

All-Purpose Jackets

A Comparison of Waterproof, Breathable, Armored Textile Jackets

by E. Don Smith

NEXT TO A full-face helmet, many riders consider the ¾-length riding jacket to be the most important piece of protective clothing they wear. These jackets usually offer a good balance of protection from the elements, such as rain and cold, plus offering good crash protection. Prices for these jackets typically range from under \$200 to over \$700. Are some of them really *that* good? We put all of these jackets through their paces to answer that and many other important questions.

In order to compare these jackets, we must first agree on their purpose. We reviewed Fred Rau's article in the October 2003 MCN, and used his criterion plus a few of our own to rate the jackets:

1. Crash protection/armor
2. Waterproofing
3. Insulation
4. Reflectivity
5. Storage/pockets
6. Venting and liners

While providing these basic functions, there are other aspects that are important to the normal rider, and we will use all of these categories to compare these jackets, also:

1. Sleeve cuffs
2. Closures
3. Fit/adjustability
4. Construction quality
5. Flexibility (ease of inner liner use)
6. Overall comfort

RATINGS CATEGORIES

Crash Padding

Since one of the most important aspects of these jackets is providing you with protection in the event of a crash, we will start here. Because we did not actually crash or simulate a crash in each of these garments, we cannot give you a definitive answer on which will absolutely protect you the best. However, we will talk about the armor systems available and point out the strengths and weaknesses. Then, in the final ratings, we will use our normal dot system to show the differences in each jacket. Many of the jackets contained extensive use of abrasion-resistant materials as well as shoulder, elbow and back padding. We gave the highest rat-



ings to those jackets that contained padding in all three locations, and which conformed to European CE standards, which most experts in the industry consider the best ratings standard for body armor.

Waterproofing

What good is an all-weather riding suit that is not waterproof? In addition to wearing the jackets in the rain, which is informative, yet not very scientific, we borrowed a fabric testing device from a well-known materials laboratory. The device uses a cylinder over which the jacket material is clamped. Once the device is filled with water, a rubber bulb is used to pressurize the cylinder. This places a positive pressure over the jacket material and forces water through if the material is not 100% waterproof. Tests were run at various pressures, up to a maximum of 15 psi. While some rain jackets use a solid membrane like vinyl or other plastics (as opposed to a semi-permeable membrane), these materials were *not* used in this evaluation. The jackets tested are all breathable materials, meaning they are supposed to prevent water entry while still allowing your body to breathe. This prevents that "plastic bag effect" that occurs when the sun comes out. Nobody wants to ride any distance in that sauna-like environment, so they usually have to stop and remove the plastic suit.

The people at Gore-Tex claim that pressures created when kneeling or sitting down on a wet surface, such as when you are

repairing a flat tire on a rainy day, can cause some supposedly-waterproof materials to leak. Their data suggests that a person on one knee can apply up to 16 psi to the surface of the material, while a person sitting down yields 3 psi on the seat of their pants. While we cannot verify these exact values, the testing device is a good tool to show differences in the materials used.

It should be noted that in real-world testing by some of the staff, we could easily verify the Gore Company's claim that indeed, some materials which tested as waterproof when subjected to a spray would leak through at contact points when kneeled or sat upon—which makes the pressure-point testing significantly valid. What good is a rainsuit that will leak through at the seat when you sit down on a wet saddle?

We would be remiss not to note that in pressure testing, both on the material and the seams of the jackets, those with Gore-Tex material consistently scored highest.

Insulation

Here we wanted to develop a ratings system to show those jackets that best insulated you on a long, cold ride. However, we were unable to develop a test method that was repeatable enough for our demands. Basically, the jackets all performed well compared to one another on a cool, dry ride.

Several of the jackets used liners that can also double as a stand-alone jacket, making the system serve double duty. This is a very nice upgrade and one that we would encour-

age all manufacturers to include. The jackets also used different types of inner liners. Some were simple insulating materials, while others contained a metalized material aimed at retaining more body heat. The ratings herein take both this and the versatility factor into consideration.

Reflectivity

Since these jackets are worn as a safety item, we felt that at least a portion of that safety is derived from the reflective nature of the jacket. Some of the jackets came with large sections of reflective material, while others were quite small. We also felt it was important to offer visibility from all angles, in the event you are kneeling down beside the bike making a roadside repair with only your profile presented to oncoming traffic. Our rating system takes all of these factors into account as there was quite a difference in these jackets with regard to this factor.

