New tech

Unpicking the myths

Not all kevlar jeans are created equal. Here we find out why

DENIM MOTORCYCLE JEANS are popular with riders because they're comfortable, stylish and protect our hide. But it's not the denim doing the protecting, it's space-age para-aramid liquid crystal and polyethylene synthetic fibres.

Dr Christopher Hurren, from the Institute for Frontier Materials at Deakin University, recently tested the abrasive resistance of 10 pairs of denim jeans marketed as protective motorcycle wear, and found only three exceeded the European CE Level 1 safety standard. To be issued with CE L1 status, the clothing's material must withstand a four second impact with a special abrasion belt sander rotating at 28km/h. Clothing rated at CE Level 2 (CE L2) must exceed seven seconds.

To minimise our chances of requiring the dreaded metal-wire brush at an accident scene, here are some of the Australian study's findings:

What's the challenge?

In Australia, denim motorcycle jeans are often promoted as having CE L1 approved protection. But if you read the fine print you may find the CE accreditation is for the removable knee protectors only. A garment with CE certified lining will have a label showing compliance to the EN13595-1 or CE L1/CE L2 standard. This indicates the entire garment has been independently tested and has withstood a four-second test with the abrasion belt sander.

What's doing the work?

A protective layer, usually yellow, is sewn inside the jeans. Most brands use para-aramid fibres such as Kevlar, and some use Dyneema – a blend of polyethylene and nylon with the para-aramid. One company uses Covec, an aromatic polyester liquid crystal polymer (LCP). The liner needs to be para-aramid or LCP rich to offer any real form of protection. As a minimum, the protective layers must cover the backside, sides of the upper legs and the knees.

It's all in the knit

Woven liners are thin and don't stretch in either direction. The result is poor abrasion resistance. Most products use a double jersey knitted fabric liner which stretches at least 20 percent and generally performs better than the woven liners. Loop-knitted lining is thicker and can be identified by the loop hanging from one edge. It also stretches and generally provides significantly better protection, exceeding the four-second abrasion test.

Real world sliding

When a product is tested on an abrasion belt, travelling at 28km/h, it will cover 32 metres of belt in four seconds. A crashed bike at 50km/h will slide for approximately 30 metres. The rider will generally slide a little less. If you crash at that speed and absorb the entire slide on one area of your CE level 1 accredited jeans, you should remain protected. Normally the contact patch will change as the rider rolls while sliding, increasing the protected distance.