



Bendix Air Disc Brakes

Optimum Performance.  
Optimum Engineering.

# AIR DISC BRAKES

Air Drum  
Brakes

Air Disc  
Brakes


Air Brake  
Chambers

Slack  
Adjusters

Hydraulics

# A major breakthrough in safety, performance, and productivity

Bendix® brand air disc brakes from Bendix Commercial Vehicle Systems LLC offer safety, performance, and productivity – plus driver peace of mind – even under the toughest braking conditions. And the enhanced design means straighter, smoother stops.



Advanced  
engineering  
provides  
significantly  
longer brake  
system life.



## Not all disc brakes are the same.

Created from the power and expertise of global R&D and precision design, our air disc brakes feature a two-pin floating caliper design that balances wheel packaging and reliability. This unique two-pin design uses fewer components than four-pin air disc brakes. The decreased number of components provides tighter dimensional accuracy, consistent force distribution, and longer brake life.

Dual, internally adjusting pistons allow the Bendix® ADB22X™ air disc brake to offer the most precise brake adjustment, better force distribution, and more even pad wear than any single piston caliper design. In addition, the Bendix® ADB22X™ brake is the lightest dual piston design available.

## Other key benefits:

- Internal automatic brake adjustment allows the brakes to always be in optimum adjustment.
- Virtually no brake fade and no degradation in stopping power.
- Straight, stable stops due to minimized brake force variation across axles.
- Integrated pad- and rotor-wear sensing optimizes pad and rotor life and minimizes the number of required maintenance inspections.
- Optimized friction pairing results in minimal fade and maximized pad and rotor life.
- Global reach and expertise. Bendix Commercial Vehicle Systems LLC, Bendix, and its German affiliate, Knorr-Bremse, are the world's leading producer of air disc brakes with more than 25 million air disc brakes in service worldwide.

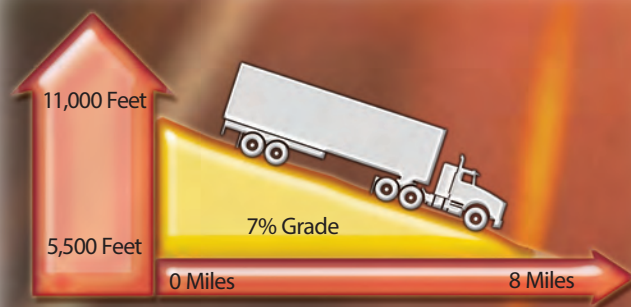
## Superior performance on long downhill grades.

There are two types of brake fade – mechanical and friction. In an air disc brake, as heat builds up, the rotor expands toward the pads, thus significantly removing mechanical fade from the equation.

With the Bendix® ADB22X™ air disc brake, brake fade is nearly eliminated by optimizing the friction couple.

We developed the metallurgy in our 17-inch rotor and paired it with our advanced friction material specifically designed to optimize braking performance at high temperatures, thus significantly reducing brake fade and maximizing brake pad and rotor life. As a result, there is virtually no degradation in stopping power when brake temperatures rise during heavy use.

### Superior Performance On Long Downhill Grades



## Compact design minimizes weight and maintenance.

Bendix air disc brakes feature a mono-block caliper design, which makes the brake more rigid than two-piece caliper designs. The mono-block design also offers better sealing from the environment for

better protection from the elements. Engineered to fit most truck wheel-end envelopes, Bendix air disc brakes offer commercial vehicle drivers top performance, durability, and long life.

# Stopping power that is smooth, straight, and safe

## Shorter, safer braking.

As of August 2011, most new tractors must meet the National Highway Traffic Safety Administration's (NHTSA) reduced stopping distance requirements. From 60 mph stopping distance, a typical 56,470 lb. GVW tractor equipped with Bendix® air disc brakes and coupled to a (non-braked) control trailer will stop more

than 40% shorter than the previous 355-foot federal requirement of FMVSS 121.

What's more, with air disc brakes, drivers gain immeasurable peace of mind knowing they will always have the braking force needed to stop in an emergency or negotiate a grade.

