



RPS-10

NUMBER ONE IN THE WORLD — BY DESIGN >



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BEN SPIES





RPS-10 DEVELOPMENT

For years, HJC Helmets has retained its standing as number one in the world among all helmet manufacturers. Now that status grows with the introduction of the all-new RPS-10, the lightest Snell 2010 helmet on the market, a premium helmet that elevates the standards of excellence.

Recently, Germany's prestigious *Motorrad* magazine conducted a thorough and comprehensive helmet comparison that included the Euro-version RPS-10, which concluded with this summary: "This is what a winner looks like..." The HJC is the outright winner in our test, scoring highly in all categories." Key benefits cited by *Motorrad* included "excellent fit, pleasant lining, low weight, low noise level, excellent quality workmanship, sits well, stable even at very high speeds (only very minimal reaction when looking to the side), exceptionally easy-to-use shield, very easy-to-replace shield, absolutely no drafts inside, effective head ventilation, well-suited to riders who wear eyeglasses, good hardware, five-year guarantee." All in all, an embarrassing wealth of praise—and also an accurate reflection of the many important design elements incorporated into the RPS-10.

Development of the RPS-10 encompassed more than three years of intensive work, along with substantial capital investment to the HJC manufacturing and testing facilities—including the creation of an all-new full-size wind tunnel that enabled engineers to make the RPS-10 the most aerodynamic helmet HJC has ever produced.

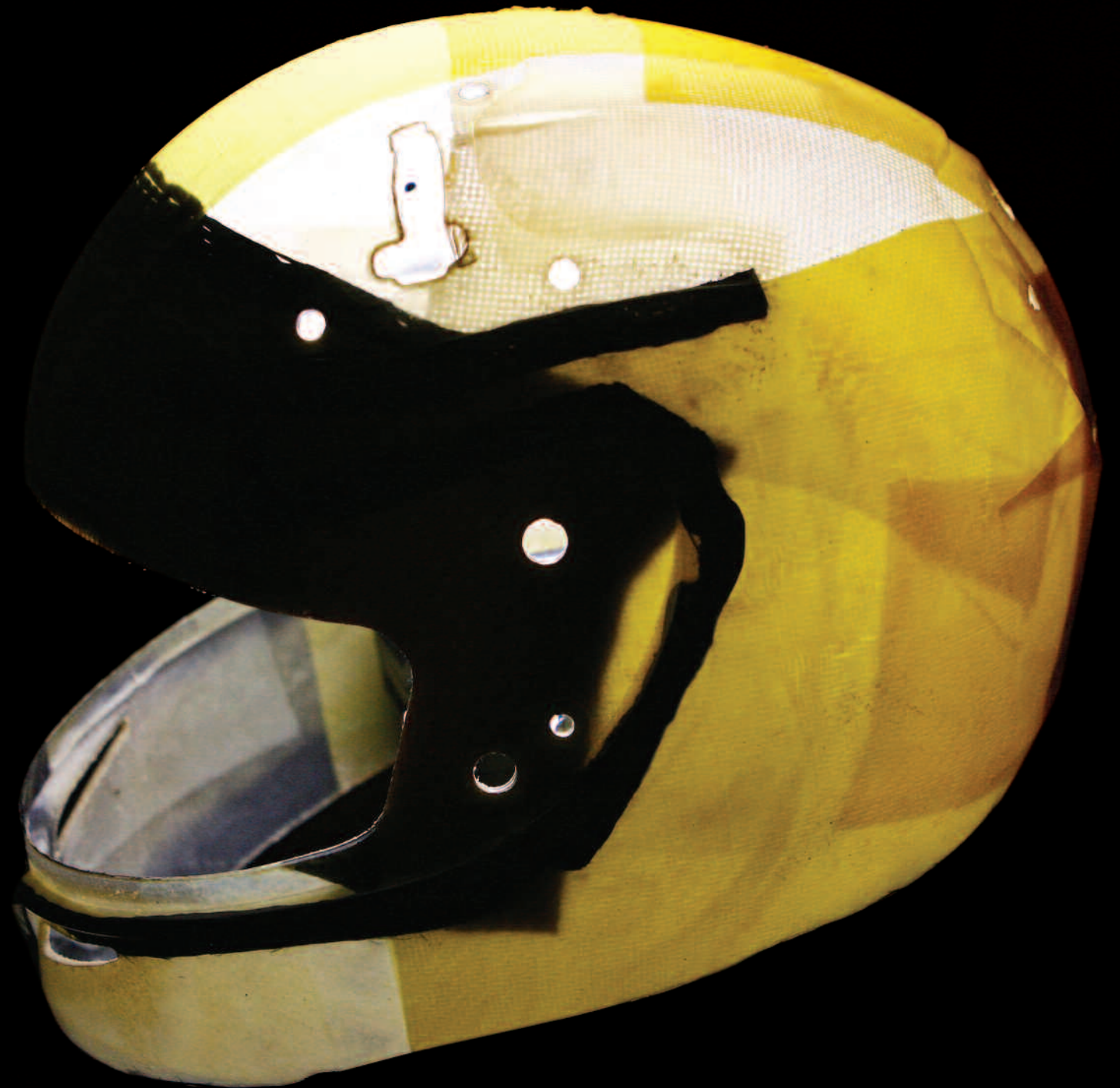
During the RPS-10 development process, HJC employed CAD design and rapid-prototyping technology to build more than 20 different 3-D prototype samples. Each prototype was then tested in many ways and in many environments—including dynamic tests with an engineer seated on a motorcycle inside HJC's new 130-mph wind tunnel. Such testing techniques allowed our engineers to measure high-speed aerodynamic performance and interior noise levels at varying angles and riding postures to fine-tune the helmet for reduced aerodynamic drag, maximum stability, minimum lift, minimum vibration and noise, and more. Based on these testing results the prototype would be revised and a next-generation prototype would then be designed and constructed, and the testing process resumed once again.


