

SKI TECHNOLOGY AVALANCHE SAFETYKIT

As increasing numbers of skiers and riders abandon the pistes for the untouched beauty, tranquillity and challenges of the backcountry, avalanche safety equipment is becoming an integral part of the arsenal of wintersports enthusiasts. This winter sees the launch of several new and improved products, such as Airbag systems (ABS), transceivers and probes. Technology editor *Gabriella Le Breton* investigates further.



ORTOVOX ZOOM+ III £180

This neat, pebble-shaped avalanche transceiver is ideal for skiers and riders new to beacons as it is, quite simply, the easiest and most intuitive on the market. With just two function buttons and a straightforward display, it's a great 'dummy-proof' option which nonetheless features Smart Antenna Technology, which analyses its position in an avalanche and automatically switches to the best transmission antenna. The Zoom+ does give a fairly limited range (a maximum of about 33 metres) but it's well priced and makes a great introductory beacon. You can also buy it as part of a full rescue kit, including the Ortovox Zoom+, a shovel and probe for £225. <u>ellis-brigham.com</u>



MAMMUT LIGHT R.A.S. 30L RUCKSACK **£**500

Although expensive, an ABS rucksack can increase your chances of survival in an avalanche. All work in a similar way: the pack contains a refillable compressed gas container and one or two airbags. When caught in an avalanche, you pull the activation handle on the bag's shoulder strap, releasing the gas to inflate the airbag, enabling you to float on, or close to, the surface of the avalanche. A common issue is weight, but Mammut, which recently acquired the ABS specialist Snowpulse, has created the 1.9kg (4.2lb) durable and reliable 30-litre R.A.S. backpack, which further benefits from a well-protected trigger system and neatly organised internal airbag/ canister system. mammut.com



K2 RESCUE PLUS SHOVEL **1**£45

Built from heat-treated aluminium, this multifunctional shovel boasts tried and tested durability while remaining light at 715 grams (1.6lbs). It has an extendable handle, serrated edge (handy for chopping blocks of snow) and can be transformed into a hoe by repositioning the handle, enabling you to move snow downhill more easily. Where it really comes into its own, however, is in its ability to work as a rescue sled when paired with K2 skis. You will find four screws stored in the handle which, when combined with the shovel, a length of cord, ski poles and K2 skis (other screws can be used for different brands of ski) create a safe, sturdy rescue sled in less than five minutes. k2skis.com



BLACK DIAMOND AGENT AVALUNG £175

An AvaLung pack is designed to increase your chances of survival in an avalanche by pulling fresh air from the snowpack. You activate the AvaLung before an off-piste descent, pulling out the mouthpiece and tubing which are otherwise stowed

away in the shoulder strap. In the case of burial, you manoeuvre the mouthpiece to inhale fresh air from the bi-valve intake box in the shoulder strap valve box and expel carbon dioxide through the integrated exhaust port. There are arguments that there isn't time to insert the mouthpiece when caught in an avalanche or treewell, so it's worth practising the manoeuvre or simply skiing with it in your mouth. A good option for light day trips, it also has a space for avalanche tools, an insulated hydration sleeve, helmet holder and ski-carry cable for hiking. <u>snowandrock.com</u>

PIEPS IPROBE ONE I £100

This innovative probe has a low range beacon in the tip that locks in on any standard transmitting avalanche transceiver, providing visual and audible feedback to pinpoint avalanche burials. Easy to assemble and use — there's a simple on/off button — the iProbe has a secure latch that's easy to use with gloves on. Similar to most transceivers, its chirp increases in frequency the closer it gets to the beacon, emitting a solid tone within 20cm to 50cm (8ins to 20ins). In the case of multiple burials, you can suppress

the signal from the transmitting beacon you have found so you can search for others, but this only works if they are Pieps DSP and Pieps Freeride beacons. *pieps.com*

THE NORTH FACE POWDER GUIDE ABS VEST I \$1,379/£845

Originally designed for ski patrollers, this is worn over your outer shell and is intended to hold all the



essentials for a backcountry excursion that you would usually keep in a pack. It has pockets for a probe, shovel handle and goggles, as well as a builtin ABS, and you can attach your skis or board to its straps for short hikes. It's a handy bit of kit, better suited to short trips than big excursions or touring, but it's only available in the US. Sadly you can't buy it online as, just as airlines have rules on carrying ABS cannisters, they can't ship them abroad. However, there's talk of a European launch next winter. <u>thenorthface.com</u> HIT OR MISS?

