MANIS
BACK PROTECTORS
Protection in comfort and freedom
Dainese invented the first back protector way back in 1981. The goal was to protect the rider’s back in the event of a fall. Massive improvements have been made in active and passive safety since then. This time we set our D-TEC® engineers an immensely challenging goal - to create a back protector that revolutionises freedom of movement.

A back protector shouldn’t restrict body movement in any way. MANIS is the result of rigorous research inspired by nature and the human body. It doesn’t just allow total freedom of movement, but follows your back, extending, contracting and flexing to mould to the position of your body, delivering consistent protection under all conditions.
The Pangolin (scientific name Manis) is a mammal that lives in Southeast Asia and Sub-Saharan Africa. Its body is covered by overlapping scales that form extremely flexible and protective armour. The secret of its strength lies in how the scales overlap. Each individual scale operates in synergy with its neighbours, distributing any impact forces over a wider area of the armour. The MANIS back protector's plates also overlap one another on the outside in relation to the body. Whichever way the body moves, the area where the plates overlap acts like a “bridge”, distributing the impact forces over the two adjoining plates and thus increasing the area over which the energy is dissipated to reduce the impact pressure on the body. In addition, the MANIS back protector's plates feature external ribbing that helps distribute the impact energy over the widest possible area, while also forming a lattice that enables high-energy impact forces to be absorbed.

Inspired by Nature

Protection and freedom of movement

The plates forming MANIS are like the scales that cover a Pangolin's body, overlapping and moving over one another. That's what allows them to keep the protected areas covered whatever position your back is in.
The spine is made up of back bones that are connected to one another by a web of interwoven muscles and ligaments that give it immense freedom of movement in every axis (flexion, extension, lateral flexion and torsion). Which is why a construction revolution was required to provide suitable protection in all the many different positions the back can assume. The technical solution developed by our D-TEC® engineers was to create a back protector with protective elements that are no longer connected to one another statically but instead have different degrees of freedom of movement, enabling them to move independently of one another. The plates are each connected to a separate padded liner to eliminate any restriction on their movement in relation to one another, while also being linked to one another by a central fulcrum to ensure they can slide as required. A series of elastic silicone couplings bring control and stability to their motion, a design feature inspired by the action of the intertransverse muscles and the levatores costarum muscles that raise the ribs.
The elastic couplings that link the plates to one another are made of a special silicone compound, engineered and tested to offer elasticity and strength under all conditions of use, heat and cold.

The Manis offers 4 degrees of freedom thanks to the ingenious design of its overlapping plates, which enables them to move in relation to one another with controlled elasticity. It can extend by up to 8% of its length, flex laterally up to an angle of 25° on either side, and can twist and flex forward.
The materials and structural solutions that distinguish Manis combine over 40 years’ experience in the design of protective equipment for the human body.

The special padded liner boasts a sandwich construction of 3 different materials, each of which performs a different function: Expanded Polyethylene (EPE) for dimensional stability, Crash Absorb for impact absorption, and thermoformed expanded polyurethane (EPU) for comfort.

The entire structure is perforated throughout to enable maximum heat exchange between the body and surrounding environment.
MANIS provides unequalled freedom of movement. The back protector hugs every contour of your back perfectly, extending and contracting in relation to the forward angle of your trunk.

**SLIMLINE DESIGN**

**HUGS THE CONTOURS OF THE BACK**

**MAXIMUM BREATHABILITY**

This model features an advance on the traditional stretch braces on a back protector, incorporating an adjustable harness that wraps around you while stretching less. This provides an increase in the body contact area possible with braces to improve comfort and enable the back protector's elastic couplings to work at their best.

**Manis**

**Models Available**
Dainese’s long racing experience ensures this model delivers outstanding comfort even when worn under tight racing leathers, thanks to its special design with a narrower lumbar belt and no shoulder straps.
**Manis 29/37**

Designed for town riding and touring, this lumbar protector combines unbeatable freedom of movement with a custom fit, thanks to a lumbar belt that can be adjusted for both length and height.

**Manis G**

Designed for riders who want ease of use without braces, this back protector slips inside Dainese jackets with a matching pocket in the back.

**Manis Jacket**

The Manis revolution goes off-road, bringing riders mobility and ergonomics never achieved by a safety jacket before. All without any compromise in extreme riding safety.
Manis Winter Sports

Models Available

**MANIS** offers the safety and comfort of a back protector that stays in the correct position in all situations, delivering consistent protection in the area where the plates overlap.

