

## May the Force be with You....

Having focused on the debate about textiles or leathers when it comes to motorcycle wear, IAN KERR takes a look at the other key protective element for emergency services motorcyclists - body armour.

Whatever material you opt for, it's now unusual to find any motorcycle clothing that does not include some form of body armour to protect vulnerable areas such as joints in the event of a spill. In some cases - particularly in the cheaper ranges - having CE approved armour is used to give some value to the product.

In the early 1980s I did some evaluation work for companies involved in developing the product. At that time it was solid and heavy, and firms were trying to get it to provide abrasion resistance as well, so the outer shell was always solid, contributing to the weight. This also meant that it could be uncomfortable, with hard edges that could actually cause injury. Eventually they stopped trying to make it perform two roles, and it started moving towards what we have now - impact absorbers.

While the early body armour were strap-on items they were soon incorporated into the garments, becoming more user-friendly and widely accepted. Full-length back protectors have also really taken off - especially in the world of motorcycle racing - although despite some lightweight items being incorporated into jackets they have, in the main, remained separate items.

With advancing technology, body armour is now a lot lighter, more flexible and lot more comfortable to use, and it can now do a far better job in spreading the load during impact. Other sports and activities have also incorporated it in to clothing or items worn for their sports, and from a police or armed forces perspective, impact protection is used for hostile crowd situations, so the choice and variety of items available continues to grow.

One manufacturer which comes out top in many magazine tests for motorcycle armour is Forcefield. The company name was launched in 2003, although their experience in body armour goes back to 1987 when, as Tpro, they became the first company to really take body armour for sports seriously. They were also one of the first companies to embrace the CE mark in the early 90s, and have supplied a large number of police forces since then.

Forcefield body armour is based on 'Soft Armour Technology', with no hard outer shell, which the manufacturers claim provides enhanced flexibility, less restriction, greater comfort and a wider range of uses. The company offers a 'modular protection system' so that their products can be used over a variety of sports activities, and the sales pitch focuses on the fact that their products provide maximum comfort as well as top protection levels without risk to the user, a claim backed by the fact that the products meet- and in most cases exceed -the appropriate PPE requirements.

Time therefore to test out one of their designs, a lycra suit that has pockets to take armour and can be worn beneath existing motorcycle garments. The host suit comes as a top and set of long john-style pants (shorts are available), and is made from a combination of both Coolmax/Lycra and Cordura/Tactel, both highly engineered fabrics from DuPont. What this jargon means is that it breaths, is very comfortable, non-restrictive and easily washable, as well as being cool in summer with thermal properties in winter.

The jacket has pockets into which you slip the armour, while the pants have pockets and stitched on armour panels on the thighs. There is also a separate, full-length back protector designed to be soft, flexible and comfortable. Like the other armour it uses a high-tech triangular shock absorbing material combined with dense and lightweight layers of foam, so that energy can be dispersed evenly over the whole surface. It meets a Level 2 Protection standard and is fully adjustable on the shoulder straps and the double waist adjustment straps, so that it holds the body snugly to make sure it can do the job.

In an ideal world we would have all the technical equipment available to replicate any CE test for the armour, and a crash test dummy to throw out of a car or catapult off a motorcycle and have equipment to measure the trauma. What we have is me, and falling off the settee is the limit I'm prepared to go to! It has however been washed several times minus the armour and has not shrunk, and is quick drying.

What I can comment on is how it feels in use. It is quick to put on, does not baulk you up too much and, after about five minutes, disappears from your conscious thought; your body heat basically further increases the flexibility of the armour. The back protector, once correctly adjusted, is one of the best I have ever used and all combined give a feeling of wellbeing, as well as warmth on cold days. In addition to normal road riding, worn under trail riding kit it has reduced the need for hard, motocross-style armour, the additional freedom of movement making it a more pleasurable experience:

From a surveillance point of view it could be worn beneath Kevlar-reinforced jeans and jacket and give impact protection to go with the abrasion resistance provided by the Kevlar panels. Police officers could also easily wear the suit beneath an existing uniform without needing a bigger size to cover it.

I must admit I have been pleasantly surprised with the undergarment suit; I haven't felt like a Michelin man, my overall comfort has not diminished, but my safety levels have increased. Worn with clothing that has not got much (if any) protection

built in has increased the specification of that garment at relatively low cost.

Like a crash helmet test, the testing is based on wearing and using it, rather than seeing if it really performs in a worst case scenario. But none of us like to even think about that and instead consider ordinary day-to-day comfort and mental wellbeing. So bearing all that in mind I can highly recommend it for comfort, durability, peace of mind and multiplicity of riding uses.

For more information on prices and the range offered by Forcefield, visit [www. tprobodyarmour.co.uk](http://www.tprobodyarmour.co.uk).

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