

# **Stability Enhancement Systems With Integrated ABS**

*Protection That Pays*

*... Innovation  
that delivers*

# It Pays to Know What's Right for Your Fleet

*Specify the Right Rollover Protection to Meet Your Needs*

## **System #1:**

### **Roll Stability Control (RSC)**

Offers you the highest level of tractor rollover stability in the marketplace today with the fewest components.

## **System #2:**

### **Electronic Stability Control (ESC)**

ESC builds on RSC rollover protection to provide added directional control, including jackknifing.

## **System #3:**

### **Roll Stability Support (RSS) for Trailers**

A trailer-based system that delivers rollover protection for your load — no matter whose tractor is up front.

## **Meritor WABCO, A Leader in Stability Control**

Known for both high value and innovation, Meritor WABCO was the first to pioneer stability systems for commercial vehicles.

As a result, our stability systems have the longest proven track record on the road.

For the right system to meet your specific needs, look to Meritor WABCO, North America's first and only full-line supplier of stability solutions with systems for both tractors and trailers, and dedicated teams to support each system.

## **Best-selling, longest-running systems**

Our stability system technologies have been available since 2002. Today, we have more systems running than all our competitors combined.

*Stability enhancement systems are only an aid and no system can prevent loss of control or rollover in all driving conditions. An alert and unimpaired driver remains the most important element in ensuring that physical limits of the vehicle are not exceeded.*



## Roll Stability Control (RSC)

### **Achieving Improved Performance**

RSC is the industry benchmark that helps fleets realize improved performance and lower operating costs. By integrating RSC into the existing ABS architecture, this system offers ease of maintenance due to fewer components.

### **Works continuously to reduce rollovers**

RSC continually checks and updates the lateral acceleration of the tractor and compares it to a critical threshold where rollover may occur. When the critical threshold is met, RSC intervenes by reducing engine torque, and engaging the engine retarder, while automatically applying drive axle and trailer brakes. Frequently, activation takes place before the driver is aware of the need.

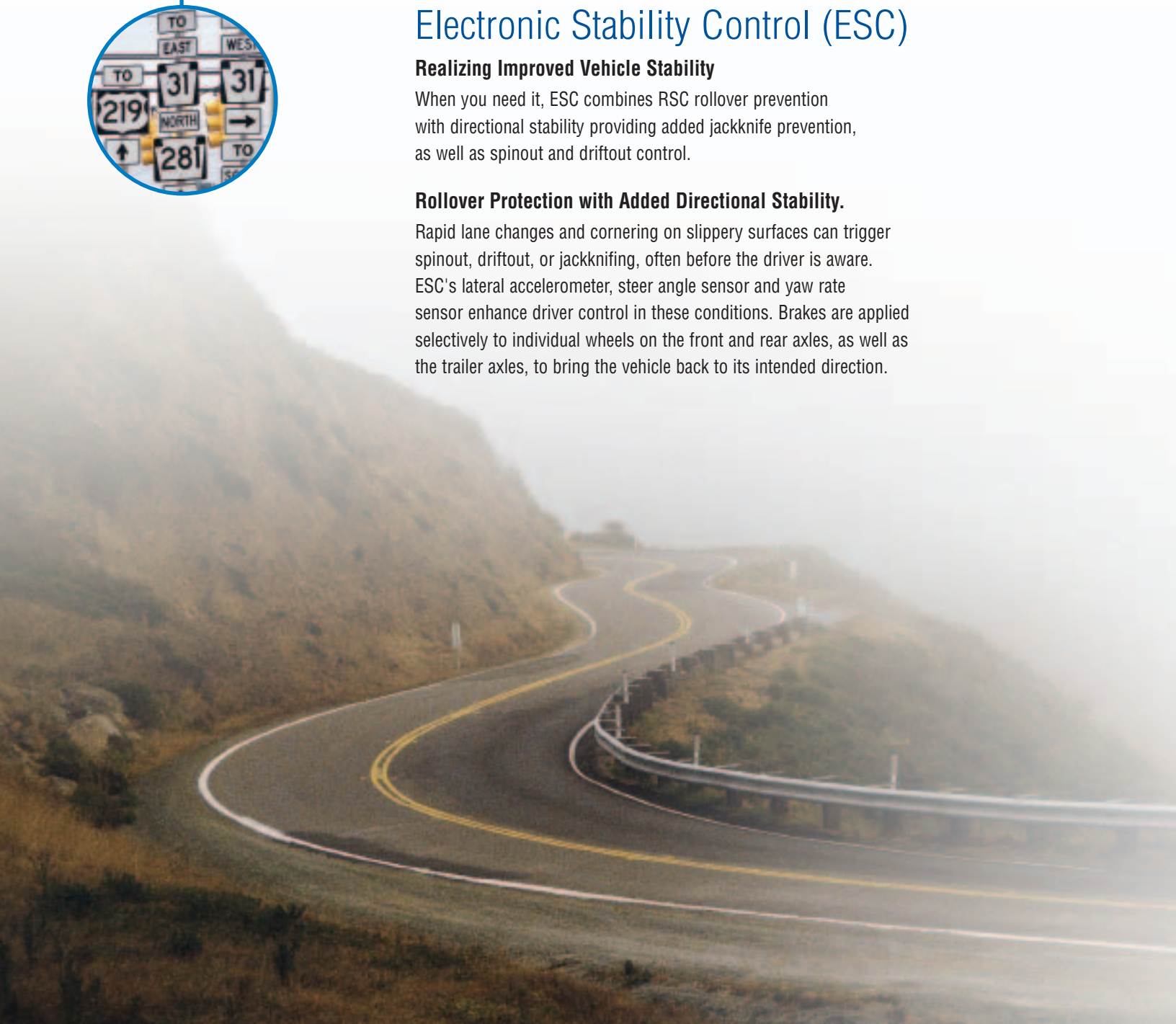
## Electronic Stability Control (ESC)

