needs of an ever-changing industry.



Bendix® ADB22X™ Air Disc Brake