SIDAS UV DRYWARMER 125

Founded in 1975 by three ski instructors, Sidas has pioneered the creation of specialist insoles for sports from skiing to hiking. At the end of the ski day, plug in the Drywarmer and slide its lozenges into the toe box of your boots. The warmers generate enough heat to dry them out over an hour or more but are gentle enough not to damage custom liners. They also emit ultraviolet radiation to kill bacteria and germs, reducing odours and prolonging the life of your boots. Start the day with toasty toes by switching on the warmers while you have breakfast and, on cold days, slip the warmers into your backpack and warm up your boots over lunch. The Drywarmers can be used in any type of shoe/boot, so you can use them throughout the year. <u>snowandrock.com</u>

SKI RETRIEVER 1295

Here's the theory. You're nailing a virgin powder slope, you catch a ski and you're flying through the air. So you spend the next half hour hunting for a ski buried deep in the snow. Digging frantically, you hear your mates



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muttering about having no friends on a powder day... Enter the Ski Retriever: a system which uses a radio-frequency receiver and a pair of transmitter tags to attach to your skis. The Ski Retriever 'mates' to each transmitter tag, establishing a unique frequency between the two devices (each receiver can be linked to four tags at one time). When you lose your skis, the receiver directs you to them audibly and visually with LED indicators. So what's not to like? Well, aside from the fact that the claim it can transmit up to 125 metres (400 feet) in 'optimum' conditions has proven optimistic under test conditions, what the maker calls a credit card-sized handset is mobile phone-sized in reality. And for those of us who are always leaving our mobiles behind, what are the chances we'll have this on us and charged when we need it? Skiers are probably best off using their other ski to slice the snow until they find

the lost one. Alternatively, spend a tenner on a Powder Trace, or tie a brightly-coloured ribbon to your skis. <u>skiretriever.com</u>





SKI TECHNOLOGY THE BEST PROTECTIVE HELMETS AND CLOTHING

Skiing and snowboarding are evolving ever more quickly — speeds are increasing, drops are bigger, jumps higher and rails longer. As exciting as this is, a side effect is the number of injuries. But there has also been a significant development in the quality of helmets and protective clothing. The technology in most cycle helmets, for instance, is far surpassed by that in ski helmets, which alone should persuade you to wear one this winter...

The proliferation of helmets on the slopes is the most obvious indicator of the growth of protective kit. A rarity just over decade ago, now most of us wear them. If you haven't been converted to the joy of helmets for fear they're uncomfortable, try SALOMON'S CUSTOM AIR



FIT (*salomon.com*, from £110). The inside of the helmet, pictured, is lined with air pockets which you fill using a thumb-sized blister pump, ensuring a good fit each time you put it on and better protection for your head.

For technical excellence, it's hard to beat Swedish brand **POC SPORTS** (*pocsports.com*), which has been at the forefront of helmet technology since it exploded on to the snowsports scene in 2004. The POC Lab gathers leading neurologists, back specialists and sports medicine experts to address the increasing risks in wintersports, while POC's big-name athletes put their products to the test on the slopes. The fruits of this extensive research and development include POC's pioneering anti-rotational violence technology and Multi-directional Impact Protection System (MIPS), which mimics the movement of brain fluid to protect the brain from oblique impacts, the most common



type of head injury.

Following the success of its snow helmets, POC also makes highly regarded bicycle helmets, which share much of the same technology and construction methods, which gives rise to the question: "Can I have one helmet for all the sports in my life?"

POC's Receptor range, pictured, features the Receptor+, the only helmet with globally-recognised certifications for skiing, snowboarding, biking, skateboarding and watersports. Thanks to its VDSAP system (Ventilated Double Shell Anti-Penetration), the **RECEPTOR**+ (from £175) has enough ventilation for both winter and summer sports and comes with a winter accessory kit, including a detachable insulated lining, neck roll, ear covers and goggle clip.



French manufacturer **CEBE** (*cebe.com*) also offers a multifunctional helmet, the **TRILOGY** (£115), which meets European standards for mountain biking, skiing and mountaineering. It features a modular design based around a dome-shaped mountaineering

helmet with integrated venting — simply add ear pads and vent plugs for snowsports or a visor for biking.

One of the most exciting developments comes from DAINESE, the Italian firm best known for making protective gear for motorbike riders. Working with the International Ski Federation (FIS), it has been developing its D-AIR SKI range, below, based on D-Air airbag technology, for four years, revealing a prototype at the Sochi Winter Olympics. Using an array of sensors and a painstakingly tailored algorithm to detect the exact moment when an athlete loses control, the back-mounted D-Air system instantly inflates around the skier or rider to protect them from impact.

The algorithm is the crux of the D-Air system, enabling it to distinguish between normal ski racing forces and those indicating a serious fall. Dainese pulled data from some 250 descents, over 12 hours of ski time and extensive FIS trauma data to develop it. Three accelerometers, three gyroscopes and a GPS system monitor the forces as you ski, which are analysed by the algorithm-driven microprocessor. When the forces fall outside the threshold determined by the algorithm, it triggers the activation of an eight-litre airbag, which wraps around the upper body, protecting the chest, shoulders, collarbones and cervical vertebrae. Dainese claims it absorbs up to 61% of the impact force, and the process, from crash detection to inflation, takes milliseconds.

Designed for competition use, it weighs just 800 grams (1.75lbs) and is worn over a back protector and underneath a racing suit. It has an LED indicator to show battery status and a rechargeable lithium-polymer battery charged through a USB, which is also used to upload data from its onboard

memory. Dainese is expected to launch a competition-ready system this winter and has already announced its intention to design additional protection pieces for other parts of the body, saying the technology is likely to influence "possible interactions between skis and bindings".

But remember, none of these gadgets can beat skiing safely!

Give us your verdict on the latest ski gadgets at *skiclub.co.uk/chatforum*

