From improved ergonomics to elaborate ornamentation, innovative garment trimming can tip the balance in performance clothing. New solutions developed in zippers and taping are simplifying and enhancing clothing design.

Smart trimming: every detail counts

The devil is in the detail, as the saying goes. True as it is, sportswear brands strive to integrate additional features as seamlessly as possible. Ergonomics, safety, protection and aesthetics need to act jointly to make a product perform as required. Equally, trimming and taping suppliers invest time and effort to develop new solutions that will translate into practical, well-thought-out products.

A novel approach to design is one of the more conspicuous features of start-up Norwegian brand Northern Playground, an ispo and Scandinavian Outdoor Group award winner. Fine-tuned over a period of three years, its ZipWear functional underwear enables outdoor enthusiasts to change their baselayers without having to remove their outer layers. Company founder, Jo Egil Tobiassen, imagined and created this range for people who, like him, sweat a lot and need additional ventilation options to stay comfortable in changing climate conditions. "I don't believe in the myth of the magic fabric that will solve everything," he says. He set out to create a clothing system that made it possible to remove a damp base layer and slip into something dry and warm, whenever necessary.

The ZipWear concept created by Northern Playground is a collection of long-johns, boxers, tops and bras that can be zipped off and on without removing all of one's clothes. In addition to the intricate pattern-making involved in the design process, the young team struggled to find the right balance between fabric weight and zipper thickness. "The zippers constitute a relatively important part of the garment's features," Mr Tobiassen says. This turned out to be a question of matching a lightweight fabric with "a relatively heavy zipper". A regular YKK coil zipper was ultimately chosen, but required a heavier-weight fabric. Each garment having several full length zippers, the company colour-coded them to make it easier to identify which half connects with its corresponding half.

Columbia Sportswear faced another type of challenge in the development of its second-generation OutDry Extreme Eco Shell jacket.



All of the trimmings of Columbia's PFC-free OutDry Extreme Eco Shell are made in recycled plastics or textiles.

Columbia Sportswear

The new version takes a more stringent approach to sustainability. The membrane itself is now totally PFC-free, has more stretch and is less noisy, but the company also wanted to avoid dyeing altogether, a move motivated by the desire to make a "performance jacket with the lowest environmental impact," says Woody Blackford, Columbia's head of innovation and design. This, of course, includes trimmings. Labels, toggles, zipper pulls, thread and eyelets used to make the jacket are all 100% recycled, undyed and bluesign-approved. To obtain a zipper that was not dyed required some effort. "YKK accommodated us," is how Mr Blackford puts it. Beyond its eco-credentials, the jacket is now reversible, a design perk developed in response to requests from consumers who did not appreciate the plastic look of the first version.

French skiwear brand Eider is the first to integrate a new zipper design by Japanese manufacturer YKK, which has found an answer

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Created by young Norwegian brand Northern Playground, ZipWear base layers feature strategically placed zippers so that they can be taken off and put on without having to remove the outer layers.

Northern Playground

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YKK's Fix A Shape zipper, currently exclusively used by French sportswear brand Eider, has specially designed Vislon teeth that lock into a curve to follow the shape of the chin.

Eider

for front zippers that poke into the chin. Based on teeth with varied flexibility this zipper follows the shape of the body and curves outwards at the chin. Eider has secured exclusive rights to the Fix-a-Shape zipper, enabling it to design a high collar that offers maximum protection while freeing up head movement. The latest version presented at the Outdoor Show in Germany this summer for Spring/Summer 2017 has been further fine-tuned.

Hook-and-Loop alternatives

Japanese fastening manufacturer Morito received a Performance Days award for its innovative alternative to traditional hook-and-loop systems, the Block Tapey. It is based on grid-shaped Lego-look snaps that are injected onto a tape. This smart and deceptively simple closing system won't snag or catch dust particles and is quieter than hook-and-loop closures. Made for ultra-lightweight rain jackets, the Flat Tapey is another innovative snap closure designed by Morito. "It is less bulky than a conventional zipper and makes it possible to fold a rain jacket easily into a very small pouch," Jun Suzuki, sales manager for garment materials, says.

The quest for ever-softer and lighter-weight trimming solutions is a request that Italian zipper manufacturer Ska has heeded. The company has improved the water-tightness of its polyurethane zipper thanks to a thinner film. Aesthetics remain essential for the high-end company that has addressed this need with customisable designs, hand-galvanised metals and a more compressible version of its lace-coil zipper, creating a softer and lighter-weight closing solution.

