Chassis Systems

Hybrid and Electric Vehicle Brake Control

**Slip Control Boost (SCB)**
TRW Automotive’s Slip Control Boost system seamlessly integrates electronic stability functionality with regenerative braking capabilities, which are ideal for hybrid / electric vehicles and alternative powertrain solutions or future driver assist configurations requiring high dynamic brake pressure apply.

SCB replaces the traditional brake actuation system (boosters, master cylinders, vacuum pumps) with an electro-hydraulic control unit (EHCU) and a brake pedal simulator. TRW continues to improve this technology, and next-generation systems will deliver improved packaging, performance and lower cost.

**Electronic Stability Control–PH (ESC-PH)**
TRW’s ESC-PH technology enables brake blending up to 0.25g deceleration within an EBC460 ESC-Premium architecture. This cost, weight, and package-optimized concept uses a conventional actuation system with travel sensing.

**Regenerative Braking**
Regenerative Braking allows a vehicle to recapture and store part of the kinetic energy that would otherwise be lost to heat when braking. This energy is used to recharge the electric batteries and save on fuel in a hybrid architecture. In turn, part of this stored energy is used to slow the vehicle; if the energy is insufficient to bring the vehicle to a full stop, friction braking is blended seamlessly to provide the brake force requested by the driver. The SCB braking system is a closed-loop system and allows for significant energy recovery during braking.

**Benefits**
- TRW proven and robust solutions cover all regenerative braking market requirements for all powertrains and brake circuit split variations.
- Systems support OEM goals of meeting CO2 emission reduction requirements by maximizing energy recovery and improved fuel economy.
- High modularity of TRW’s EBC460 slip control system family provides cost-efficient solutions.
- Package and weight-optimized concepts allow installation from small to luxury vehicle segments.

**SCB Features & Functions**
- Vacuum independent
- Full brake blending for regenerative braking
- Highly dynamic, sensitive autonomous braking
- Single-channel pressure control reduces system complexity
- High degree of integration
- Minimized system cost
- Fail-safe mode in regenerative braking systems
- Improved braking system energy efficiency
- Robust system design
- Meets both standard brake control and enhanced autonomous braking functions

**EBC460-PH Features & Functions**
- Based on premium EBC460 system
- Use of conventional Actuation System with travel sensing
- Reduced level of brake blending within standardized and proven ESC architecture
- High-pressure apply dynamic by 6-piston pump
- Comfortable brake pressure re-apply in blending mode
- Drop-out of blending and switch to conventional control function in case of vehicle instability