

SAFETY AND INDIVIDUALITY



BMW Motorrad is the only motorcycle manufacturer that has been continually developing its own full ranges of rider equipment, from helmets and suits to boots and shoes, since the nineteen seventies. Moreover, BMW Motorrad is still the leader when it comes to special equipment and optional accessories for customising BMW motorcycles.

AUTHOR

RALF WERNER

is Head of Aftersales Product Management and Sales at BMW Motorrad.

WITH MOTORCYCLES, IT'S ALL ABOUT THE HEAD

BMW System helmets with the flip-up front began setting standards in the motorcycle world at an early stage. Over the ensuing decades, an entire range of products was developed, culminating in the full assortment of typical BMW high-quality clothing and rider equipment that is available today.

Nowadays, BMW Motorrad helmets not only comply with the common ECE 22-05

standard but even surpass it in many areas, often considerably. All helmets made by BMW Motorrad have an inner shell made of EPS (expanded polystyrene foam) and with a range of material thicknesses. The result is optimum impact absorption in the important protection zones for the chin, forehead, crown, back of the head and cheeks. By employing a range of cheek and neck pads, BMW Motorrad helmets, available in sizes 48/49 to 64/65, can be adapted to suit the wearer's individual ergonomic requirements with an optimum fit.

BMW Motorrad helmets are equipped with an effective negative pressure ventilation system. BMW Motorrad AirFlow helmets were the first in the world to employ the AirFlow ventilation system, ❶. This works by causing air to flow through large ventilation zones in the helmet, supplying pleasantly cool air around the rider's head to support his concentration and well-being on the road. The air stream can enter the intake unimpeded by aerodynamic factors, resulting in neither turbulence nor vibrations.

The BMW Motorrad helmet range consists of solutions designed to serve a variety of requirements. Comfort-oriented riders, for instance, will find that the flip-up design of the System 6 EVO helmet accommodates an integrated sun visor to reduce unwelcome dazzling, ❷. It also

❶ BMW helmet AirFlow 2



❷ BMW helmet System 6 EVO



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possesses a smooth-operating and yet robust four-hinge mechanism and comes equipped for use with a Bluetooth communication system.

To maximise the rider's protection, BMW Motorrad helmets are also fitted with an additional neck strap that keeps the helmet securely in position in the event of a collision. Some helmets, depending on requirements, have an easy-to-use quick-release buckle while others are fitted with the traditional double D fastener. Virtually all BMW Motorrad helmets also have removable, washable, breathable and antibacterial liner made from DuPont Coolmax or Hydroplus.

One essential factor affecting the level of physical stress to the rider, in particular in the vicinity of the neck muscles, is the helmet's weight, and every single gram in weight that can be saved increases the rider's enjoyment commensurately. Despite its sophisticated chin piece mechanism, GFK shell, integrated sun visor and double visor fitted as standard, the BMW Motorrad System 6 EVO helmet weighs only around 1570 g (size 58/59), while the Sport helmet weighs only 1380 g, and one of the lightest enduro helmets in the world, the Enduro Carbon weighs little more than 1100 g. This is mainly due to the use of light, extremely rigid, laminated carbon fibre in the helmet's shell.

A further comfort factor that supports the rider's concentration are the helmet's aerodynamic qualities. BMW Motorrad maintains its own wind tunnel with which it tests every helmet development under reproducible conditions, the purpose being to achieve an optimum level of aerodynamics and aeroacoustics. It is not for nothing that BMW Motorrad helmets are regarded

as the quietest in their class, offering considerable benefits in terms of rider comfort and concentration and, in turn, safety on the road. The sophisticated aerodynamics of BMW Motorrad helmets result in the lowest possible wind pressure, which relieves the strain on the rider's neck muscles.

With helmets, the safety factor also includes guaranteeing the best possible visibility for the rider under all types of conditions. All helmets are fitted with special visors, depending on their application. They either have antiscratch and/or antifog coatings or else they are fitted with a double visor. The antiscratch visor renders the surface of the visor highly resistant to scratches, which can easily constitute a visibility impairment when riding at night or in the rain. The antifog coating prevents unwelcome condensa-

tion forming on the visor when riding in damp climatic conditions. For these purposes, the BMW Motorrad System 6 EVO helmet, Sport helmet and DoubleR helmet provide outstanding performance; all of these are fitted with the double visors and offer the highest level of anti-condensation performance that is currently technically possible.

