



The world's leading motorcycle apparel brands, Alpinestars and Dainese, tell us why leather will always have a special place on the track and on the road.

Leather in the fast lane

In the wise words of multiple MotoGP world champion Valentino Rossi, one of the most successful motorcycle racers of all time, when it comes to riding, the safest thing is not to fall. Given that this is still something he does "several times a year", the next best thing is to be dressed by one of the world's top gear specialists.

His sponsor, Italian company Dainese, is a proud supporter of leather and has had a very close relationship with its tanneries since its launch in the 1970s. "Dainese was one of the first companies to firmly believe in leather and invest its resources in continuously improving the

quality of its materials," a spokesperson tells *World Leather*.

Similarly, its main rival and neighbour in northern Italy, Alpinestars, uses leather at all levels of the sport, from the top-of-the-range racing suits, through Motocross to lifestyle collections for hobbyists. For both companies, leather's unique properties means it retains one of the most vital roles that can be asked of a material: keeping the wearer safe. In many instances, it is the difference between life and death.

From necessity to invention

It was a road trip to London on a Vespa in 1972 that inspired 18-year-old Lino Dainese

to launch a protective gear company, finding a shortage of products in the market. The company's home province of Vincenza has a rich history of working with leather and is home to many tanneries; Lino's first encounter cemented a lasting relationship when leather supplier Toni Negro gave him a batch as a present. Lino made some protective trousers for himself and realised that was the direction his company should take. "He [Mr Negro] always carries on with R&D, even if the leathers seem at the top of their performance," says Mr Dainese. "There is always the possibility to make leather even more resistant, to improve environmental performance or use less-



polluting substances.”

The company now works with a network of tanneries around the globe, many in Italy, supplying full-grain cowhide for racing suits and sports products where style and comfort are key, kangaroo leather for racing gear where abrasion resistance is a priority, and goatskin for gloves. “Processing methods are key, with the tanneries playing a fundamental role,” a Dainese spokesperson tells us. “We also pay a lot of attention to selecting the raw material.”

Suppliers are required to certify the animal's age, breed, origin and diet. Equally important are the quality controls the processing methods are subjected to. “All our high-quality leathers come from a single geographic area, the same farm and the same breed of cows that are all fed the same food. This ensures that our quality standards are met and the material remains consistent.”

Processing methods are specific to each product. Dainese is famous for its D-Skin technology, a treatment and all-colour

tanning process that “plumps” the natural fibres without damaging them structurally, creating an extremely soft and resistant hide. Thickness being equal, this process can increase the resistance of ordinary full grain cowhide by 40%.

Dainese's insistence that it has tight control over the supply chain helps it to guarantee its high standards. It sets out its requirements in a confidential policy document that dictates how the leather must be treated to become a Dainese product. “We often run into customers who have had their jackets for 15 years and who compliment us on what is still a perfect garment,” says the spokesperson. “So, what makes our products special is our meticulous attention to protection, which is the company's founding mission, as well as fit, comfort and materials. All of this has been and continues to be the focal point when it comes to designing our collections.”

Before the 1970s, leather was mainly

used for aerodynamic purposes as it allowed riders freedom of movement and ensured a skintight fit. Its ability to withstand abrasion was an added benefit that was only fully understood later. It has been estimated that during a high-speed slide, a millimetre of skin could be lost every seven metres. Combined with other safety elements, there is no doubt leather has saved countless lives.

“If professional riders fall going 215kmh [134pmh] at the end of the straight, they will slide along the asphalt for up to 250 metres [273 yards] before coming to a stop, an event that can last up to seven seconds,” explains Dainese. “This means the equipment must be able to resist the heat generated by the friction and high speeds against the asphalt for a significant amount of time. Unlike synthetic materials, leather consists of organic fibres that are able to dissipate the heat produced without burning or tearing due to their thickness and their three-dimensional structure.”



Valentino Rossi, nicknamed The Doctor, shows his prowess on the track.

CREDIT: DAINESE



Dainese's suits are meticulously hand finished.
CREDIT: DAINESE



High quality hides

Alpinestars, which was launched in 1963 as a racing boot specialist, expanded into garment manufacturing 25 years ago. The company sponsors more than 450 athletes and attends each race they compete in, feeding riders' comments back to its research and development teams in Asolo, Italy, and Los Angeles, US. This includes current and six-times MotoGP champion Marc Marquez.

"Such have been the improvements in safety in leather suits and gloves, including airbag technology and materials like carbon fibre, that Marquez, while practicing for races, constantly pushes the limits to the point of sometimes crashing several times per weekend, often at speeds exceeding 100 miles per hour," Alpinestars' Simon Toyne tells us. "In each of these crashes he gets up unscathed, ready to hop on a different motorcycle and continue his practice session."

Alpinestars' bovine leather is sourced from northern European bulls that graze at high altitudes where the temperate climate results in stronger hides and fewer parasites and this, together with the lack of barbed wire, means the leather arrives blemish free.

"Leather has a combination of natural qualities, combined with tanning techniques, that makes it perfect for the motorcycle apparel industry," Mr Toyne adds. "It is naturally non-flammable, supple, thin and extremely resistant to abrasion and tearing forces."

The company selects different hides depending on the performance requirements; all leathers are developed in Alpinestars' labs, working closely with a network of tanneries. The leather is subject to an internally developed process, which includes testing at extreme temperatures and rapid aging, to replicate the effect of 10 years' ageing on the material. The leather also undergoes 100,000 cycles of extreme bending, to see how the fibres react after very high wear. "The rigorous performance testing ensures that full functionality is achieved after a long time of use by the customer," explains Mr Toyne.

