# Concept Model Used in Actual Racing
# Harmonized Function Design

- **The concept model "Harmonized Function Design," which was integrally designed under our suspension brand "SHOWA" and brake brand "NISSIN" based on a concept of the same name, entered the demonstration phase in 2026, three years after its announcement.**
- **As part of the verification, the system was installed on a racing machine of the All Japan Road Race Championship JSB1000 class and data was acquired in the actual running environment.**
- **At EICMA 2026, the actual vehicle used will be exhibited, and images of actual operation and comments from the riders will be shown.**






**Based on the concept of harmonized function design for the front fork axle and the brake caliper, the "Harmonized Function Design" concept model, which was designed as a single integrated unit, resulted in achieving our initial development goals. It was introduced in actual racing for the JSB1000 class, the highest class at the All Japan Road Race Championship, held in September 2026. At EICMA 2026, the second-generation Harmonized Function Design will be exhibited, along with a video of the Superbike Race in Okayama (Round 6 of the All Japan Road Race Championship). Riders' comments are also part of the recording so that attendees can feel the potential of "Harmonized Function Design" obtained at the forefront of racing.**

"Harmonized Function Design" has achieved its goal of being put into practical racing use. Astemo Pro Honda SI Racing, a racing team that competes in the JSB1000 Class, one of Japan's premier motorcycle road racing categories, installed the concept model on their

machine and won the pole position in the qualifying stage of the Superbike Race in Okayama on September 27. Although they had to retire from the final race, much knowledge was gained through use of the concept model in an actual race environment, which was an important milestone in the performance evaluation of “harmonized function design.” The company's post on social media about winning the pole position also received many responses, reaffirming the strong market interest in the project.

Astemo began supporting Astemo Pro Honda SI Racing in 2020. Through these support activities, we actively adopt parts in advanced development. We have worked to improve the performance and quality of mass-produced products based on the products that have been proven at the forefront of racing. Harmonized Function Design is an extension of this. From the beginning of development, we started with the assumption that it would be used in the highest class of road racing, and we have been preparing for it. In the process of development, we tested several patterns with slight differences. Because these slight differences can change the desired feeling, our accumulated knowledge of brake evaluation was compared with them and a new relationship between the suspension and the brakes was established, which is different from simply that of axial and radial mounts, so that we were able to find clues to many new approaches to braking force and handling. Rather than simply pursuing the individual performance of the suspension and brakes, we aimed to achieve a balance between clarity in recognizing the vehicle’s limits and ease of handling. We selected the best configuration from several options and put it to the test in actual racing conditions.

The results of the testing at the All Japan Road Race Championship and the pole position that was gained there proved that the new relationship between the suspension and the brakes that we have established is moving in the right direction. By accumulating more experience and data in the racing environment, we aim to expand the range of use of the technology into vehicles with different vehicle weights and engine displacements in the future.

"Harmonized Function Design" is a concept model that was first unveiled at EICMA in 2024. The teams for the SHOWA suspension and the NISSIN brake brands understand the functions of each other's products and have designed the integrated shape of the front fork axle and brake caliper based on the concept of "harmonized function design." In terms of the relationship between the front fork axle and the brake caliper, the design, while doing away with conventional concepts, still achieves the necessary strength and rigidity with the minimum dimensions. The contact area between the front fork axle holder and the brake caliper has been increased by 30% to enhance the heat sink effect, which dissipates heat generated by the brakes to the front fork side. Active use of the front fork as a heat dissipating component has reduced the average temperature of the calipers by 5%. In addition, the number of

fastening parts has been reduced, and the weight under the spring has been reduced by 200 g compared to conventional products.

In the second generation, which was presented at EICMA in 2025, the cooling fins of the brake caliper body were designed deeper to enhance the cooling effect. The surface area of the caliper body has been increased to improve cooling performance by up to 6% compared to the first generation as launched at EICMA 2024. To increase the rigidity of the fastening area between the caliper body and the axle holder, the fastening area has been enlarged by applying bumps to the surface. By optimizing the bumped surface, the caliper's rigidity in the torsional direction has also been increased. Furthermore, while reducing the weight of the axle holders and fastening arms, the rigidity of the arms has been optimized through the fine-tuning of wall thickness and reinforcement. As a result, the second generation weighs 36 g less than the first generation, and approximately 136 g less than conventional products.

The "Harmonized Function Design," which will be exhibited at EICMA 2026, is based on the second generation and will be put into practical racing use. Basically, the parts related to performance are based on the second generation, but the durability and performance have been verified through use in racing, and the necessary parts have been updated.

*Information contained in this Technical Information is current as of November 3, 2026, but may be subject to change without prior notice.