

New Volvo technology for head protection – the inflatable curtain

Volvo is developing the third phase of the SIPS side-impact protection system, with the Inflatable Curtain, IC, which is designed to protect the occupants' heads in a side collision.

With the IC system, Volvo is consolidating its special position as the leader in safety.

Today, SIPS is a well-known concept in the automotive world. When it was introduced in 1991, it set a completely new standard for side-impact protection.

Step two came in 1994 with the SIPS bags – airbags fitted in the sides of the front seats to provide protection if the car is driven into from the side.

Today, SIPS and the SIPS bag are standard in all Volvo models.

Reducing head injuries

Stage three – the IC system – is now being developed to meet the threat from head injuries. Volvo's safety research has shown that head injuries are the cause of more than a quarter of fatalities and severe injuries in traffic. The most common accident types that result in head injuries are side impacts and multiple accidents.

Since the distance between the occupant's head and the side structure of the car is so short, it has always been difficult to create a protection system for these types of accidents. Volvo has, however, focused much of its safety development on these very issues.

The result is the IC system – further proof of Volvo's advanced approach to safety.

“Our efforts in this field are completely in line with Volvo's safety philosophy. According to our calculations, the IC system will reduce the frequency of severe head injuries substantially,” says Hans Gustavsson, head of product development at the Volvo Car Corporation.

It is estimated that SIPS, together with the SIPS-bag, will be capable of reducing the most serious injuries associated with side impacts by about 40 percent. The IC technology is an excellent complement to SIPS and is expected to reduce injury even further.

Protection both front and rear

The IC system is fitted inside the headliner. On inflation, the curtain covers the upper part of the interior, from the front to the rear side pillars. This means that it protects both front-seat occupants and those sitting in the outer rear seats.

The curtain is activated by signals from impact sensors fitted in the body sides. The channels in the curtain are filled with gas in twenty-five thousandths of a second.

The curtain catches the head in a controlled manner and prevents it from hitting the inside of the car – as well as from hitting other objects that the car may have collided with, such as a lamp-post.

The curtain is woven in a single piece with channels at strategic points and is hidden within the headliner in normal circumstances.

The IC system has been developed by Volvo in collaboration with the car safety company Autoliv.