And thus the radical, complex and unique shell shape that defines the RPS-10 was born of untold hours of development work. Note the subtle, complex curves shaped into the upper and frontal areas of the shell and the distinctive lines given to the intake and exhaust vents; these shapes play a major role in controlling aerodynamic airflow. The fact that such complex elements also lend a distinctive look and unique grace to the lines of the RPS-10 happens to be a fortunate byproduct of this feat of engineering.



Having created a helmet shape with advanced aerodynamic properties, HJC engineers next aimed at creating a shell that would establish new standards for lightness. Net result: Weighing in at less than 1500 grams (3.30 pounds in small and medium sizes), the RPS-10 is the lightest Snell 2010-approved helmet on the market—mission accomplished.

To gain this remarkable degree of lightness, the RPS-10 features Premium Integrated Matrix (PIM) construction, which incorporates three different materials—carbon fiber, aramid fiber and fiberglass—to create a unique woven blend both remarkably strong and noticeably lighter compared to conventional materials. Next, precisely sized segments of the PIM material are carefully hand-laid into a special pre-mold for shaping—a new process developed specifically for the RPS-10. This exacting production method (only six people who trained for a year are qualified to perform this pre-mold process) precisely controls placement of these layers to virtually eliminate unneeded overlap of fibers, which also allows a more precise amount of resin to be used in the forming process, thereby significantly reducing shell weight. The shell is then formed with the use of a new, proprietary blend of resins. The net result is a world-class shell that is more than 100 grams (3.5 ounces) lighter than a shell constructed in a more conventional manner.



A detailed close-up photograph of the HJC RPS-10 motorcycle helmet's chin bar and shield mechanism. The image shows the intricate plastic components, including the shield's locking system, ventilation grilles, and the central latch mechanism. The lighting is dramatic, highlighting the textures and contours of the helmet's shell and the metallic mesh of the ventilation ports.