Arguably one of the more fragile elements of a functional garment, zippers are known to break down at the worst possible moment, in the midst of an outing or expedition. Thanks to the patented FixnZip zipper slide developed by Munkees, this problem now has a solution as it replaces a damaged zipper slider, without requiring any tool or sewing. The recipient of an ispo award in 2016, the slider can be used on both tooth and coil zippers and comes in three sizes and two finishes, either black or silver nickel. For users looking for a simple upgrade to their gear, it can also turn a single-cursor zipper into a double-cursor.

Seamless solutions

Adding new features and details to a garment does not necessarily imply supplementary seams, which are another potential source of fragility. This is the task that taping manufacturers are constantly seeking to simplify and improve upon.

The Welding Down Tape developed by Korean company Bristex introduces a faster and more practical method in the manufacture of down jackets. The two-step taping system simultaneously stitches and welds a seam. "This tape was specifically developed for the baffles of down jackets. It reduces cold spots, reinforces the seams, making them nearly twice as strong, works well on lightweight fabrics without modifying hand feel and brings a five-step process down to only two," says Keun Hun Chang, Bristex company manager. It also makes it possible to create puff jackets with a smooth, seamless outer face. Japanese retailer Uniqlo has adopted the special tape, the company states.

US tape specialist Bemis has developed a new process for seamless, smooth, single-layer waistbands. This section of a garment usually

Designed to replace damaged or missing zipper sliders, FIxnZip can be applied to plastic and metallic teeth or nylon coil zippers as well as on open or closed-end zippers. It won an ispo Gold Award in 2016.

FixnZip



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Bemis FlowFree is being applied to create fully bonded waistbands that offer improved breathability and a slimmer and smoother feel.

Bemis

implies multiple layers and seaming that can affect wearer comfort. A construction solution, the Bonded Waistband, is an extension of the company's FlowFree technology that is used to cover large surface areas, as opposed to a single seam. "Reduced to a single layer of material, the waistband will breathe better and dry faster as well as reduce the need for sewing and elastics," says Bemis Associates global brand manager, Lacey Johnson. The application process takes 30 to 60 seconds depending on the fabric and can be applied to almost any sportswear bottom, including running and yoga tights or basketball shorts. "This system can be used to add a built-in opening for a drawstring and it can also be applied to cuffs and hems," she adds. Bemis is constantly improving on the concept, and Ms Johnson points out that it has the advantage of being an "immediately visible technology".

High or low profile visibility

Visibility is the key feature of retroreflective materials, and here, too, recent developments are opening up new options for brands.

In response to growing demand for its reflective fabrics, French company JRC-Reflex has created lighter-weight versions of its light-reflecting materials. A new polyester-elastane knit fabric is 30% lighter, says chief executive, Celine Cugerone, and is designed for use in running and cycling clothing. In the woven category, JRC-Reflex now offers a 100% polyester mechanical stretch fabric that is 25% lighter. Both are available in traditional silver and in the company's signature Super Black.

Trimming and labelling company Regine IQtrim has been focusing on creating ever more discreet reflective effects in its IQseen collection. The Particle Print range, based on tiny reflective dots that measure less than one millimetre, can be applied in new ways. "Brands can choose to create either subtle tone-in-tone effects by matching the Particle Print to the colour of the fabric background or opt for contrasting colours between the Particle Print and the fabric," says Regine general manager, Uli Jenter. What the company calls 'Invisible invisible' presents a variation on this series, with a reflective dotted background that can be sublimated and printed with whatever pattern a brand desires. The resulting fabric will reflect light by night but the dots are barely visible by day.

On silver reflective trimming, both JRC-Reflex and Regine have developed embossed motifs and perforations to add surface interest. The prints on silver reflective grounds help make silver reflective materials more decorative, says Mr Jenter. Special effects of all types are available, offering many ways of combining "branding with a functional feature," he adds.

Sealon, a Korean taping manufacturer, has recently expanded its stretch reflective overlay deco film, which now comes in a palette of five colours: white, navy blue, clear, black or silver. Novel plays with light and colour are also a key feature of the new Chromaflex overlay film at Bemis. The light-diffracting material changes colour depending on the angle of vision. "It is one of our classic best-sellers that has been updated with novel aesthetics," says Ms Johnson, adding that it will make a garment "pop on the hanger".

These smart trimmings and taping solutions can improve a garment's ergonomics, fit and style while at the same time adding a high-impact or subtle surface effect. Whether structural or ornamental, the creative use of these essential elements of design is by no means just a detail.

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