Rotational impact protection is necessary to counter the forces involved in oblique impacts, which are a common cause of head injury. SPIN pads are integrated inside a helmet and add an extra layer of rotational impact protection by shearing in any direction, allowing the head to move relative to the helmet, reducing the force transmitted to the brain.
Auric Cut Backcountry SPIN

The Auric Cut Backcountry SPIN sets a new standard for on and off piste safety for ski and snowboarders. Featuring POC’s patent pending rotational impact protection system, SPIN, the internal shearing pads will reduce the effects of an oblique fall by reducing the amount of force transmitted to the head and brain. The helmet also includes an advanced multi impact EPP liner which can withstand repetitive impacts and a very robust ABS shell, which supports anti penetration protection and ensures helmet strength and integrity. The helmet also features an integrated Recco reflector which will support being searchable in the backcountry.

Learn more pages 34.
SPIN pads are optimized to provide rotational impact protection based on the precise location inside the helmet and by using various pad technologies which can shear in any direction. The aim is to minimize the effects of an oblique fall by allowing the helmet to move relative to the head.

The human body has evolved and developed a variety of protective systems, the bone structure being one, cerebrospinal fluid which cushions the head and brain during any fall. Placed inside a helmet directly against a user’s head, SPIN pads are able to deflect crash energy in any direction through rotational impact to reduce the force transmitted to the brain.

POC’s patented rotational impact protection system, SPIN (Shearing Pad Inside), is an evolution in head and brain protection. Through the use of innovative and unique pads, the helmet is able to reduce the amount of force transmitted to a user’s head and brain in the event of an oblique impact.

The aim is to minimize the effects of an oblique fall by allowing the helmet to move relative to the head. SPIN pads are able to shear in any direction, or oblique, impact with the ground or object which can result in the helmet and head rotating. Research has shown that to be a direct or linear fall, the force required to cause serious head injury from an oblique impact is often much lower.

To counter this common impact scenario we created SPIN pads, which are a revolution in nature’s own design and use an innovative pad technology and design.

Without SPIN pads, the remaining rotational impact energy would require nature’s impact defense system, cerebrospinal fluid, to react. However, by using SPIN pads another layer of protection is introduced as SPIN pads are able to shear in any direction and reduce the energy and force transmitted to the head.

POC’s helmet technologies, designs and innovations have received numerous awards in recent years and we never compromise on choosing materials, safety quality or performance. Through our own POC Lab and vast experience we have come up with different helmet concepts, for several different needs with new ideas and innovative solutions on how to reduce the force transmitted to the brain.

Our mission, ‘to do the best we can to possibly save lives and to reduce the consequences of accidents for gravity sports athletes and cyclists’ naturally directed us towards developing rotational impacts which required a new way of supporting user safety.

To maximise safety and reduce the rotational impact energy, a number of helmet companies have developed design and materials used in consideration, and which offer several layers of protection during a fall.

Helmet design should ideally be able to reduce impact, reducing the amount of friction and energy which could otherwise continue through the helmet. The ability to slide is directly related to the design and shape of the helmet and the quality of the shell material used.

The shell acts as the first layer of protection, followed by the liner which is close contact and with the right materials will absorb a large amount of the shock and energy that would otherwise make its way through to the head.

Helmets should initially be able to slide on impact, reducing the amount of friction and energy, which could otherwise continue through the helmet. The ability to slide is directly related to the design and shape of the helmet and the quality of the shell material used.

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By molding aramid bridges to the core of the helmet, the impact forces are spread over a larger surface. At the same time the helmet gains structural stability through the bonding of the unbreakable aramid weave and the EPS liner, which allows for a very lightweight helmet with a high level of protection.

**MIPS**

MIPS stands for Multi-directional Impact Protection System and is used to reduce the rotational forces to the brain in the case of an oblique impact. A normal helmet is created to absorb vertical impacts very efficiently, but is not as good at the rotational forces. When subjected to an oblique impact, the MIPS system absorbs these forces by allowing a small rotation of the outer shell relative to the liner. MIPS allows a small rotation of the shell relative to the liner and thereby reduces the rotational energy transmitted to the brain on impact.

**SUPER VENTILATED HELMETS**

By studying the airflow inside the helmets, POC has been able to create super ventilated shells with adjustable and optimized ventilation depending on the conditions. The combination of goggle vents, chimney vents, VDSAP and adjustable vents makes the helmets very ventilated, with a maintained low weight and a high level of protection.