Moreover, this development process also incorporated testing and feedback from World Superbike Champion and MotoGP star Ben Spies. For example, one element of great importance to Ben is the RPS-10's shield locking system. He specifically requested that HJC develop this feature since he often turns his head to look around while in the heat of MotoGP racing. And so the RPS-10 has a unique and patented self-locking/center locking system that locks the shield shut in a most positive manner, yet it can be instantly and easily opened with one touch of the finger when desired. This shield system also produces a secure seal that is unmatched, and the shield itself is an optically superior Pinlock®-ready 2D Flat-Racing Shield that mounts via HJC's RapidFire™II Shield Replacement System. This simple and secure shield-ratchet system features a spring-loaded feature that firmly retains the shield in place during use. In addition it also provides ultra-quick, tool-less shield removal and installation for efficient operation. Also included with the RPS-10 is a clear, anti-fog Pinlock insert.



Within the helmet, the RPS-10 incorporates an ultra-plush, premium SilverCool Plus™ interior that is fully removable, washable and moisture-wicking, and it also combats odor buildup with an advanced antibacterial fabric. A special antibacterial ginkgo extract helps fight odor buildup in the lining. Our innovative Max Air-Flow Top Vent yields variable air intake that can be easily adjusted to one of seven click-stop positions to suit riding conditions using glove-friendly rotating dials on each intake vent. And our Advanced Channeling Ventilation System (ACS) gives full front-to-back airflow to flush out heat and humidity. The countless hours of development and testing conducted in the real world and within our wind tunnel were also employed to create a remarkably effective airflow within the helmet. The reward is an increase in ventilation of approximately 50 percent along with a measurably lower noise factor—about 4 dB—over previous designs.

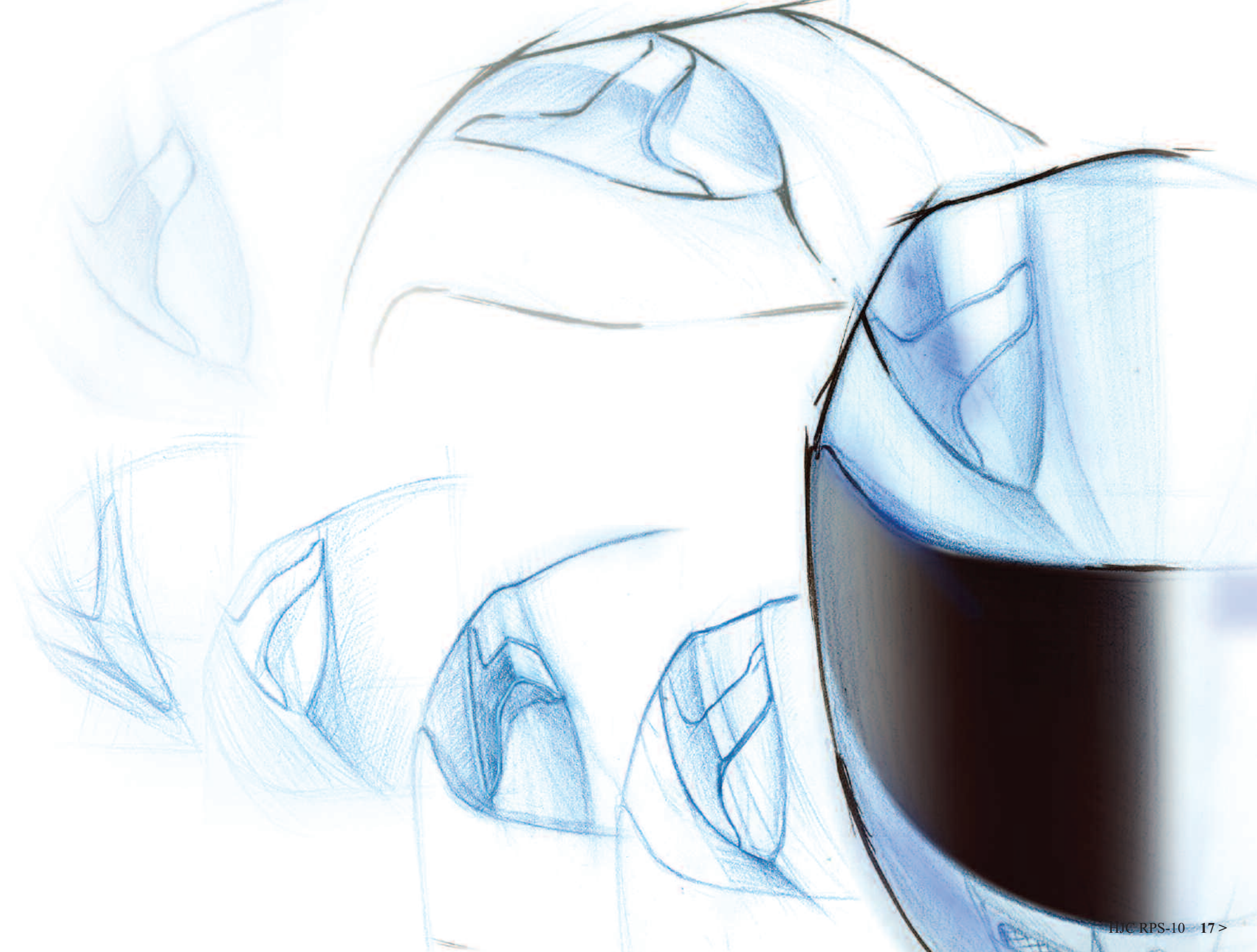
Top it all off with an industry-leading five-year warranty on materials and workmanship, and it becomes patently obvious that the new HJC RPS-10 has literally advanced the state of the art in street helmet design.