**AS SAFE AS A COMPOSITE BACK PROTECTOR**
**AS COMFORTABLE AS A SOFT BACK PROTECTOR**

The Manis for skiing and winter sports delivers maximum freedom of movement. Construction refined for maximum performance even in low temperature conditions.
For maximum comfort, MANIS protection technology is also available in a superlight two-way stretch hollow jersey vest.
THE INVENTION AND DEVELOPMENT OF THE BACK PROTECTOR

The outstanding protection and performance of the latest, increasingly advanced back protectors.

1981
BACK PROTECTOR

The first back protector in history.

First generation back protection. The design of the protective structure was inspired by the lobster’s shell, comprising a series of articulated plates fitted on an anatomic backing to hold them over the muscles that run along the spine and dissipate the energy of an impact. This protected the backbone against impact but left it free to move. First seen in motorcycle racing in the early eighties thanks to Dainese’s collaboration with Barry Sheene, back protectors are now used by millions of motorcyclists and sports enthusiasts in everything from skiing to mountain biking, whether racing or not.

1991
BAP

The most widely-imitated back protector in history.

With a shape and armour system inspired by crustaceans and the armadillo, the BAP combined the shock protection expertise of Dainese’s research centre with the experience of the pioneering designer Marc Sadler.

It improved on the previous generation of back protectors in covering a larger area of the back and increasing the shock absorption provided.

The BAP featured a composite structure, comprising an anatomically-shaped soft base and a series of articulated plates, each sized to provide the best distribution of impact forces and incorporating a low-memory, shock-absorbing polyurethane foam insert.
The best-known, most widely-used back protector.

Composite back protector with anatomically-shaped base and articulated top plates. The structure of this back protector was designed to dissipate the impact energy by spreading the impact forces over the entire surface area of the protector rather than through simple shock absorption. At the same time, the inclusion of a shock-absorbing component raised the protection to even higher levels. An aluminium honeycomb solution was found to provide the best shock absorption in relation to weight (30 grammes), thickness and cost. In addition, the ample open areas allowed effective air flow for body heat and moisture to escape.
Patents and results

*Innovation and technology in the service of safety.*

Manis is a triumph of the research, ingenuity and experience of Dainese’s D-TEC® Research and Development Centre. The innovative construction of the Manis back protector is covered by two separate patents:

**VR2012A000114** *(Wearable protection device)*
The invention patent covers both the use of separate padded liners for each plate and the external overlapping of the Manis plates.

**DM/078503** *(Protection device)*
The utility model patent covers the design of the external ribbing on the Manis back protector.

**Results**

Manis sets new technical and technological standards in back protectors. No other back protector can offer the same outstanding levels of safety and comfort.

**Safety/Comfort:**

Manis combines the safety of a rigid back protector with the comfort of a soft back protector.

**Freedom of movement:**

Manis follows every movement of your back perfectly, extending and contracting in relation to the forward angle of your trunk, flexing laterally and twisting to match the sideways bending and twisting of your body.

**Stability and safety:**

Manis offers the safety and comfort of a back protector that stays in the correct position in all situations, delivering consistent protection in the area where the plates overlap.

**Fit:**

The slimline design of the back protector combines with its back-hugging properties to prevent any hump effect under your clothing.

**Heat regulation:**

Thermal comfort and breathability are outstanding thanks to a perforated structure and contoured padding linings.
**Manis Motorbike**

*Models and sizes*

- MANIS 29
- MANIS 37
- MANIS G1 (L=38 / 48 cm)*
- MANIS G2 (L=44 / 52 cm)*
- MANIS 49 (L=37.5 / 42 cm)*
- MANIS 55 (L=44 / 45 cm)*
- MANIS 59 (L=47 / 52 cm)*
- MANIS T 55
- MANIS T 59
- MANIS JACKET 55-59-65

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**Manis Winter Sports**

*Models and sizes*

- MANIS WINTER 49 (L=37.5 / 42 cm)*
- MANIS WINTER 55 (L=41 / 45 cm)*
- MANIS WINTER 59 (L=44 / 48 cm)*
- MANIS WINTER 65 (L=47 / 52 cm)*
- MANIS WINTER 49 (L=37.5 / 42 cm)*
- MANIS WINTER 55 (L=41 / 45 cm)*
- MANIS WINTER 59 (L=44 / 48 cm)*
- MANIS WINTER 65 (L=47 / 52 cm)*

*L=waist to shoulder*