### **Realizing Improved Vehicle Stability**

When you need it, ESC combines RSC rollover prevention with directional stability providing added jackknife prevention, as well as spinout and driftout control.

### **Rollover Protection with Added Directional Stability.**

Rapid lane changes and cornering on slippery surfaces can trigger spinout, driftout, or jackknifing, often before the driver is aware. ESC's lateral accelerometer, steer angle sensor and yaw rate sensor enhance driver control in these conditions. Brakes are applied selectively to individual wheels on the front and rear axles, as well as the trailer axles, to bring the vehicle back to its intended direction.



# Roll Stability Support (RSS)

## Additional Asset Protection

The industry's first—RSS is a dedicated trailer stability support system that helps keep your trailers on the road by reducing the potential for tractor-trailer rollovers.

## No Additional Trailer Hardware Needed

Here's how it works. RSS checks trailer wheel speed, lateral acceleration and air suspension pressure, and applies trailer brakes at rollover threshold to reduce speed and lower lateral acceleration. The RSS system can apply full brake force to the outside wheels while applying lower pressure to the inner wheels.

For maximum directional control and stability, combine our dedicated trailer stability support system (RSS) with either an RSC or ESC tractor stability system.

RSS is a software solution incorporating trailer ABS that works independently of the tractor stability system. It ensures that the trailer has the benefit of stability control, even if the tractor is not equipped with a stability control system. This may be the case with fleet trailers that are hauled by brokers or owner-operators.

*Meritor WABCO stability system technologies have been available since 2002. Today, we have more systems running than all our competitors combined.*

# RSS Applications



## Who needs RSS?

- *Fleets desiring protection against trailer roll-overs*
- *Vehicles with a high center of gravity*
- *Hazardous material transports*

40 mph System OFF\*



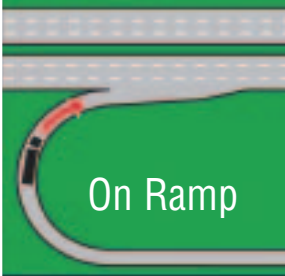
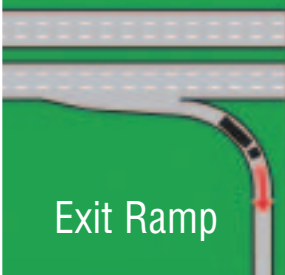
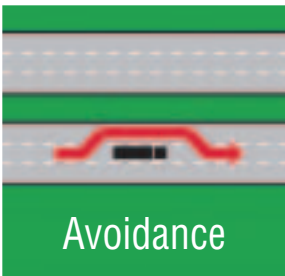
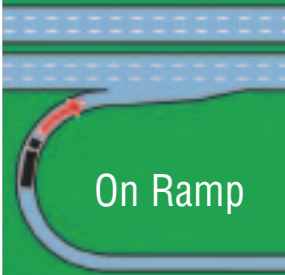
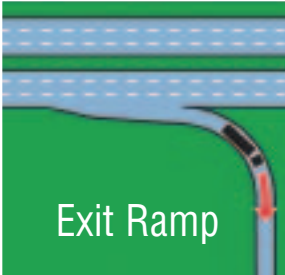
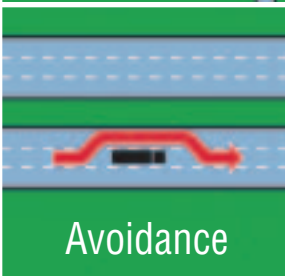
40 mph System ON\*



*\*Avoidance Maneuver/Roll Stability testing performed in a controlled test environment.*

# Which Meritor WABCO System Is Right for You?

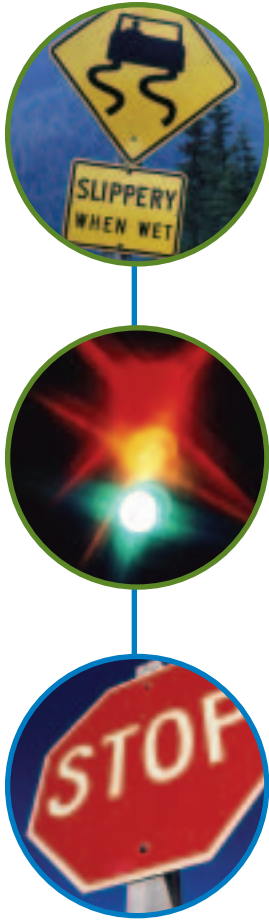
Your choice of tractor and trailer systems provide you with a unique, total stability solution to best fit your needs.