[CLICK HERE TO VIEW THE RPS-10 VIDEO ON THE HJC YOUTUBE CHANNEL.](#)

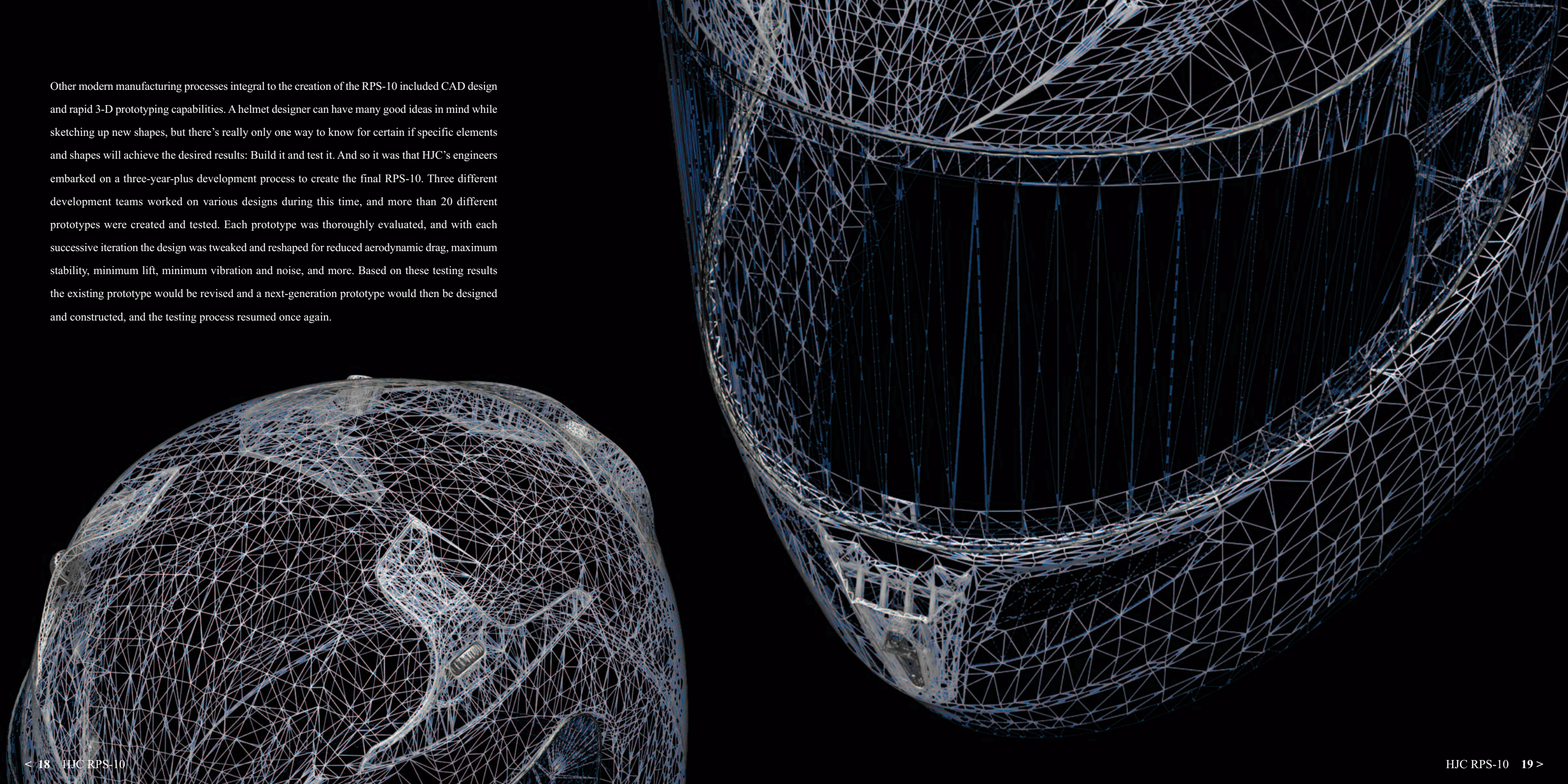
RPS-10 DESIGN STORY

There is no textbook titled “How To Build An Industry-Leading Helmet.” There is no computer program on “Helmet Innovations” you can run, no formula to follow, no college class you can take to gain the knowledge necessary to achieve such an accomplishment. So just how does one go about creating a new and innovative helmet, one that tops every other existing design? Bring fresh eyes and a fearless attitude, throw away the 9-to-5 mentality and get ready to invest in loads of cutting-edge equipment.

In the case of the new RPS-10, substantial capital upgrades to the HJC manufacturing and testing facilities were performed to facilitate this process. Included within this scope of work was an oversized wind tunnel capable of admitting a complete motorcycle and rider—all the better to perform dynamic tests while the test engineer assumed different riding positions and varied his head angle aboard the bike while being subjected to wind speeds as high as 130 mph. As we all understand, riding a motorcycle at speed is an active process, and there is no one set position in which a rider must hold his or her head while underway. Therefore “live” testing becomes absolutely necessary in order to accommodate the many positional vagaries introduced in the riding process, and for discovering how the windstream affects the helmet and rider in the process.



Other modern manufacturing processes integral to the creation of the RPS-10 included CAD design and rapid 3-D prototyping capabilities. A helmet designer can have many good ideas in mind while sketching up new shapes, but there's really only one way to know for certain if specific elements and shapes will achieve the desired results: Build it and test it. And so it was that HJC's engineers embarked on a three-year-plus development process to create the final RPS-10. Three different development teams worked on various designs during this time, and more than 20 different prototypes were created and tested. Each prototype was thoroughly evaluated, and with each successive iteration the design was tweaked and reshaped for reduced aerodynamic drag, maximum stability, minimum lift, minimum vibration and noise, and more. Based on these testing results the existing prototype would be revised and a next-generation prototype would then be designed and constructed, and the testing process resumed once again.



In time, the final form was created. Inspect an RPS-10 carefully. Note the subtle compound curves and complex structures shaped into the upper and frontal areas of the shell, and the distinctive lines given to the intake and exhaust vents. The complexity of the shell shape becomes readily apparent, and for good reason: These shapes play a major role in establishing the correct aerodynamic properties. And that didn't happen by accident. It happened through an inordinate amount of R&D with plenty of the most modern equipment available. Plus tons of plain, old, hard work.



WINDS OF CHANGE: THE HJC WIND TUNNEL

The art of motorcycling constitutes a most dynamic activity with the rider fully exposed to the elements—especially the oncoming windstream. That windstream does not stay constant and the rider's head does not remain immobilized. Whether the day calls for gentle meandering and sightseeing down a shady country

road or handlebar-to-handlebar racing at speed, the rider—and the helmet he or she is wearing—is very much subject to ever-changing wind conditions with his or her head and the helmet constantly taking on varying positions.

