



# Climbing high in a downhill world

**S**kiing has always been popular as a competitive sport and it is an integral part of the Winter Olympics schedule, accounting for nearly half of the disciplines contended. Professional skiers are amongst the fittest sportsmen and women around. They train for hours on end to shave hundredths of a second off their times in the hope of assuring themselves a place on the podium; however, in the modern sport, as in other disciplines, the apparel worn by skiers is arguably as important as technique in optimising performance and determining the medal placements. As a result, the race to improve the apparel on offer to the world's best-of-the best skiers is as fast-paced as any action on the ski runs. The current front runner, Canadian manufacturer Spyder, is working with the world's top fabric manufacturers to guarantee that the skiers wearing its apparel have the advantage in terms of technology and innovation.

Reputedly the largest specialty ski brand in the world, and official supplier of the US Alpine, Austrian, and Canadian Freestyle Olympic teams as well as Team Venom (a group of high profile professional freeskiiers), Spyder has 30 years of experience in providing highly technical, sport specific skiwear. The company began in 1978, when its founder David Jacobs – a former member of the Canadian National ski team - launched the first padded slalom sweater after realising that there was only one brand available on the market. This was the first of many subsequent innovations and developments that have taken Spyder to the top in terms of downhill racing for professionals and amateurs alike.

Whilst Spyder is the leader in its field, the company can in no way sit back on its laurels. With well known names such as Bode Miller wearing its apparel, the company is under just as much pressure as the athletes to do its utmost to ensure a place on the podium – if not two or three places. In an attempt to ensure its superiority in the

*Bode Miller of the US Ski Team.*

 Toray Industries



market, Spyder uses the most high tech fabrics available and partners several of the leading manufacturers in the industry. The company also develops its own technology, such as its patented Speedwyre, which reduced the wind drag on ski suits by up to 20%. However, in this case the company was a victim of its own success, and the technology was eventually banned by the International Skiing Federation (FIS) as it was seen to give athletes an unfair advantage.

### Keeping the balance

One of the most important considerations in ski apparel is regulating temperature. Whilst skiers need insulation to keep their muscles warm in extreme temperature conditions, a high level of breathability is also vital so as to maintain a superior level of comfort for the athletes. The list of materials and technologies used to achieve the quality of performance expected of Spyder's products reads like an encyclopedia of functional fabrics and includes recognised brands such as Entrant, Dermizax, Gore-Tex, Thinsulate, X-Static and ThermaWeb.

Japan's Toray Industries Inc. supplies Spyder with its Entrant and Dermizax waterproof, breathable fabrics. The two companies work closely together and the Entrant logo now appears on the race suits of the US and Canadian ski team uniforms as an official supplier in conjunction with Spyder – the first Japanese fabric company to sponsor the US and Canadian teams. Spyder introduced Entrant in its apparel for the US market 20 years ago, and it is used in the team's outerwear to this day. Entrant is ideal for the ski industry as it offers full protection, even in harsh environments. It is a durable, washable fabric which is waterproof and windproof, protecting the wearer against rain, snow and wind, whilst allowing perspiration and vapour to escape thanks to its microporous coating and honeycomb structure. In its Entrant GII Toray

has optimised the moisture permeability for high and low intensity activities, an important function in skiing, which involves short bursts of intense activity. Spyder also uses Entrant-DT, a new hybrid structure; Dermizax-MP, a microporous film which performs at a minimum 20,000mm waterproofness, has over 200% stretchability, and has a special foam structure helping it to be lighter in weight than monolithic membranes; and Dermizax-EV, a heavy-duty nonporous laminated fabric with exceptionally high resistance to water pressure, it is a 'smart' fabric that responds to the microclimate temperature created between the body and clothing.

To provide insulation Spyder uses a number of different products including Thinsulate, which is constructed of unique microfibrils, about ten-times smaller than in other synthetics. These efficiently trap insulating air, and are said to reflect radiant body heat and deliver warmth two times greater than down and other polyester insulations when equal thicknesses are compared.