The leather used in Alpinestars' racing suits is sourced from kangaroos in Australia, with only the back of the animal

used. "The reason kangaroo is used is that the fibres within the hide are stronger, which gives kangaroo better resistance and enables us to use a thinner material. This in turn saves weight, giving a performance advantage for racing. We have experimented with other leathers, such as camel, but with a camel hide we discovered that only the belly of the animal can be used as the rest of the leather is too tough and requires too much work to bring it up to the right standard."

Advances in comfort

As well as leather, racing suits contain impact-absorbing materials such as Kevlar, carbon fibre and foams around the knees, elbows and hips. A breathable lining provides comfort and can be removed and washed. The hump, originally added to protect the spine, provides a home for a hydration pack and a now-compulsory airbag system that protects the rider if they fall.

The more expensive suits are custom made: measurements are taken and a pattern is created. The drawings are printed on to a pattern, then it is cut out in leather. Inks are sprayed on to the leather and Kevlar and elastic fabric is glued on to the back. It is a laborious process: there are more than 200 parts in an Alpinestars suit.

Valentino Rossi is famously superstitious about his leathers: they must all be cut and sewn by the same employee and the parts

Alpinestars' vast range includes the lifestyle collection Oscar.
CREDIT: ALPINESTARS





must never touch the floor. He follows the same ritual, making a new suit after every fall. "Leather has become so much more comfortable than it was at the beginning of my career - thinner, but at the same time more protective," says Mr Rossi. "Back then, when you first put on a new suit, you needed three or four hours to feel comfortable with it. The gloves used to be uncomfortable, but now they are incredible! Now, as soon as you put on the suit, it feels like your own."

Price points

One of the big stories in the leather industry over the past few years has been the substantial price swings of the raw material, from a high in 2016 to one of the lowest prices on record currently. As both companies work with high-end material, the fluctuations have not been so acute. Dainese says analysis and forecasting work is complex, but long-standing relationships with suppliers means it can prevent fluctuations from being transferred to the end customer. "Just like with all its procurement, Dainese works with its suppliers according to framework agreements that contain various commercial tools to protect the business against market variability. As a result, the company knows the price of raw materials well in advance so that it can manage its range of products accordingly."

Both companies include vast ranges, of which the racing leathers are only part. A proportion of sales are to everyday bike riders as well as a more extended lifestyle collection.

Oscar by Alpinestars is the lifestyle brand within the group, and includes boots, gloves and jackets. As with racing, leather is at the core of its fashion and lifestyle-oriented products. Dainese Settantadue is a "contemporary interpretation of the history of motorcycle clothing", which includes bags, t-shirts and belts. The company also uses its expertise in technical and protective materials to produce collections for sports such as skiing and show jumping.

At the other end of the spectrum, Dainese has been enlisted by NASA and by the Massachusetts Institute of

Leather on the big screen

Leather jackets have been cultural reference points over the decades, no more so than in film and TV. From Marlon Brando and James Dean in the 1950s, through to John Travolta in *Grease*, Al Pacino in *Carlito's Way* and Harrison Ford in *Raiders of the Lost Ark*, leather jackets have held iconic status.

Hideout, a UK-based manufacturer of racing and touring leathers, supplied racing suits for lead actress Rebecca Ferguson, the stunt people and doubles for *Mission Impossible 5*, starring Tom Cruise. The suits had not only to look beautiful but also to keep wearers safe during high-speed chases around Morocco. Hideout is also an official supplier to the UK police force, fire service and ambulance service.



Kate Jennings, Hideout owner.
CREDIT: HIDEOUT

World Leather: What are leather's qualities that you value the most?

Kate Jennings, Hideout owner: Leather is flexible, durable, malleable, water resistant and abrasion resistant, has a super tear strength, affords sufficient heat resistance and allows suitable breathability. For safety the strength and thickness is the most important; however for comfort the drape and suppleness is very important.

What must the tanners do to make sure the leathers work for your products?

We need to keep the skins clean, the fibres dense for strength and the drape soft. The tanneries we work with produce consistently beautiful hides for us. We work with a few British agents who source their leather mainly from Brazil and a European dealer who supplies kangaroo from Australia.

How has leather's price fluctuations affected the company?

We manufacture bespoke motorcycle clothing predominantly to order so price increases are reflected in the cost of the suits. However, the steep rise in the price of hides and, therefore, leather five years ago made manmade fabrics more competitive, which meant less leather began to be used.

What do your customers value about your products?

We are world renowned for our quality; customers from all over the world come here to have a suit made. They know they are going to not only get a suit that looks and fits perfectly but also have peace of mind that if they ever need it, our suits provide the ultimate in protection.

Technology to help develop materials that could be worn for a Mars expedition in 2030. New fabrics, such as Trixior, a fabric created by its in-house R&D centre, features in products such as the Antarctica Gore-Tex jacket. It claims the material's laceration and traction resistance exceed that of leather, but leather cannot be beaten in abrasion tests and in its ability to snugly fit a rider's body.

Sadly for Valentino Rossi, his 2019 campaign has been hampered by falls in Mugello, Barcelona and Assen. For all riders, being able to walk away from high-speed

slides is testament to their skill and the proficiency of the teams supporting them – the leather buyers, designers, researchers and tanners being an integral part.

Given the advancements in technical materials over the past few years, can the experts see a time when these fabrics replace leather in this sector? The answer, for Dainese, is no. "The fact remains that for some time to come, leather will continue to be the reference material for professional riders, for track usage, and for those who want the best protection on the road in the event of sliding." 🏍️