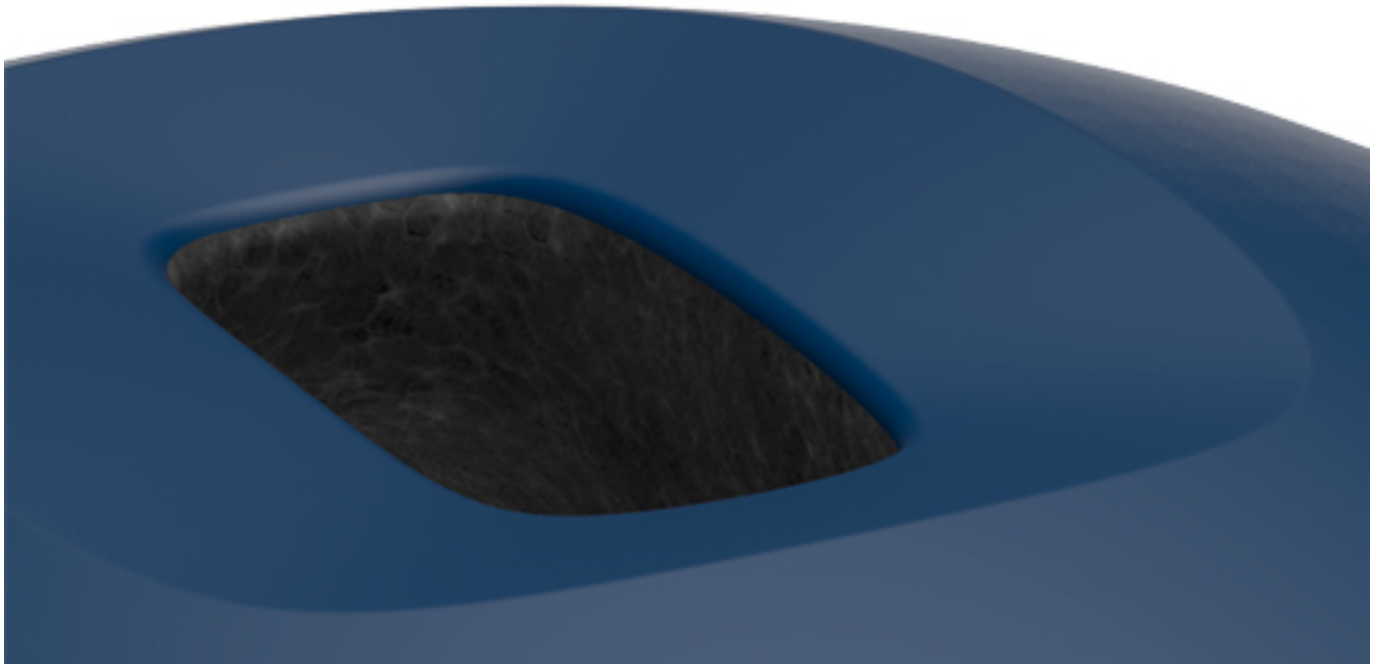


## POC Bike Helmet Concepts & Technologies - Wheels

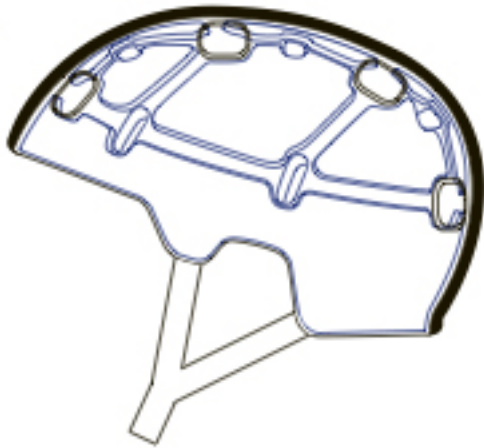


### PROGRESSIVE CORE

POC's new progressive core (Pro Core) combines two densities. With a stiffer outer part of the liner and a softer portion on the inside, the helmet becomes exceptionally durable on the outside and well suited to deal with higher energy impacts, while the softer inner layer provides protection for lower energy impacts. The two layers also work together to give a progressive stop of the head in case of an impact.



CRANE



### MULTI-IMPACT PERFORMANCE

To date, both traditional hard shell and in-mold helmets have relied on Expanded Polystyrene (EPS) for shock absorption. EPS absorbs energy by plastic deformation on impact and results in permanent deformation. As a consequence, a helmet liner made of EPS will not be as good absorbing repetitive impacts. Most of POC's bike helmets use a liner of Expanded Polypropylene (EPP) instead of the traditional EPS. The difference between the materials is that EPP does not deform permanently, which means it's suitable for absorbing repetitive impacts.