EASY TO OPERATE AND MULTIFUNCTIONAL – THE COMMUNICATION SYSTEM

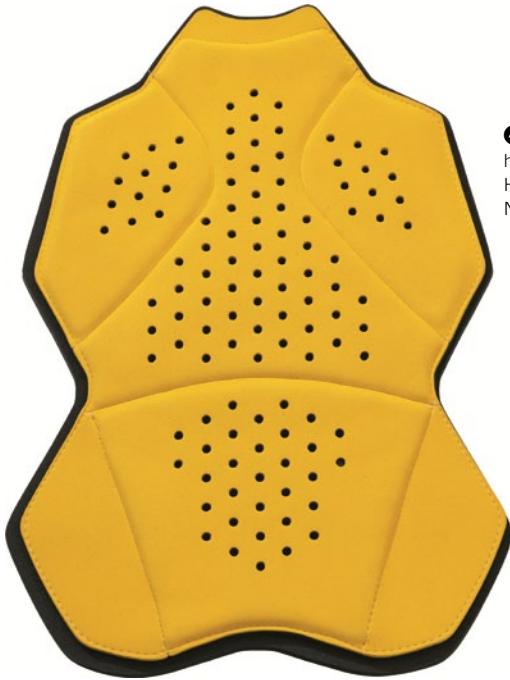
With the ultimate riding machine, it is all about experiencing fantastic moments and sharing them with your passenger. Then there are times when you wish to listen to music, take phone calls and hear the directions from the navigation system. This is all possible thanks to the BMW Motorrad communication system, and it is available with no disturbing wind or engine noise, and above all, without once having to take your eyes off the road. It is all down to the simple operation of the BMW Motorrad communication system, which comprises no more than "On/Off", "Plus" and "Minus" controls. That is all that is needed to access all the available functions, resulting in extremely simple operation – and an optimum level of safety. This is also ensured by the ECE 22-05-compliant design of the System 5 and 6, Sport, AirFlow2 and DoubleR helmets, all of which are supplied ready for the BMW Motorrad communication system, ③.

INNOVATIVE TEXTILE RIDER CLOTHING

For motorcycle riders, there is no such thing as bad weather, there is only the wrong kind of clothing. This has turned into a common saying among motorbike fans but has long been recognised as a truth by BMW Motorrad, who has for decades been developing suitable rider suits, jackets and trousers especially for motorcycle riders. This is



③ BMW Sport helmet with communication system



4 Areas at special risk have dual protection: Here is an BMW Motorrad NP 2 backprotector



5 BMW Motorrad TourShell suit

precisely what the BMW Motorrad C.A.R.E. seal stands for. C.A.R.E. is short for “Concept of Advanced Rider Equipment” and represents the constant endeavour by BMW Motorrad to find solutions capable of satisfying the wide range of demands placed on motorcycle clothing, by conducting research, development and testing of suitable materials and products.

Thanks to the use of high-tech materials, BMW Motorrad all-weather suits are not only wind and waterproof but the integrated C.A.R.E. Climate Membrane means that they are also breathable. The outer layer is made of highly abrasion-resistant material consisting of polyamide and elastane, in a three-layer laminate. The laminated design means that the upper material will not become soaked with water. At the same time, the elastane in the fabric allows it to stretch and accommodate the rider’s body movements. There are also additional stretch inserts on the shoulders (for gents) or hips (for ladies). All in all, the rider benefits from maximum wearer comfort, freeing him to place his full concentration on riding his motorcycle, whatever the weather and whatever the conditions.

Sections covering parts of the body that are at particular risk in the event of a fall, such as the buttocks, knees, hips, elbows and shoulders, are reinforced with an extra layer of specially developed materials. Moreover, BMW Motorrad has developed flexible and removable NP protectors for the back, shoulders, hips and knees, with maximum absorption characteristics, that positively hug the body for maximum wearer comfort and protection,

4. Height-adjustable protectors are also employed around the knees with three different settings, to allow a perfect fit for all riders. Cuffs, collars and waistbands can also be adjusted to fit every rider’s personal dimensions. An elastic band/velcro flap with a wide adjustment range offers considerably improved scope for fitting than the previous conventional velcro fasteners.

The removable, quilted thermal inner jacket fulfils the special requirements of an all-weather motorcycle suit. Thanks to its thermal insulation and optimum match with BMW Motorrad gloves, the TourShell offers maximum protection against the cold, 5. On the other hand,

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if it is too warm in summer, even with the inside jacket removed, the ventilation zips in the breast area of the jacket bring effective relief.

All products in the BMW Motorrad rider-clothing range are made from top-quality materials that have undergone top-quality development. Of particular importance are the upper materials and their resistance to abrasion, since they also play a major role in rider safety. The development process includes the use of a computer-aided test system for simulating realistic conditions, which shows exactly what a motorcycle rider and his clothing are subjected to upon coming into contact with the road surface.