Pockets

Having a good selection of pockets is another desirable feature of a proper riding jacket. But, just having pockets sewn all over the place is not the answer; it is necessary to locate them properly, have them of the proper size to serve the intended function, maintain water repellency, and have them accessible enough to be able to get items in and out during a trip. Some of the jackets had plenty of pockets, but they were in bad locations or were very difficult to access. For the ratings in this category, we simply used a subjective rating to encompass all of the aforementioned factors.

Venting

We find the safety offered by these jackets to be very reassuring to us even when the temperature makes it somewhat difficult to wear them. Having that extra bit of venting in the jackets allows it to be worn later in the spring and earlier in the fall. There is quite a bit of difference in the amount of venting as well as location and types of vents offered in the various products.

For the ratings in this category, we again relied on a subjective system that gave credit for the number and placement of vents. Since we tested these jackets in various weather conditions, we also had lots of real world experience on which to base these scores.

Sleeve Cuffs

If you have ever struggled with a poorly designed sleeve in an attempt to get it over or under the glove you were wearing at the time, then you know how frustrating and uncomfortable a poorly designed cuff can be. So, rather than lump this into another category, we broke it out and rated each jacket on this factor. Everyone has their

preference on wearing their gloves in or outside the jacket sleeve, which is partially dictated by the design of the glove. In order to provide ratings in this category, we considered the size of the opening and its ability to accommodate various size gloves, as well as the ease of use. Some of the designs offered simple Velcro closures to adjust the cuff, while others offered a zipper or a combination of both. The ideal system is one that allows you the option of tucking the glove in or wearing it over the cuff, while also giving you ease of operation while on the bike wearing gloves.

Closures

In order to get the jacket on and off, the style and type of closures must be considered. In addition to ease of access, the functionality of the closure method must be considered. Of the jackets that we evalu-



Aerostich's reversible fleece liner wins "best jacket liner," hands-down.

ated, all but two of them used a snap-flap closure on top of a zipper. The other two used Velcro over a zipper for the front closure. The Velcro was by far the easier to use as it does not require the precise alignment that the snaps do. Also, with Velcro, there is no chance of scratching the bike with the heads of the snaps.

Another important point is the size of the zipper pulls. When you are riding down the road and the sun comes out, making minor adjustments on some of these jackets is more difficult than others. Both the size and the location of the zipper pulls are quite important to gaining access when needed. The IXS and Rukka jackets had "backward" zippers on the front closure, which means it may take some getting used to if you are accustomed to the zipper pull being located on the right-hand side of the jacket. We found it a moderate distraction since most other motorcycle jackets we see have standard American, right-hand zipper pulls.

The rating in this category was a balance between the size and quality of the front

closure system as well as the ease of use. This included using the closure while wearing gloves and while bare-handed.

Adjustable Fit

Since everyone is built a little bit differently within a specified size, the ability to make minor adjustments to fit your own build is quite important. For example, a bodybuilder with a 46" chest may have a 32" waist (meaning he has a 14" drop from this shoulder to waist measurement), while someone with a more ample midsection may have the same 46" chest and a 38" or 40" waist.

In addition to waist adjustment, we noted that many of the jackets offer adjustments on the arms. In some cases this included a separate adjustment for the upper and lower arm, allowing maximum flexibility. The type of adjustment was either a snap with one or more positions to take up slack as needed, or in some cases a continuously variable strap with Velcro. For the scoring, we rated not only the number of adjustment points but also the range of adjustability to allow the average rider to custom-tailor the garment for his build.

Construction Quality

We almost hate to tell you this, but after we finished wearing the jackets and evaluating them in every way possible, we cut them open to see what was inside. It was pretty clear that some of these jackets are assembled better than others. Gore-Tex, for example (which does not make any garments themselves), requires that all garment producers wishing to use their product submit a product design and a sample before it can wear the Gore-Tex hang tag. This process also includes some plant inspections to ensure that the quality they desire is maintained. In fact, they have standards for virtually every aspect of the production process including seam taping, thread and seam type. This is their way of ensuring that any garment you buy with the Gore-Tex label will meet your needs.

In this category, the highest scores were given to those products that had the best construction methods, including attention to detail, material selection and overall craftsmanship.

Weight/Bulkiness

Each jacket was weighed with both the weight of the shell and the liner in place. Overall bulkiness was also evaluated. While the thicker/heavier units may have scored higher in the insulation test, what we are looking for here is a jacket that is easy to store and wear. If you are wearing a jacket of this type and dismount the motorcycle in an environment where it is not needed, stor-