

### Concept Model

## Harmonized Function Design

SHOWA (suspension brand) and NISSIN (brake brand), which have been providing high-end products for the highest level of motorcycle racing, design the integrated shape based on the concept of "Harmonized Function Design" by understanding each other's functions.

Through the collaboration of SHOWA and NISSIN, we create harmony even with an independent role and realize a highly completed product with a visual consistency in design.

■ Set the themes for performance evolution as maximization of weight reduction and heat dissipation effect

- 200g reduction of unsprung weight by optimizing design and reducing the number of tightening parts compared to conventional products \*1
- Expansion of heat sink effect, which dissipates heat generated by braking to the front fork side, by increasing in contact area between front fork Axle Holder and Brake Caliper by 30% \*2. An active utilization of the front fork as a heat dissipation part helps to reduce an average caliper temperature by 5% \*2
- Joint analysis of both suspension and brake members contributes to designing an optimal shape while ensuring the rigidity necessary for the axle holder and brake caliper. This leads to a completion of distinctive cantilever shape.
- These features above are precisely reflected in the product design

\*1 Comparison with our products Total of left and right products

\*2 based on our analysis results



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**The suspension brand “SHOWA” and the brake brand “NISSIN,” which have been providing products for the World Grand Prix and Super Bike racing for a long time, work in collaboration, combine its technologies, and exhibit the concept model “Harmonized Function Design” at EICMA 2024. In recent years, loads on the vehicle during racing have continued to increase with the remarkable evolution of vehicle performance. SHOWA and NISSIN, as a specialist of suspension and brake, contribute to the victory of top rider and top team with weight reduction and heat dissipation effect achieved by pursuing ultimate performance.**

The production bikes that serve as the base vehicles for the World Super Bike Championship have been evolving year by year, and they can reach unimaginable speeds by installing racing parts. To take victories in the racing, the vehicle must have the performance that can stably bring out cornering speed and braking force.

With “Harmonized Function Design,” the development has been progressed, by starting the design in collaboration, with the aim to maximize the functions of suspension and brake respectively.

As a racing product, where every gram matters, everything unnecessary was eliminated.

The unique cantilever tightening structure was derived from our combined analytical know-how in suspension and brake.

While ensuring sufficient rigidity and eliminating mounting bolts and distance collars at the same time, we could achieve a weight reduction by about 200g per vehicle.

In addition, the contact area between suspension axle holder and brake caliper was increased by 30% compared to conventional products, and separate fins were added. We provide stable braking performance by efficiently drawing heat generated during braking into the axle holder, using the surface area of the axle holder to dissipate brake heat, and quickly reducing the temperature generated during braking.

The appearance design crafting down to the finest detail is adopted where the fusion of suspension and brake, the weight reduction, and heat dissipation performance are immediately apparent. This harmonizes with racing bikes.

※The information on this Technical Information is the one as of 5<sup>th</sup> November, 2024. Please note that the information may be subject to change without notice.