

Media Information

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German men's biathlon team tests in the BMW Group wind tunnel.

+++ Technology transfer enhances mobility partnership between the BMW Group and DSV Biathlon +++ German's male biathletes test in the wind tunnel for the first time +++ Valuable findings with regard to stance and aiming process +++ Reference points for further optimisations and innovations +++

Munich. Since last autumn, the BMW Group has been "Mobility Partner of the German National Biathlon Team" and has provided the team with electrified vehicles. Within this partnership, BMW has allowed the DSV biathlon squad to perform tests in a wind tunnel for the first time. In the different wind speeds and directions generated in the controlled laboratory conditions in the BMW Group's Aerolab, the DSV men were able to analyse their body posture, their reactions to different conditions, and the movement of their weapons when shooting whilst standing.

Here, where the NEUE KLASSE of BMW cars are usually put through their paces and optimised aerodynamically, it was now the German biathletes who for two days had the opportunity to examine their stance and aiming process in the wind. With the athletes too, it was all about identifying potential for improvement, as biathlon races are often decided at the shooting range.

"The BMW Group wind tunnel is our main test centre, as far as aerodynamics are concerned. Here, we are able to determine the proportions and finer details of the vehicle, making it as efficient as possible and thus increasing electrical range," says Holger Gau, Head of Dynamics Mid-Range BMW. "With the biathletes, we analysed the sensitivity of the shooting with a side wind. As we are able to generate consistent conditions in the wind tunnel, the athletes were able to adopt different postures, which could then be analysed and compared."

Pressure points and pressure distribution were measured using sensors on the soles of the biathlon shoes. A measuring device was mounted on the barrel of the gun, which recorded the aiming and shooting process. The athletes were also observed in the wind tunnel by cameras and trainers. Last but not least, the analysis also incorporated the subjective feelings of the biathletes.

"We have just one challenge – and that is to be as successful as possible in competition. However, to master this challenge you have to do something in an awful lot of areas. You have to be progressive, if you want to break into the world elite," says Uroš Velepec, coach of the DSV German men's biathlon squad. "As such, it is very valuable to be given the opportunity to test in a wind tunnel for the first time. Together with the aerodynamics experts in the BMW Group, we have developed some really significant tests. The results are already promising. We are very grateful to BMW and I hope this partnership will continue to develop on a technological level."

As well as the individual analysis of the standing position in the wind, and the compensatory movements, Velepec also took another approach: without naming names, he is convinced that there are athletes in the German men's squad who are among the best in the world when shooting in the wind. The goal now was to find out how these athletes act intuitively and to use that to develop a model, which could be applied to others. "We can now see what these athletes are doing differently," said Velepec after the wind tunnel tests. "We always suspected it, but we now have proof and know how they do it."

Karlheinz Waibel, DSV National Science and Technology Coach, is also impressed by the two days in the wind tunnel and the cooperation with the BMW Group engineers. He says: "We planned the tests together with the BMW experts and wanted to know how they would approach them. We were asked questions, which we were unable to answer, because we did not have any knowledge from the past. That is how we came up with exciting and clever ideas, which we will continue to

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pursue – with regard to aerodynamic improvements to the gun, for example."

It will take a few more weeks to evaluate and analyse the data acquired, but one thing is already certain: the German national biathlon team's first trip to the BMW Group's Aerolab will not be the last.

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In 2022, the BMW Group sold nearly 2.4 million passenger vehicles and more than 202,000 motorcycles worldwide. The profit before tax in the financial year 2022 was € 23.5 billion on revenues amounting to € 142.6 billion. As of 31 December 2022, the BMW Group had a workforce of 149,475 employees.

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