One thing that this development has produced is the extremely protective fabric, Keproshield, which was formulated especially for use with the Streetguard suit, together with the Swiss textile experts, Schöller. It is based on a three-layer laminate made of kevlar (aramid), cotton and polyamide, and also contains the so-called c_change membrane. By employing this material, it was possible to increase abrasion and fall safety, tear resistance, tear-propagation resistance, and frictional heat resistance by around 20 %. Moreover, the lower weight also has an added effect on wearer comfort.

The so-called coldblack protection serves to reflect the near-infrared range of sunlight by up to 80 %. This means that the textiles remain cooler for longer, thus increasing wearer comfort and discernibly improving the rider's concentration and safety on the road.

The c_change membrane, moreover, was developed as a so-called intelligent membrane. The pore size of this membrane is able to adapt to the outside temperature, and thus regulates the degree of breathability that the clothing requires at any given time. The design was modelled on nature, and is reminiscent of the fir cone, which opens up when the weather is warm and closes when it cools down. Following this principle, the c_change membrane breathes at warm temperatures and insulates at cold temperatures. The membrane is also designed to be windproof and waterproof at all times. It is also flexible and forms an excellent basis for a completely elastic upper material that offers even more wearer comfort.



6 BMW Motorrad leather clothing

SPORTY AND SAFE – LEATHER MOTORCYCLE CLOTHING

To this day, leather clothing is regarded as the cult item among motorcycle riders, and BMW Motorrad recognises the wishes of its fan community by offering a wide and highly innovative range of one and two-piece suits.

The figure-hugging leather combination suits made of highly abrasion-resistant kangaroo or nappa leather with thicknesses of up to 1.2 mm offer a maximum degree of safety in sports or even super-sports use.

Safety does not depend on the choice of material alone but also on the production method employed. The manufacturing process for these leather suits involves up to 130 production steps and 120 individual parts made of leather, stretch fabric, reflective material, zips and press-studs. This includes the stretch inserts for enhanced wearer comfort and pre-formed sleeves and knee sections, for extra comfort when seated on the motorcycle.

In addition, the Sport and DoubleR suits from BMW Motorrad feature the TFL Cool system. When treated with this system, dark leather is just as effective at

reflecting sunlight as light material. Thanks to its special hydrophobic treatment, the Atlantis 4 leather suit is waterproof. As a result of this process, only the leather fibres themselves are sealed, but the leather pores remain open, thus preserving the material's breathability to the greatest possible extent.

NP protectors were developed together with biomechanics, specialised medical personnel and accident researchers for the back and hips as well as shoulders, elbows and knees, and also retrofittable on the tailbone and provide good protection in the usual high BMW Motorrad quality, 7. These safety optimisations are rounded off by the INOX stainless steel knee sliders, insert-moulded into plastic. Besides NP protectors, the supersport leather combinations also possess a back hump with zip fastener for integrating the BMW Motorrad Neck Brace system.

INFLATABLE PROTECTORS FOR EVEN MORE SAFETY

Since this year, BMW Motorrad has been developing an innovative new kind of safety clothing for motorcycle riders, together with the motorcycle clothing manufacturer, Dainese. Based on the D-Air Protect system from Dainese, the partners are now developing motorcycle rider clothing with fully integrated, inflatable protectors for BMW Motorrad.

The first product to emerge from this cooperation will be the one-piece DoubleR RaceAir leather combination suit with D-Air racing protector, designed specifically for use on race tracks. The second step will be to develop the D-Air Street system from Dainese as a retrofit solution for BMW Motorrad. It is expected that the system will be available from 2015. BMW Motorrad customers will then have a chance to retrofit this new and innovative safety system onto their existing motorcycles.

MAXIMUM PROTECTION FOR THE NECK REGION

The BMW Motorrad Neck Brace/Neck Brace Street System has rightly been hailed as a revolution in protective motorcycle clothing, thanks to its ability to

reduce neck injuries to a considerable extent. Moreover, it is extremely light, offers the rider a maximum degree of freedom to move, and can be worn easily over a motorcycle jacket or shirt.

The BMW Motorrad Neck Brace System is made from glass-fibre-reinforced, injection-moulded plastic and is fitted with foam pads and a replaceable textile comfort covering. BMW Motorrad attached great importance to ensuring the system was suitable for use with all standard helmets and motorcycle clothing items and could also be varied to fit a range of different sizes. It was also specified that it must be easy to use, employing quick-release fasteners and fully preserve the rider's freedom of motion. The Neck Brace/Neck Brace Street System is suitable for use in racing, on the road or on terrain.