As a result, it makes sense to test a helmet's form for aerodynamic efficiency and stability in a full-sized wind tunnel while it is strapped onto a test engineer sitting aboard a motorcycle. This is the ideal setting for simulating real-world riding conditions in a quantifiable, repeatable test environment. And this is what spurred HJC to build such a facility to conduct extensive testing for the new RPS-10.

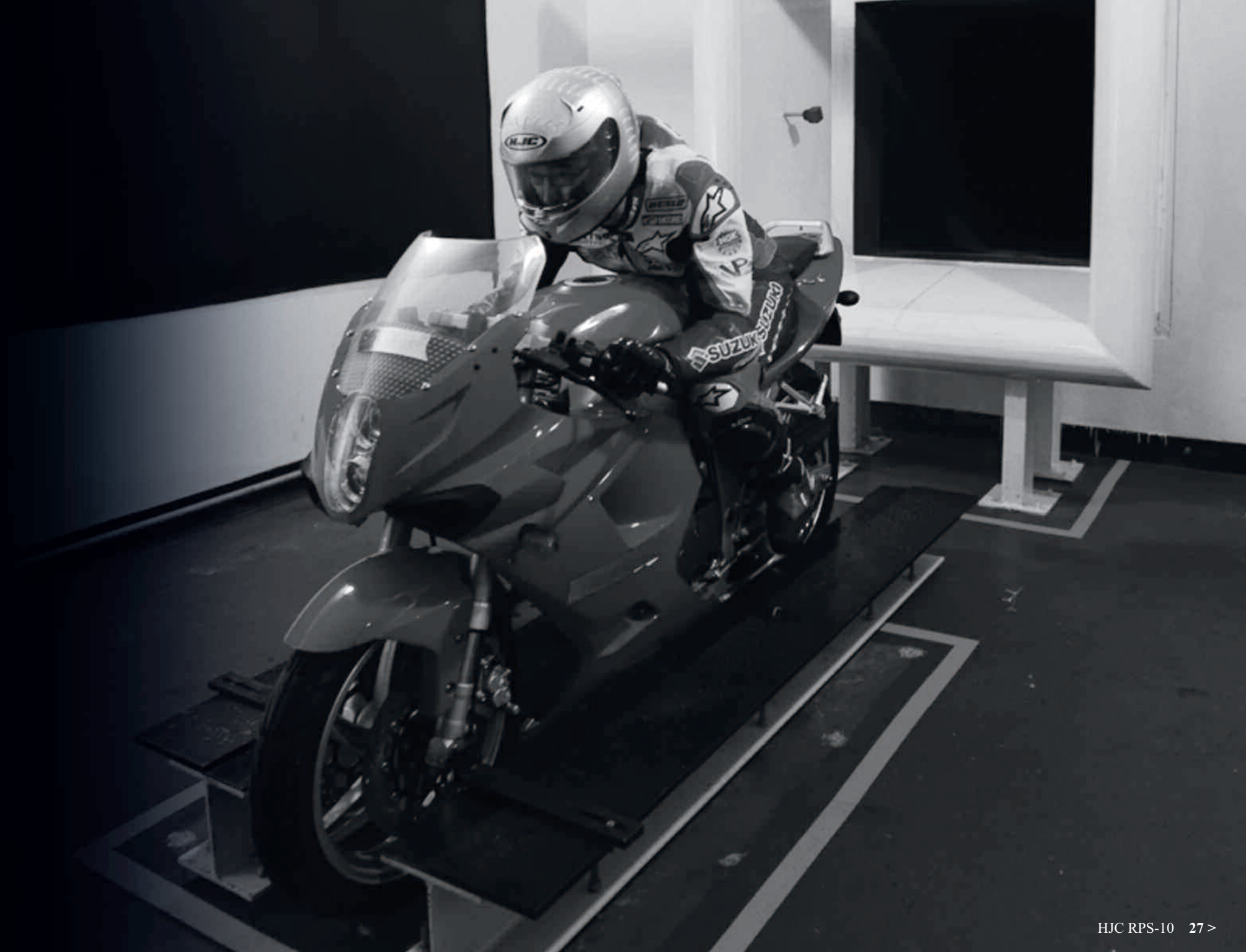




HJC
WIND TUNNEL LABORATORY

Substantial capital investments were made to add this large wind tunnel to HJC's design center. In this way, dynamic tests with the helmeted testers could be performed at wind speeds as high as 130 mph. Why such high speeds? Certainly because racers regularly attain such velocities and more, but consider this: Should a rider heading down the freeway at 70 mph encounter strong headwinds of 45 mph or more, such an everyday occurrence would easily surpass the 100-mph mark. Which is to say, a helmet's superior aerodynamic performance gained through wind-tunnel testing at high wind speeds can benefit all riders. In addition, such testing techniques allowed HJC engineers to fine-tune the RPS-10 not only for high-speed aerodynamic performance at varying angles and riding postures, but also for interior noise levels, effective ventilation, maximum stability, minimum lift, minimum vibration and more.

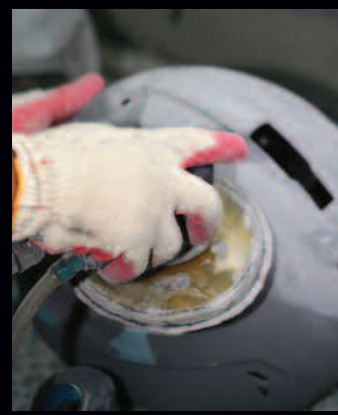
The inclusion of a full-scale wind tunnel within a helmet manufacturer's R&D arsenal requires a substantial commitment. But for HJC, the benefits attained with the superior design of the new RPS-10 certainly made the costs of building such a wind tunnel more than worthwhile.





RPS-10 DIFFERENCE: INNOVATION PLUS HANDCRAFTED PRECISION

Many helmet companies have set their sights on becoming the number-one manufacturer in the world. Having held that position for many years, HJC considers this preeminent rank as more of a challenge to continue striving forward rather than an accomplishment to be savored. Case in point: The challenge presented by the new construction techniques required to produce the innovative RPS-10.