## Constant brake pedal effectiveness and passenger car-like feel.

As a result of an optimized friction couple, Bendix® air disc brakes maintain their effectiveness in severe braking situations. This results in brake pedal forces that do not vary dramatically, providing the driver with a passenger car-like feel.

Bendix® air disc brakes are preferred by virtually all drivers who have experienced their performance, stability, and feel. This can aid in driver retention and recruiting, and also provide added value throughout the entire operation.

### Stopping Distance From 60 MPH

GVW: 56,470 lbs. with Non-Braked Control Trailer



### Brake Pedal Force



Improved drivability and feel in severe braking conditions

Dual synchronized pistons provide even force distribution, resulting in more even pad wear, reduced heat, and noise elimination.

## Greater stability during stops.

Bendix air disc brake technology dramatically improves in-line braking stability. Our air disc brake system's inherent high efficiency (95%) and low hysteresis (<10%) mean there is a negligible difference between the left side and right side performance, and that brake force is being applied and maintained efficiently to all air disc brake wheel-ends.

The result? The air disc brake equipped vehicle more easily comes to a

straight, stable stop. The right to left side brake performance of other brake designs can vary up to three times as much, making steering corrections necessary to keep the vehicle on its intended path.

With consistent brake performance, a vehicle with Bendix air disc brakes at all wheel-ends also benefits from improved overall brake balance.

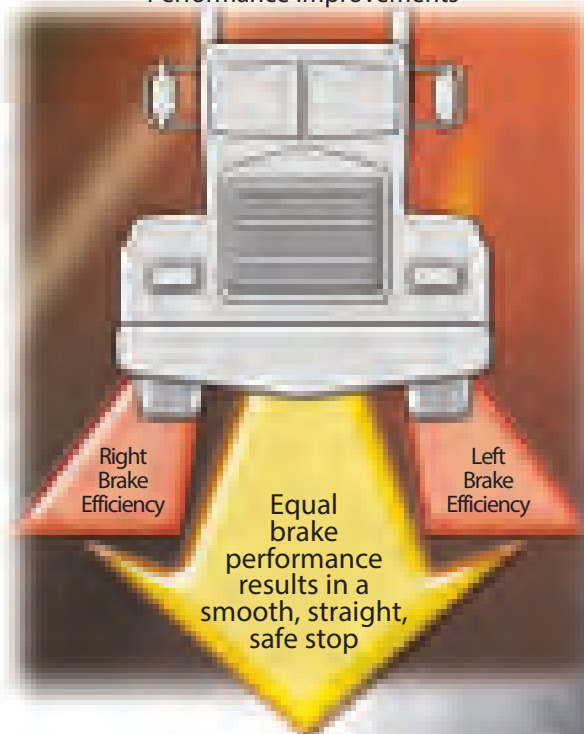
## Dramatically reduced downtime during service.

Changing air disc brake pads takes less than half the time it typically takes to change drum linings, reducing downtime and labor costs.

Every component has been engineered to provide a longer service life. This means drivers spend less time waiting around for service – and more time driving, providing significant savings in maintenance, labor, and downtime.



### Performance Improvements





# Advanced engineering from the industry leader



Bendix® air disc brakes offer safety, performance, and productivity – plus driver peace of mind – even under the toughest braking conditions. And the enhanced design means straighter, smoother stops.

With Bendix® air disc brakes, the same size brake can be used on all axles. Traditional brake designs require different components on the steer, drive, and trailer axles, increasing the number of different parts required to service the brake. Bendix® air disc brakes mean there are fewer parts to buy, fewer services needed, fewer parts to stock, and fewer brake inventory management costs.