**POC Helmet Concepts & Technologies**

**ARAIM BRIDGES**

**VDSAP**

POC’s patented VDSAP system (Ventilated Double Shell Anti-Penetration) is built on two ventilated shells that are placed offset for maximum protection against penetration from sharp objects, while maintaining good airflow and ventilation. The safety performance of this construction is unparalleled and represents a unique take on helmet design.

**MULTI-IMPACT HELMETS**

Most helmets today have liners made of EPS (Expanded Polystyrene), a great shock absorbing material, but it will be permanently compressed when absorbing an impact, even a minor one. Using multi-impact EPP (Expanded Polypropylene) as core material creates a helmet that will protect your head over and over again.

**MULTI-IMPACT HELMETS**

**MULTI-IMPACT WITH INTERIOR VPD 2.0 POCKETS**

To provide accurate protection for park and pipe riders who commonly have repetitive impacts as developed a liner with pockets of VPD 2.0 integrated within the EPP liner. The VPD 2.0 absorbs low to medium energy impacts and high energy impacts the EPP takes over. The combination of these two materials provides protection against repeated low to medium energy impacts, as well as full on crashes. The Auric PRO has been developed specifically with this user in mind.

**MULTI-IMPACT DEFLECTOR PANEL**

Through examining helmets used by World Cup alpine racers, we identified that they were worn out in the front due to repeated impacts from the gates. The velocity was much slower than we had ever imagined and the discovery led us to developing the Multi-Impact Deflector Panel, featured in the new line of Skull Orbic helmets. Our deflector panels decrease the transmitted force of the impact, and increase the shock absorbing capacity of the helmets. This ensures that the helmet performance remains at the highest level and it’s really needed: in a real crash. In the deflector panel of the Skull Orbic X SPIN, we integrated our patented VPD 2.0 that has extreme impact absorbing properties, proven for repeated impacts in our body armor collection. The Skull Orbic X SPIN deflector panels are made of multi-impact EPP material.

**RECCO SEARCH AND RESCUE SYSTEM**

Recco’s two-part technology can search year-round for people equipped with Recco reflectors. The new Recco SAR 2 technology is based on Recco’s renowned rescue system for people lost in avalanches. The system enables fast directional pinpointing of a person’s precise location. Recco detectors send and receive a directional radar signal to locate a person wearing a Recco reflector.

The new Recco Helicopter Search and Rescue detector, SAR 1, has a substantially larger search area. The SAR 1 is flying at a speed of 130 km/h and can search approximately 200 meters wide search strips. Considerable areas of forests, mountain terrain, rivers and shores can therefore be searched in a very short time - a square kilometer in approximately 3.5-4 minutes.
POC has been at the forefront of helmet technology and has delivered a range of different helmet technologies and constructions: hard shell, in mold, aramid penetration barriers, double shells, aramid bridges - all of which have led to positive improvements in helmet performance and user safety.

Helmet construction and design still relies, however, on one crucial element which is often underestimated, the choice of liner. POC has researched and developed several unique helmet liners, all designed to provide optimal performance and with technology which allows helmets to be chosen on the unique needs of a user or activity.

POC liner technologies

EPS liner
Expanded Polystyrene (EPS) is a trusted and established technology which is highly suited to in mold constructions and provides a great base for many different shell technologies. The strength of EPS lies in its suitability and protection against single impact accidents.

- **POCITO FORNIX**
- **RECEPTOR BUG**
- **FORNIX**
- **FORNIX BACKCOUNTRY**

Multi Impact EPP liner
Expanded Polypropylene (EPP) shares many of the positive features of EPS but has one major difference; it does not deform permanently on impact. This makes EPP ideal for repetitively multi impact accidents with a high residual level of performance ensures that it is well suited for activities where frequent, smaller falls may be common.

- **SKULL ORBIC X SPIN**
- **SKULL X**
- **POCITO SKULL LIGHT**
- **POCITO AURIC CUT SPIN**
- **AURIC CUT BACKCOUNTRY SPIN**
- **AURIC CUT**
- **AURIC**

Multi Impact EPP liner with VPD 2.0 liner
Helmets with an Expanded Polypropylene (EPP) layer and a visco-elastic polymer dough (VPD) layer are designed for multi impact protection. The EPP layer is stiffer and provides protection against single impact accidents, while the VPD layer provides the precise amount of progressive deformation and protection for park riders who frequently are exposed to both high and low energy falls.

- **SKULL ORBIC COMP SPIN**
- **ARTIC SL SPIN**
- **AURIC PRO**

POC liner technologies