		Common Maneuvers	Roll Stability Control (RSC)	Electronic Stability Control (ESC)	Roll Stability Support (RSS)
High Friction Surfaces (Dry Pavement)	On Ramp		When critical lateral acceleration is measured while entering a ramp, RSC intervenes by reducing engine torque, engaging the engine retarder and applying drive axle and trailer brakes.	When accelerating while entering a ramp, ESC includes the RSC control functions; the intervention would be similar to RSC and include steer axle braking.	When accelerating while entering a ramp, RSS monitors the trailer's lateral acceleration. If critical lateral acceleration is detected, full trailer brake application is applied to the outside wheels to reduce vehicle speed.
	Exit Ramp		When critical lateral acceleration is measured while exiting a ramp with excess speed or with a reducing radius, RSC will reduce speed through engine torque reduction, engaging the engine retarder and applying drive axle and trailer brakes.	ESC includes the RSC control functions; the intervention would be similar to RSC and include steer axle braking.	RSS monitors the trailer's lateral acceleration. If critical lateral acceleration is detected, full trailer brake application is applied to the outside wheels to reduce vehicle speed.
	Avoidance		Assists the driver in controlling severe avoidance maneuvers that may exceed stability limits. RSC intervention: engine torque reduction, engaging the engine retarder and applying drive and trailer axle brakes.	ESC includes the RSC control functions; the intervention would be similar to RSC and include steer axle braking.	RSS monitors the trailer's lateral acceleration. If critical lateral acceleration is detected, full trailer brake application is applied to the outside wheels to reduce vehicle speed.
Low Friction Surfaces (Rain/Snow/Ice)	On Ramp		With low friction on ramps the ATC function of RSC reduces the spinning of drive axles to increase traction during acceleration and to maintain vehicle lateral stability and directional control while driving through curves.	With low friction on ramps, ESC has the ATC function of RSC and additional directional control by selectively applying brakes based on the inputs from steer and yaw angle sensing.	While low friction surfaces do not typically generate lateral acceleration that can cause rollover, loss of directional control can occur and the risk of rollover increases when the vehicle then suddenly encounters a surface with a higher friction. The ABS function of RSS provides performance improvement to maintain directional control by reducing potential swing out or jackknifing.
	Exit Ramp		On low friction exit ramps, ATC will reduce engine torque when the rear axle speeds exceed the steer axle speeds to reduce jack-knife potential.	On low friction exit ramps, ESC has the ATC function of RSC and the additional directional control by selectively applying brakes based on the inputs from steer and yaw angle sensing.	While low friction surfaces do not typically generate lateral acceleration that can cause rollover, loss of directional control can occur and the risk of rollover increases when the vehicle then suddenly encounters a surface with a higher friction. The ABS function of RSS provides performance improvement to maintain directional control by reducing potential swing out or jackknifing.
	Avoidance		Low friction avoidance maneuvers generate little lateral force. ATC assists in maintaining control of the vehicle by reducing engine torque.	During low friction avoidance maneuvers, ESC provides directional control by selectively applying brakes based on the inputs from steer and yaw angle sensing.	While low friction surfaces do not typically generate lateral acceleration that can cause rollover, loss of directional control can occur and the risk of rollover increases when the vehicle then suddenly encounters a surface with a higher friction. The ABS function of RSS provides performance improvement to maintain directional control by reducing potential swing out or jackknifing.

# Meritor WABCO Stability Systems

## Adaptable Stability Solutions Specific to Your Fleet Operation

Specify from a flexible selection of stability solutions that adapt to your fleet needs and budget.



### Three Systems from Meritor WABCO:

- The **Roll Stability Control (RSC)** system delivers rollover protection with the most functionality and fewer components.
- The **Electronic Stability Control (ESC)** system builds upon RSC's rollover protection with the extra tractor safeguard of directional control.
- The **Roll Stability Support (RSS)** system is an independent system that protects your trailer and payload from potential rollovers.
- Combine RSS with either RSC or ESC and you gain maximum directional control and stability.

Together these systems offer a choice of stability enhancement solutions that is unique in the industry. Based on application and fleet vocations, Meritor WABCO helps you specify exact stability solutions.

#### Meritor WABCO Vehicle Control Systems

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