In an increasingly demanding and competitive consumer market, a vehicle’s ride and handling is an important element in a purchasing decision. Auto engineers are under more pressure than ever to deliver the optimum ride. Brand reputations can be made or broken on the back of a vehicle’s ride and handling technologies. The Vehicle Dynamics International Awards acknowledge such efforts, rewarding not only automotive engineers, but also the companies that supply and service their efforts.

To put together this inaugural set of awards, we did a number of things: First, we recruited a jury of respected international automotive journalists (see panel overleaf), many of whom are contributors to VDI, and all of whom are very well informed in the field of vehicle ride and handling technologies. Next, we asked vehicle manufacturers and supplier companies to highlight to us any innovations or developments they would like us to consider. Every new vehicle introduced to any one market from November 1, 2007 to November 1, 2008 was eligible.

From the nominations received, and with input of its own, the VDI editorial team selected a shortlist of nominations, four in each category, to be judged by the full jury. Then we added up the scores to find the winner and a highly commended runner-up in each category.

The Vehicle Dynamics International Awards will become an annual event. So remember, when you’re busy launching new cars or technologies in 2009, or find yourself working for a talented, inspirational leader, don’t forget to tell us about it!

Graham Heeps, editor
Dynamics Team of the Year

Ford of Europe has become synonymous with dynamic excellence, so it's perhaps no surprise to see the Blue Oval as the winner of Dynamics Team of the Year. But winning this award was not a formality for Ford, and ever-improving fuel pushed its rival all the way to the trophy, before finishing in the highly Commended runners-up position. Not should the remaining two nominees be forgotten: both Prodrive and Renault Sport have a deep-rooted commitment to vehicle dynamics excellence that shows up time and time in the companies' products.

Ford's Dynamics Team of the Year accolade is not restricted to engineers on one continent. Having established something of a powerhouse in Europe, Ford has been sharing vehicle dynamics expertise and processes with its other divisions around the world. In Australia, for example, the FG Falcon is winning plaudits; EPS makes its Ford North America debut in the revised Fusion; and in 2010 US customers will receive the Fiesta. Not only is Fiesta (whose ride and handling team is pictured below) a great small car when size and energy efficiency are more important than ever, but its accessible dynamics ensure that customers in global markets from the USA to China will be able to save the planet with smiles on their faces.

The man at the head of Ford's dynamics team, executive technical leader vehicle dynamics, Tim van der Jagt (inset), was delighted with the award: “I think that with the new Fiesta, Ford has proved once again its outstanding expertise in vehicle dynamics,” he said. “We are very happy to get such positive feedback from the media, not only for Fiesta but also for the new Ka. We are very proud of this award in particular because the jury consists of such a great number of international experts. I'm confident that our team will continue to do everything to maintain this high level of vehicle dynamics performance with our upcoming products.”

Development Tool of the Year

Another category with real diversity on the shortlist was Development Tool of the Year, where a damper test rig, a GPS data logger, a kinematic and compliance measurement system, and software for chassis controls design were all in the running.

In the event, the judges backed the Mechanical Hardware-in-the-Loop (mHIL) Four-Cylinder Damper System, a joint nomination by Nissan Motor Company in Japan and US test equipment specialist MTS Systems Corporation. Under the system (shown below), four physical dampers are placed in lead frames and integrated with a vehicle model to execute simulated vehicle maneuvers. This capability supports the tasks of CAs validation, troubleshooting, and pre-tuning before vehicle prototypes are available. mHIL benefits include reduced development time and cost, reduced test cycle time, reduced rework, and improved vehicle performance. “During the preparation phase mHIL damper testing revealed several unknowns that were solved before integrating our dampers into a vehicle prototype, reducing vehicle testing by at least one month,” explained Yoshiki Sakai of Nissan Motor Company in Japan. “At Nissan, we will reduce vehicle prototypes, but there will always be system prototyping with mHIL.”

Commenting on the win, judge Adam Gavin, editor of Automotive Testing Technology International, said, “In an era where suppliers and car makers are looking to cut development time and costs, it’s clear that the MTS mHIL Four-Cylinder Damper testing technology is proving to be a critical tool for test engineers and dynamicists at Nissan.”
Car of the Year

Picking a winner in the Car of the Year category was one of the hardest of our judges’ tasks. The fact that excellent ride and handling performance can be found in vehicles of all sizes and levels of performance only adds to the difficulty of the task, for it dictates a shortlist populated not only by fast, exotic machinery, but also by newly launched everyday vehicles, such as the Suzuki Splash and Ford Fiesta, that are notably good to drive.

In the end, the battle was between two very different vehicles, the Fiesta and the Nissan GT-R, with the GT-R emerging victorious. It’s not the lightest or most elegant of sports cars, but the jury decided that what the GT-R lacks in subtlety, it makes up for in all-round ability.

