

Ride control innovation, acceleratedSM



Forward thinking. Forward moving.

Where transportation goes for innovation

A top-class suspension system that combines best possible performance, handling and stability with driver selectable comfort for every day use – that's what you get when you combine the features of Tenneco's Continuously Controlled Electronic Suspension system (CES) with its Kinetic™ H2 system.



Developed by Tenneco's ride control engineers for top-of-the-range vehicles including supercars and high-end SUVs, the Tenneco Kinetic™ H2 CES is an interconnected passive, reactive system that provides continuously controlled damping and high roll stiffness with reduced articulation stiffness.

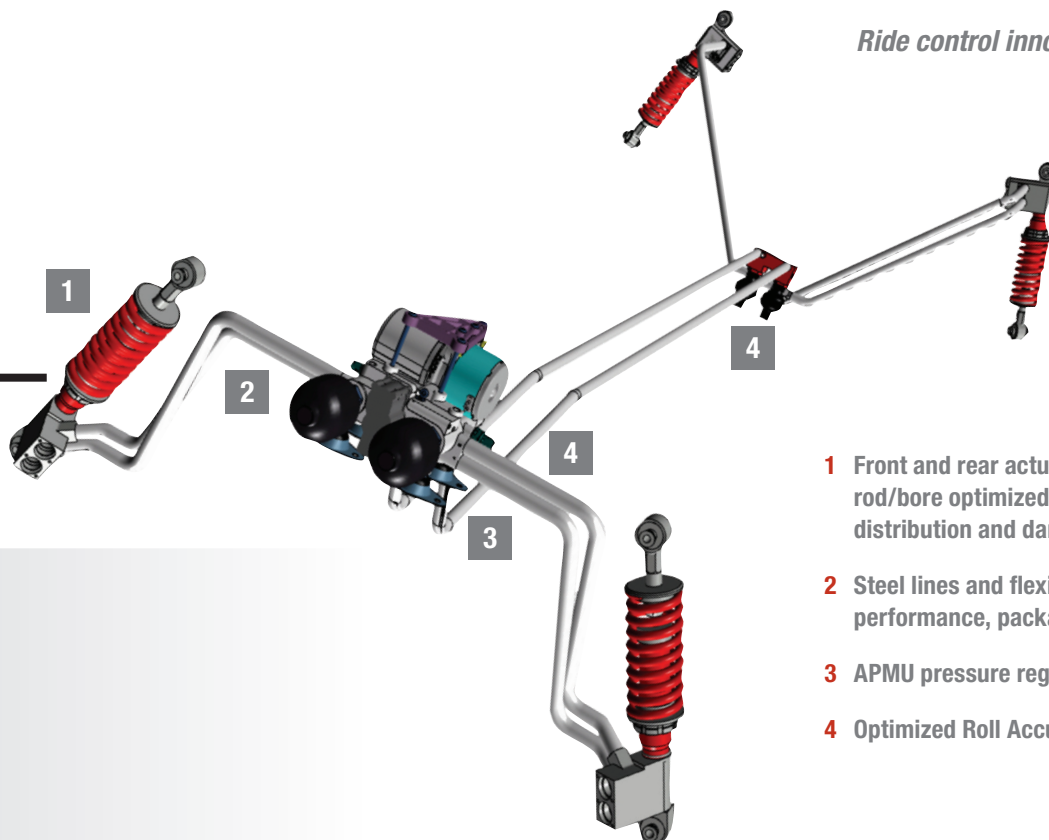
With the system, vertical tire loads are optimized, resulting in significantly improved on-road traction and performance. The continuously controlled damping works with the "skyhook" principle for body control

with additional algorithms for wheel hop, steering, braking and acceleration control.

In the new Kinetic™ H2 CES system, the front anti-roll bar, rear anti-roll bar and four shock absorbers have been replaced. In their place are four double-acting hydraulic cylinders each with two integrated CES damper valves, four roll accumulators, local comfort valves, an automatic pressure maintenance unit (APMU) and interconnecting hydraulic lines.

The two CES damper valves at each corner restrict the flow between the cylinder and accumulators to electronically control roll, bounce and pitch modes, allowing decoupling of transient ride and handling performance.

Furthermore, the use of the electronically controlled CES damper valves, combined with intelligent control algorithms, allows independent control of body and wheel motions.



