

IndyCar Series Helmet

1. OUTER SHELL: Designed to dispense energy in an impact and protect from penetration from debris. The shell is made of an ultra-light, three-part weave of carbon fiber, Kevlar and fiberglass. It's hand formed in a two-piece mold, then trimmed by a computer-controlled machine.

2. NOMEX LINING: Designed to transfer heat away from a driver's head, while absorbing sweat. The thin fireproof layer is made of Nomex and Rayon and covers the inside of the entire helmet.

3. HATS-OFF BLADDER: A small air bag that can be inflated through a valve by safety crews allows the helmet to be lifted from the driver without neck strain. It was mandated by the IndyCar Series in 2003.

4. AERODYNAMIC PLATE: A small piece of outer shell which is attached to divert air into a gap beneath it to create downforce to stabilize the helmet. Air flow across the top of the helmet is directed into the engine air intake, located behind the driver's head.

5. AERO WICKERS: Thin strips of rubber attached to each side and at the back of the helmet to prevent the driver's head from being "buffeted" by 200 mph air resistance. It also prevents air back draft from trying to lift the helmet off. The shape is adjusted for each track.

6. INNER LINER: Made of a single molded piece of high-tech, lightweight bead foam, this is the helmet's skeleton and the primary protective layer in an impact. It spreads both interior and exterior impact forces across a large area to protect the driver.

7. FIT PAD: Foam that surrounds the sides and back of the head glued to the inner liner. Thickness adapted to head size.

8. EAR PIECE: Allows the driver to hear in-car radio communication from the spotter and pits and protects the driver's ears from engine noise. Also included is the Delphi Earpiece Sensor System, which measures the forces a driver's head experiences in an impact.

9. NECK PAD: A strip of plush, open-cell foam attached to the inner liner at the base of the helmet. Like the fit pad, it is custom-made to ensure a tight fit around the neck. It also helps repel flames from the head and face.

10. CHIN STRAP: Kevlar strap secures the helmet to the driver's head. It is replaced after minor accidents.

11. LID BALANCE: A part of the outer shell, it is a crucial aerodynamic aid to stop the driver's head from being blown back at speed.

12. FRONTAL LINER: Extension of the main foam bead lining to protect the face in impacts. A microphone is imbedded into the foam in front of the driver's mouth for in-car radio communication. Also houses the tube connected to the drink bottle installed in the front of the car.

13. VISOR: Able to repel fire for at least 45 seconds, the Lexan face shield is specially coated on the inside to prevent fogging. On the outside, three to five transparent, thin plastic "tear offs" allow the driver to periodically refresh his view.