RECEPTOR +



RECEPTOR  
BACKCOUNTRY MIPS



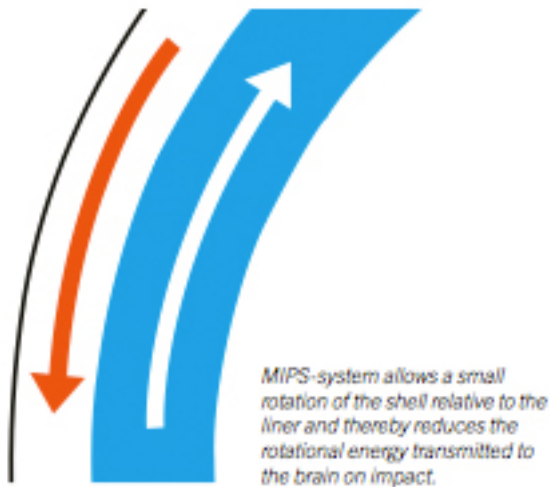
CORTEX DH  
MIPS



CORTEX FLOW

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Protection system:



### MIPS (MULTI-IMPACT PROTECTION SYSTEM)

MIPS is a system used to reduce the rotational force to the brain in case of oblique impacts. Accident statistics show that the most common accident occurs in an oblique impact to the head, resulting in a rotation of the head and brain. The brain is more sensitive to oblique impacts than radial impacts.

In a helmet equipped with MIPS technology, a low friction layer separates the shell and the inside of the helmet. When subjected to an oblique impact, the low friction layer allows a small controlled rotation of the shell relative to the lining.



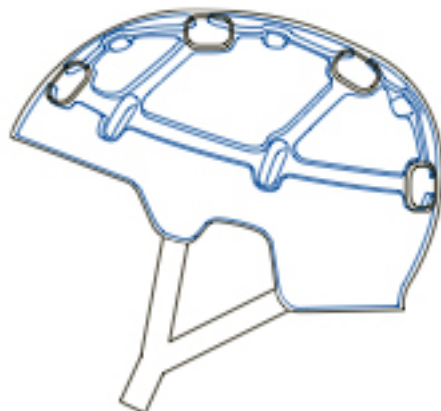
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BACKCOUNTRY MIPS



TRABEC RACE  
MIPS



### EPS vs. in-mold helmets

Traditionally, there have been two types of bike helmets on the market. First,

there is the thick hard shell helmet with a shock absorbing liner of EPS. A hard shell helmet provides good protection against penetration and is durable.

However, the nature of the stiff outer shell also has its drawbacks. On impact, the hard shell causes an abrupt stop of the head. This increases the risk of brain injuries and whiplash injuries are more likely as hard shell helmet is more prone to rebound on impact.

The second type of traditional bike helmet is the in-mold type. These helmets have a thin shell of polycarbonate molded together with an EPS liner. With this construction any energy on impact is well absorbed, as the thin shell allows the helmet to deconstruct on impact, transferring less stress to the brain and head, which results in minimal rebound. Traditionally, in-mold helmets have disadvantages when it comes to resistance to penetration and durability.



RECEPTOR +



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BACKCOUNTRY MIPS



CORTEX DH  
MIPS



#### **ARAMID BRIDGE**

When looking for low weight in combination with a tough and durable structure, we added aramid in strategic locations just under the outer shell and molded it together with the foam liner material to ensure durability and protection. The unbreakable aramid weave bonds with the foam liner, adding a totally new structural stability. The concept was first launched in our trail mountainbike helmet Trabec.



TRABEC



TRABEC RACE



TRABEC RACE  
MIPS

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### ***VDSAP (VENTILATED DOUBLE SHELL ANTI-PENETRATION)***

The safety requirements for ski and bike helmets are similar, but bike helmets call for some additional features to enhance ventilation and comfort. Good ventilation, however, also poses problems as open vents decreases the helmet's protection against penetration. This is a serious risk, especially for downhill riders, since they are most likely to be exposed to hazardous objects at high speed.

To be able to come up with a helmet that is penetration resistant, performs well upon impact and still is well ventilated, we developed our patented VDSAP with double overlapping shells. VDSAP has two ventilated shells that are offset for maximum penetration resistance and management of heat, perspiration or water. The inner shell is an extremely thin layer of polycarbonate and the outer shell is made of carbon fiber or injected plastic, depending on model. These helmets represent a unique way of thinking in helmet design.



RECEPTOR +



RECEPTOR  
BACKCOUNTRY MIPS



CORTEX DH  
MIPS

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