- 1 Front and rear actuators with CES valves: rod/bore optimized for roll movement distribution and damping capability
- 2 Steel lines and flexible hoses optimized for performance, packaging and routing
- 3 APMU pressure regulator & comfort valve
- 4 Optimized Roll Accumulator position

KINETIC™ H2 CES FEATURES & BENEFITS



- Passively allows simultaneous high roll stiffness (for better handling), reduced articulation stiffness (better traction) and reduced single wheel stiffness (better comfort)
- Reactively allows high roll damping (for reduced roll rate), high pitch damping (for better braking and acceleration) with reduced bounce and single wheel damping (for improved comfort and traction) and independent wheel hop control
- Passive operation allows instant stiffness response, minimal weight, simplicity, low cost
- Uses standard damper components and standard CES valves, while incorporating proven CES control algorithms
- When supplied with an APMU (Automatic Pressure Maintenance Unit) the drivers can adjust the roll stiffness to their driving needs, with the additional benefit of not requiring specialized equipment to service the system
- When supplied with a comfort valve, vehicle stiffness is reduced further and head toss is minimized, providing additional comfort benefits



Partnership Built on Performance

At Tenneco, we don't simply provide a product. We provide a partnership – taking into account customers' entire systems, their unique needs and applications, technology requirements, market challenges and goals. With Kinetic™ H2 CES and our complete line of ride control solutions, we offer the partnership that drives the innovation that maximizes performance and enables true ride control.

PIONEERS IN RIDE CONTROL

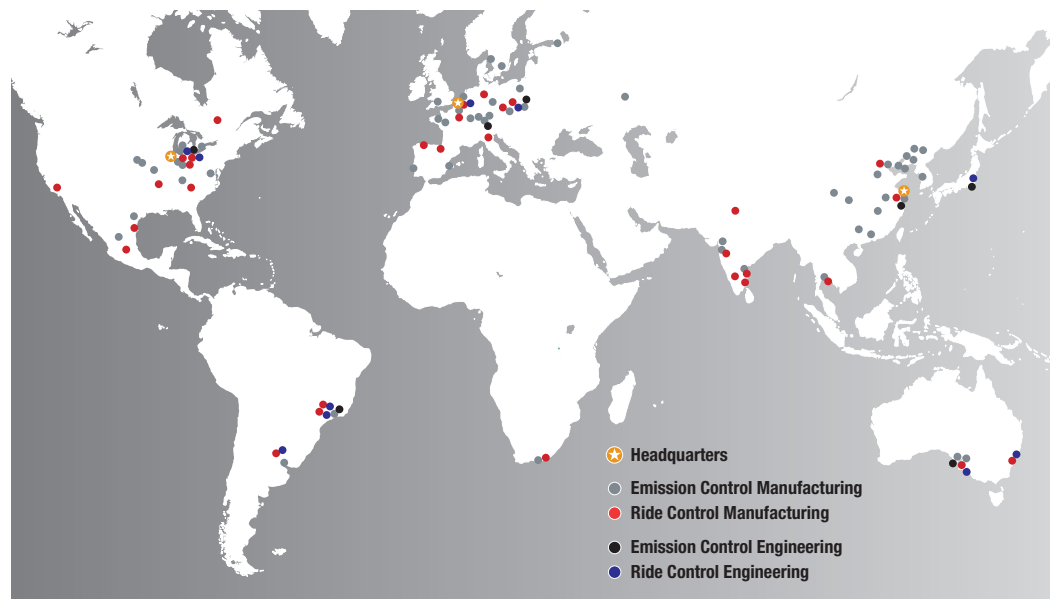
At Tenneco, innovation is a hallmark of everything we do. In our advanced ride control technologies and solutions. In our unique, total-system integration expertise and approach. In our commitment to partnership and collaboration. We're always looking beyond the technology horizon to foresee and develop the next-generation ride control solutions that accelerate our customers' success and keep them moving toward the future.

From development through delivery and beyond – we help our partners drive transportation innovation, full speed ahead.

TENNECO IS EVERYWHERE OUR CUSTOMERS NEED US

Our reach is global, but our focus is local, helping customers in each region adapt our global capabilities and technologies for local applications.

- 22,000 people
 - More than 80 manufacturing facilities
 - 14 state-of-the-art research and development centers
 - 3 dedicated research and development centers for ride control engineering
- Markets served:**
- Light vehicle
 - Motorcycle
 - Bus and truck
 - Axle suspension
 - Cabin suspension
 - Seat suspension



PLEASE CONTACT OUR RIDE CONTROL TEAMS AROUND THE WORLD ...

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