A host of high-tech dynamic technologies such as active torque management (back-to-front and side-to-side) and Bilstein DampTronic adaptive dampers, have helped the Nissan to take the fight to the European supercar establishment. “As track tests have revealed worldwide, the GT-R is a revelation for Nissan,” observed jury member Matt Davis, a US freelancer based in Italy.

“I was expecting a sloppy US musclecar wrestling match behind the wheel, but what I got from the outstanding dedicated all-wheel-drive chassis was very close to an Audi R8. The three-mode suspension on the Bilstein DampTronic needs a little work, but nonetheless I was happily stunned.”

Speaking on behalf of the development team, Simon Croft of Nissan International commented: “To be presented with this Award from those specifically reporting on vehicle dynamics validates our many hundreds of hours testing around the world at various circuits and on challenging road conditions. Like previous versions of the legendary GT-R, our latest model to bear the iconic three letters is a showcase for Nissan’s engineering. We know we have developed an extraordinary car, a technological flagship for Nissan that demonstrates our passion for cars. We can feel proud our work has been truly appreciated.”

Supplier of the Year

A showcase for the companies that supply the components and technologies that allow chassis engineers to do their job, this category became a contest of four highly respected nominees. All gave the judges compelling reasons to win their vote.

Over the past year, Brembo has made several acquisitions and announced a big rise in profits for the first half of 2008. ArvinMeritor, meanwhile, has a raft of high-tech new ride control products coming to market under the ‘smart systems’ banner.

TRW Automotive was Highly Commended, a reflection of the fact that, despite tough industry conditions, it’s still performing much better than many of its North American Tier 1 contemporaries, and launching a range of affordable new technological developments.

But the Supplier of the Year trophy was awarded to Robert Bosch. Still growing, still profitable, and still at the forefront of chassis technology development, Bosch’s latest developments include a focus on the integration of active and passive safety systems, a yaw rate sensor currently under development that is half the size of the previous model but with the same accuracy and response time, and a new version of parking assistant that will work with hydraulic power steering.

Awards judge Juergen Zoellter gave this verdict: “In 2008 Robert Bosch GmbH took over Innovations Softwareotechnologie GmbH in order to get the know-how for a better IT-based integration of automotive systems for the future. That’s an essential strategy for the future, I believe. More generally, the cars of today can be powered by smaller and more efficient drivetrains, due to innovative Bosch technologies. There is no similar player in the worldwide automotive industry with such successful solutions.”
Innovation of the Year

Open to OEMs and suppliers alike, the Innovation of the Year category attracted a broad range of nominations.

As the judges’ scores rolled in, a close contest for category honors developed between Bishop Steering Technology’s ActivRak variable-rate steering systems, and another well-received steering innovation, this time on the rear axle: Renault’s impressive 4Control 4WS technology. But it was Bishop’s simple but clever, mechanical substitute for the vehicle dynamics component of active steering that took the title. ActivRak is a variable ratio steering rack that quickly reduces the steering ratio off center. The system is incorporated into the Direct Steer technology already seen in Mercedes-Benz’s SLK, SL, and CLC models. In the first half of 2009 it will also be released on the new Mercedes-Benz E Class, then progressively rolled out across S-, M- and R-Class models through 2009 as the next stage of its implementation on all Mercedes models in the next three years.

For jury member Jim McCraw, it was simplicity that won the day: “It is a simple, elegant solution to a very complex problem,” he explained, “one that works without computers and algorithms and add-ons. In dynamic terms, it works to make the vehicle feel more sporty in the corners and more stable on the highway, without cost or complication penalties.” Fellow juror Brian Cowan concurred: “The best steering systems have always been based on pared-to-the-bone simplicity. ActivRak is a fine example of that tradition.”

DYNAMICIST OF THE YEAR

WINNER
John Heinricy, General Motors

Highly commended
Wolfgang Helbert, Ford Europe

Also shortlisted
Jack Cooper, Dodge
Michael Lugert, Hyundai-Kia

Dynamicist of the Year

It’s always inspiring to work for great people, and the message coming loud and clear out of General Motors’ Performance Division is that there is nobody those engineers would rather work for than John Heinricy, GM’s director of High Performance Vehicle Operations.

Heinricy was first nominated for this award by his own engineers. One said, “Although John is an executive within GM, which comes with a lot of responsibility, he’s also an accomplished professional racer who brings both passion and expertise to any projects he oversees.”

A delighted Heinricy commented, “I’m honored to receive the Dynamicist of the Year award. Leading a high-performance vehicle team has been particularly rewarding for me. As all chief engineers in our industry know, it takes a terrific and talented team to develop high-performing cars. And, it also requires a true racing spirit, in which that team strives to be the best it can be. Our GM Performance Division was responsible for getting 19 vehicles into production – as well as many racing wins – over the past several years. This award validates the team’s hard work.”

INNOVATION OF THE YEAR

Winner
ActivRak – Bishop Steering Technology

Highly commended
4Control – Renault/Renault Sport Technologies (pictured)

Also shortlisted
NexTrac active 4WD – BorgWarner
TPI indirect tire pressure monitoring – NIRA Dynamics