

## BENDIX® ABS-6 ADVANCED WITH ESP® STABILITY SYSTEM

### AN INTELLIGENT INVESTMENT IN STABILITY

Bendix® ABS-6 Advanced with ESP® has capabilities previously thought achievable only through Electronically Controlled Braking Systems (ECBS). Utilizing the familiar air-based North American braking system, ABS-6 Advanced provides core antilock braking, along with Bendix® Smart ATC™ and ESP (covering under-steer, over-steer and rollover situations), the most effective ABS-based traction control and stability system on the market today.

### Safety is the bottom-line

Most people don't think of a safety system as contributing to the bottom-line. But when you consider the costs of accident related vehicle damage, down-time, clean-up etc... it's easy to see how it does. For fleets looking to reduce incident potential and improve profitability, Bendix® ABS-6 Advanced with ESP may be the best way.

### Bendix® ABS-6 Advanced with ESP offers the following competitive advantages to your fleet

- **Profitability** – Every dollar you save through incident reduction goes directly to the bottom-line. Consider this... just to stay profit (bottom-line) neutral, a fleet operating at a 5% margin would need to increase revenue by 20 times the cost of accident related losses. That means reducing accident costs by \$100,000 is equivalent to growing top-line sales by 2 million dollars.
- **Customer Satisfaction** – An accident can result in a late delivery or even damage to your customer's property, which can build ill-will and loss of confidence. Alternately, an investment in a stability system demonstrates the added value that your fleet provides.
- **Driver Training** – With tractor trailer combinations, often drivers don't know the vehicle is tipping because they can't feel what's happening until it's too late. The ESP stability system can not only help to mitigate those events, but driving data can be monitored and used as a proactive training tool.
- **Operational Efficiency** – The reliability of genuine Bendix components, the familiarity of an ABS-based system, along with a portfolio of easy-to-use diagnostic tools means less training and more vehicle up-time.
- **Driver Retention** – A commitment to safety improves driver morale and can reduce the potential of drivers leaving the profession or going to a competitor.

### Bendix® with ESP® Electronic Stability Program – What is it and how does it work?

The Bendix® ABS-6 Advanced system continuously monitors a variety of vehicle parameters and sensors to determine if the vehicle is reaching a critical stability threshold. When such a situation develops, the ESP system will quickly and automatically intervene to assist the driver. The ESP System can selectively apply tractor and trailer brakes, as well as de-throttle the engine and does so faster than a human in most situations.



### The Key Features and Benefits

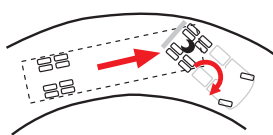
- **Complete Stability Solution** – Bendix® ABS-6 Advanced with ESP is the only ABS-based truck stability system capable of recognizing and assisting with both rollover (RSP) and vehicle under- and over-steer (ESP) driving situations and a variety of road conditions.
- **Electronic Stability Program (ESP)** – Helps to mitigate jackknifes, and loss of control through advanced monitoring of a variety of vehicle parameters and automatic and selective application of tractor and trailer brakes.
- **Roll Stability Program (RSP)** – A subset of ESP, it helps to mitigate rollovers through advanced sensing and automatic application of the vehicles brakes.
- **Bendix® Smart ATC™** – Unlike other traction control products, the Bendix® Smart ATC™ traction control system makes adjustments based on the vehicle orientation (straight vs. curve) and the driver's throttle input.
- **Core ABS** – Prevents wheel lock-up to help drivers maintain steering control while braking. Compliance with FMVSS 121 for air brake systems.
- **Diagnostics** – Bendix® ABS-6 offers a suite of diagnostic tools to keep your trucks on the road. From traditional blink codes and "Chuff", to a portable remote diagnostic unit (RDU), PRO-LINK™ compatibility, and Bendix® ACOM™, comprehensive computer based diagnostic software.
- **Serviceability** – Bendix® ABS-6 Advanced is an ABS-based system which means that most of the components are the same familiar parts used on your current ABS and ATC system. The additional components are based on proven technology and require only simple direct part replacement.
- **Customization** – Our patent pending customization feature allows fleets to add custom functions such as, lift axle actuation, trailer pressure monitoring and more.
- **Prognostics** – Bendix® ABS-6 Premium and Advanced utilizes the many system parameters it monitors to warn of impending situations such as abnormal brake performance or power supply problems, allowing you to schedule preventative maintenance.