Another brand used in Spyder's insulating products is Gore's Airvantage adjustable insulation, which offers athletes the ability to alter the level of insulation provided by their apparel when not racing. An alternative to layering, the Airvantage system allows the wearer to control the amount of insulation required by varying the amount of 'dead air' held in the clothing - one of the best insulators known. Inflating the Airvantage system increases the 'dead air' space, which increases the insulation value and reduces heat loss. In periods of high exertion or when the temperature rises, deflating the system reduces the 'dead air' space. This reduces the amount of insulation and increases heat loss. "The change of insulation is equal to adding or removing a mid-weight fleece vest," comments Bruce Troutman, Gore Business Leader and the concept is perfectly suited to snowsports which involve a constant

*François Bourque wind tunnel testing.*  
 General Motors of Canada

alternation between periods of high exertion and relative inertia. Spyder is not the only apparel producer to have noted the benefits of this system in winter sports either, other snowsports manufacturers including Bogner, Burton, Chiemsee, Eider, Marmut, Oakley, Rossignol, and Schöffel have also integrated Airvantage into their ranges.

X-static Insulation-which is exclusive to Spyder-is also used in certain products, not only for its temperature regulating properties, but also because the silver-coated textile fibre enhances products with permanent and natural anti-odour, anti-static and thermodynamic properties.

### Spinning its own yarn

Spyder not only integrates fabrics and fibres from the world's leading brands, it also has its own brands that are used in its apparel at the Olympics and in its other ranges:

- Only available from Spyder (and used in the apparel for the Olympics) XT is a coating that penetrates the fabric in such a way that it forms a honeycomb structure with billions of micropores, offering breathability and waterproofness.
- Spyder Heat combines polyester with PPS. PPS (polyphenylene sulfide) is a high-performance, lightweight material with high heat retention, which retains body heat to keep the wearer warm.
- Spylon+ is a durable, water-repellent finish applied to the fabric exterior to prevent the garment from absorbing surface moisture, which retains 80% effectiveness after 50 washings. It also guards against water and oil-based stains.

### Stiff competition

Despite the vast amounts of technical fabrics and fibres already included in its apparel, there is still constant pressure on Spyder, as with other apparel manufacturers, to offer new improved technology in their products and Spyder continues to introduce new levels of functionality in its clothing. It recently became the first ski racing company to incorporate d3o technology into its competition apparel in order to reduce impact. d3o is made of intelligent molecules which stiffen when an impact occurs to absorb and dissipate the energy, but return to a pliable state when the pressure is lifted. Spyder has added this new technology to the base layer tops and the slalom and giant slalom race suits worn by the US and Canadian teams. The material has been placed in direct contact areas of the suit such as the shin, forearm, and elbow to protect against collisions with race gates – which can occur at speeds of 60 mph or above. If that were not enough, not only does the d3o used in Spyder's suits offer important protection to the skier, thanks to its moulded geometric shape it also promotes the passage of air to improve breathability. 

### One size doesn't fit all

Although Spyder supplies several national ski teams, it focuses on the needs of individual athletes and disciplines, supplying specific products designed to suit specific requirements in terms of function and styling, priding itself on the two-way relationship it builds with the teams.



#### Austria

In order to put together the optimum apparel for the Austrian team, Spyder worked with team officials to create custom outerwear, jackets, pants and race suits. According to Spyder's Jake Jacobs, "The team had pretty specific requests on the graphic appearance of the race uniforms, and we worked with them to create a design totally unique from any suit currently used in competition."

#### *The Austrian team will wear:*

1256 Torino Jacket (FO6) and 1257 Torino Pant (FO6) with XT.L and Thinsulate, which were designed specifically for the Olympics and are so new that even the teams haven't received them yet.



#### USA

#### *The US team will wear:*

6116 Olympic Down Jacket with Down; 1151 Olympic Pant with Dermizax and Thinsulate; 1110 Olympic Verbier Jacket with Dermizax and no insulation; and the 1111 Olympic Verbier Pant with Dermizax and Thinsulate.



#### Canada

#### *The Canadian Alpine Team will wear:*

1300 Avenger Jacket and 1310 Avenger Pant with Dermizax and Thinsulate.

#### *The Canadian Freestyle team will wear:*

6600 Women's Vision Jacket with XT.L and Thermaweb; the 6209 Bump Pant and 6110 One Piece Suit with XT.L and Thermaweb which are custom products not available to consumers; and the 6109 Rail Shell Jacket, also with XT.L and Thermaweb. 