If called upon, it is able to arrest dangerous head movements in a controlled manner. Any forces generated are effectively transmitted from the neck to the upper body, in a similar way to the H.A.N.S. system used in car racing. Accordingly, it is able to considerably reduce distension of the head in each relevant direction (hyperflexion, hyperextension, lateral hyperflexion). It is also able to reduce or ideally even completely prevent injuries resulting from compression of the spine caused by forces acting on the helmet (axial stress) or the head being pushed back on the upper spinal area (posterior hypertranslation).

BOOTS – HIGH TECH FOR ALL CASES

All the innovations and functional details found in every BMW Motorrad product are developed by an experienced team of specialists who are experienced enough to know what demands motorcycle riders have when it comes to clothing. Because they themselves, every one of them, are passionate motorcycle riders, they know exactly at what points boots tend to be a bit tight and how to iron out any other common problems. Hands and feet are particularly prone to injury in the event of a fall or an accident – whether in the form of grazes, bruises or fractures. It is these risks that BMW Motorrad seeks to counter with its innovative boot and glove solutions.

Custom solutions in the field of windproof and waterproof motorcycle boots are developed specifically with the respective motorcycling applications and rider requirements in mind. BMW Motorrad has designed a type of boot with a Torsion Control System (TCS), comprising two ankle shells and a two-piece frame, all of which functions together in perfect interplay. TCS considerably reduces the risk of ankle injury.

Then there is the Metatarsal Control System (MCS), a solution that was developed in order to prevent injury resulting from overbending the metatarsal. The system has a fixed polyamide base with a rotation point at the height of the bend, which controls the upward and downward movement of the



7 Protective elements, for example BMW knee protectors

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foot, largely preventing excessive stress being placed on the metatarsal.

Maximum protection – such as on the supersport or other race tracks is provided by the BMW Motorrad Security Evo G3 boots, first introduced by BMW Motorrad in late 2010. These highly specialised motorcycle boots are composed of an outer and an inner shoe, with a similar configuration to a ski boot.

The inner shoe contains a hard shell made of kevlar laminate (aramid) for maximum stability and reliable protection against impact and pressure forces. A further essential feature of kevlar fibres is that they are extremely resistant to tearing and splintering, which helps to avoid cuts and lacerations in the event of an accident. With the same material thickness, the outer shoe is made of kangaroo leather, which offers even higher abrasion resistance than the regular leather product. A further advantage of employing distinct inner and outer shoes in the Security Evo G3 is the potential this offers for repair. The sport shoe is uncompromisingly designed for use on the race track.

8 Boulder 2 jacket and BMW System 6 EVO helmet in luminous colours



9 BMW F 800 GS crash bar





10 BMW F 800 GS hand protectors

GLOVES – KEEPING A SAFE GRIP ON EVERYTHING

With gloves too, BMW Motorrad pays great attention to the special requirements of motorcycle riders. Beginning with the ergonomically optimised fit, the BMW Motorrad developers have taken into consideration that when at rest, a person's hands are not outstretched but slightly rounded. BMW Motorrad gloves therefore have exactly this form – to ensure an optimum fit and maximum comfort, with special seams that reduce the pressure on the hands to allow for a more relaxed hand posture on the motorcycle.

BMW Motorrad also takes account of the specialised safety requirements of their users by making motorcycle gloves out of highly abrasion-resistant leather, with double layers at particular risk zones, kevlar-carbon hard shells on the knuckles, and hard plastic shells in the vicinity of the wrist. Moreover, the use

of Suprotec foam on the upper hand offers the best possible level of impact absorption. Protection against wind and water is provided by GORE-TEX X-TRAFIT membranes, which are also responsible for the gloves' maximum possible breathing ability. Additional safety when riding in the rain is provided by a wiper lip on the index finger for cleaning the helmet visor while on the road.

SEE AND BE SEEN – WITH REFLECTORS AND LUMINOUS COLOURS

There are times when even a few metres can make all the difference – at night, in the rain, or in fog. The earlier the motorcycle rider is seen by other road users, the better his safety. For this reason, BMW Motorrad integrates reflective elements into its rider equipment, to significantly increase the chances of being seen in conditions of poor visibility and thus mini-

mise the hazard in dangerous situations. For optimum visibility, there are even such products as BMW Motorrad Boulder 2 jackets or AirShell in the colour neon, as well as BMW System 6 EVO and Air-Flow 2 helmets in luminous fluorescent yellow, 9.

OPTIONAL ACCESSORIES

In addition to the exemplary safety features included as standard with its motorcycles, BMW Motorrad also offers more extensive possibilities for optimising vehicle safety for special purposes and requirements profiles.

In many cases, additional crash pads and crash bars, 9, can prevent major damage occurring to the motorcycle. Additional hand protectors, 10, provide protection against airborne stones, especially when riding off-road, and an under-ride guard provides additional security to the underside of the motorcycle when riding through terrain.