## ABS-6 ADVANCED WITH ESP® STABILITY SYSTEM

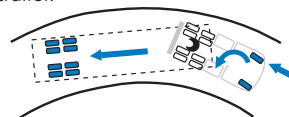
### Driving Scenario:

The vehicle speed around a curve exceeds the ability for the tires to hold the vehicle orientation, causing the tractor to slide and begin to over-steer. The momentum of the trailer further pushes the tractor exacerbating the situation (potentially leading to a jackknife).



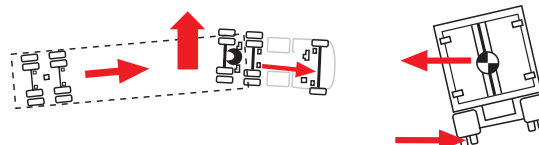
### How the ESP System Responds:

The Bendix® ABS-6 Advanced system senses the driver's intended path and compares it to the actual situation to identify an over-steer situation. In an attempt to correct the vehicle orientation and reduce speed if required, the system quickly applies braking pressure to only the front outside tractor wheel and to the trailer.



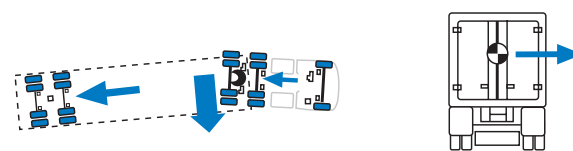
### Driving Scenario:

A vehicle enters a curve too fast, on high friction pavement, resulting in high lateral (side) forces acting at the vehicle's center of gravity (CG). The high friction between the wheels and the pavement create a "hinge" effect allowing the forces at the CG to push the vehicle over.



### How the ESP System Responds:

The Bendix® ABS-6 Advanced system applies pressure to all tractor and trailer brakes and reduces engine throttle to quickly reduce vehicle speed and therefore mitigate the tendency of the vehicle to roll over.



## All Stability Systems Are Not Created Equal

Evaluating competitive stability offerings can be confusing. Considering cost alone is not likely to result in the best solution to meet your return on investment, safety, and driver acceptance goals. To determine the effectiveness of a stability system you must consider the following key factors:

1) The system's ability to detect potential stability situations quickly and completely; 2) The speed and accuracy of the intervention; and 3) The ability to apply ample braking.

The table below identifies the key features and components of stability systems to provide a clear picture of the Bendix® ESP advantage.

	Feature	What it does	Why it matters	Wabco® RSC	Bendix® ABS-6 Advanced w/ESP
Bendix® ESP® Sensor Technology	Available in 4S/4M, 6S/4M, and 6S/6M ABS	Available on different ABS / ATC configurations	Adaptable for the needs of various fleet specific vehicles	✓	✓
	Wheel Speed Sensor	Monitors the wheel rotation at individual wheels	Allows the system to determine vehicle speed and monitor wheel lock-up to optimize braking	✓	✓
	Lateral Acceleration Sensor	Senses the side or lateral forces acting on the vehicle	Side or lateral forces are used to detect a roll situation	✓	✓
	Steering Angle Sensor	Senses the driver's steering and direction	An early indicator of a potential critical maneuver. Helps the system to respond faster and more accurately		✓
	Brake Pressure Sensors	Measures the driver's braking demand	Allows the system to accurately supplement the driver throughout the maneuver		✓
	Load Sensor	Senses the vehicle's load situation	Allows for the system to match braking power to weight distribution		✓
	Yaw Rate Sensor	Senses the rotation of the vehicle	Allows the system to monitor the true orientation of the vehicle and compare it to the driver's intention		✓
Bendix® ESP® Performance Enhancement	Multi-level Sensing	Cross checks multiple system sensors	Improves the reaction time and accuracy of the intervention		✓
	Tuning	Different trucks or towing vehicles have different stability characteristics. Tuning adapts the stability system to account for these differences	Improves the ability of the stability system to match the intervention of the situation		✓
	All Axle Braking	The ability to apply brakes at all axles	Provides the best opportunity to reduce vehicle speed in the shortest time		✓
	Individual Corner Braking	The ability to apply individual and trailer brakes	Provides the capability to control under- and over-steer situations		✓

**Bendix® ABS-6 Advanced with ESP® helps you make an intelligent investment in stability.**

**For more information talk to your Account Manager, call 1-800-AIR-BRAKE**

**(1-800-247-2725) or visit [www.bendix.com](http://www.bendix.com) today.**