For years, the HJC plant has been well regarded as one of the premier helmet manufacturing sites in the world. However, in order to achieve the goal of making the RPS-10 the lightest Snell 2010-approved helmet on the market, a completely new method of helmet manufacture had to be devised. The answer lay in the creation of an innovative, extra step that would be added to the manufacturing process, one that incorporates a pre-molding technique to carefully locate and shape the layers of lightweight and strong Premium Integrated Matrix (PIM) material with exacting precision. The degree of precision was so demanding that it could not be automated; only the human eye and hand could make the necessary judgments to meet such a rigorous standard. A similar but automated process would have to allow so much leeway for production tolerances that the desired degree of weight savings could not be realized. In the end, it took more than a year to develop and perfect this single manufacturing technique, and of the hundreds of people employed at the HJC manufacturing plant, only six are qualified to perform this pre-molding process that is so integral to the creation of RPS-10 shells.

Would any other helmet manufacturer invest so much time and concerted effort to achieve such a goal? That's difficult to say. But at HJC, the end result—the new RPS-10—certainly justified the extraordinary means spent to find a better way to create a premium helmet.





HJC's design center also contains one of the most comprehensive testing labs in the industry. Not only does the lab allow dynamic testing for European and SNELL standards, but it also contains special tests devised by HJC to ensure quality and durability.



BEN SPIES LIMITED EDITION REPLICA

On the world stage of motorcycle racing, Ben Spies stands tall. He's won multiple road racing championships and thrives on the new challenge of MotoGP. That's the attitude of a winner. And that's the attitude Ben brought to the testing and development work he performed in the creation of the new RPS-10. Every RPS-10 bears Ben's fingerprints, as his testing input literally helped form prototype designs into the helmet every rider can now wear. Now HJC is proud to offer a Ben Spies Limited Edition Replica, complete with his distinctive graphics plus his signature—a truly fitting tribute to a racing hero.





RPS-10 COLOR/GRAPHICS OPTIONS



Spies Replica



Spies Replica



Spies Replica



Mugello



Mugello



Mugello



Patriot



Patriot



Patriot



Black



Matte Black



Anthracite



Silver



White



Dark Yellow



HJC AMERICA