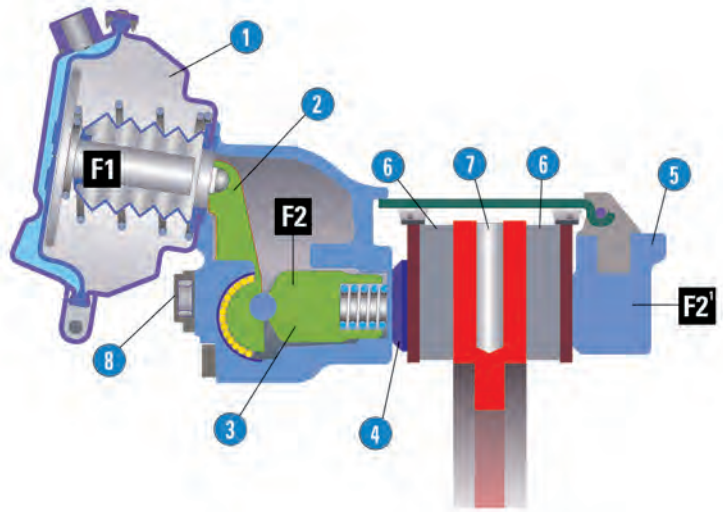
## The Bendix Air Disc Advantage

Superior Performance	Shorter Stops	Exceeds all Federally Mandated requirements for Reduced Stopping Distance Significantly shorter stops in demanding applications than even the best drum brake designs
	Better Braking Feel	Passenger car like feel Improved side to side brake consistency
	Safety	Greater braking power can result in fewer accidents
	Mono-block Construction	More compact than two-piece caliper models. Offers better sealing (and better protection) from environmental elements
	Dual Pistons	Even forced distribution, more even pad wear, reduced heat, noise elimination
	Two-pin Design	More stringent overall dimensional accuracy, uses fewer components
	Longer Lining Life	Compared to drum brake applications
Lower Maintenance	Sealed Design	Sealed design, no periodic lube required Sealed reliable, integrated automatic brake adjustment
	Quick Pad Changes	Quick change pads – 15 minutes per brake (with wheels off)
	Three Available Configurations	Optimizes pad and rotor service life to help reduce maintenance costs and downtime
Light Weight	Design Optimization	Weight comparable to high performance larger (16.5") front drum brakes Patented splined rotor design with Aluminum Hubs for optimized weight Lightest dual piston air disc brake available

The compact mono-block design provides excellent sealing and protection.

## Bendix® Air Disc Brakes – Models ADB22X™, SN7™, SN6™, and SK7™

1. Pneumatic brake chamber forces the pushrod against the lever with force  $F_1$ .
2. Eccentric lever multiplies force  $F_1$  and applies force  $F_2$  to beam.
3. Beam transmits force  $F_2$  to a pair of threaded tubes and tappets.
4. Dual tappets spread force  $F_2$  evenly across surface of inner brake pad.
5. Sliding caliper distributes forces  $F_2$  and  $F_2'$  equally between inboard and outboard brake friction pad.
6. Special brake pads, made of a carefully selected blend of materials for high stopping power and long life, apply forces  $F_2$  and  $F_2'$  to rotor.
7. Heavy duty ventilated rotor is specifically designed to minimize heat distortion and optimize thermal stress endurance. As pads grip rotor, vehicle decelerates.
8. These wear sensors provide a continuous voltage signal that indicates pad and rotor condition.



### Your Single Complete Source.

You've come to trust the Bendix name for world-class braking performance, quality, and superior support. Today, that legacy of foundation brake superiority continues under one brand name – Bendix® – as a part of Bendix Commercial Vehicle Systems LLC.

In addition to the Bendix sales and service professionals you deal with face-to-face, there is an entire team working behind the scenes to produce top quality, high performing products for you.

From R&D to engineering, from production to quality control and on-time distribution, rest assured you have the full support of an industry leader at work for you. Plus, we stand behind our products with complete warranty protection from one of the best programs in the industry.

Forty percent of the North American commercial vehicles manufactured today are built with Bendix® foundation brakes.

Many top fleets spec only our brakes both on their new trucks and trailers, as well as for their all-makes replacement parts. Bendix is your complete source for brake design, manufacturing, hardware, and support for foundation brake solutions, actuation systems, and components.





Talk to your Bendix Account Manager. Call 1-866-610-9709 or visit [www.foundationbrakes.com](http://www.foundationbrakes.com) today.

