



Forward-looking innovation

With Saflex® Q series head-up display (HUD) interlayer technology, things are looking up for the automotive industry.

saflex 
ENHANCE YOUR VISION

Once reserved for fighter jets and luxury cars, head-up display (HUD) technology is finding its way in all sorts of vehicles thanks to advances in polyvinyl butyral (PVB) interlayers.

Long known for bringing safety, security, and UV protection to laminated glass, today's PVB interlayers deliver much more. For example, with Saflex interlayer technology, automotive engineers can cost-effectively implement HUD features while decreasing cabin noise, reducing vehicle weight, improving gas mileage, and reducing CO₂ emissions.

Windshields are made up of two pieces of glass that are not flat or perpendicular to drivers' eyes. The virtual image must be corrected to ensure that it is sharp and easy to read, i.e., no ghosting or double imaging effects. A HUD system uses the optical combining characteristics of HUD interlayer to provide a single-focused virtual image that appears near the front of the vehicle.

Reasons to look at Saflex



Reduced driver distraction

Projected images allow drivers' eyes to remain on the road.



Improved acoustic comfort

Reduces exterior noise transmitted into the vehicle cabin up to 3dB



Weight reduction

Enables the use of thinner, lighter glass without increasing noise



Increased fuel efficiency

Lighter-weight glass reduces fuel use.



Reduced CO₂ emissions

Improved fuel efficiency also improves air quality.



UV protection

Blocks over 96% of harmful UV radiation

Keep **safety** at the forefront.

HUD systems are emerging as an optimal method to help combat driver distraction. Today's systems enhance the overall driving experience by allowing drivers to keep their eyes on the road and still view critical vehicle data. And with the increased adoption of active safety features—such as blind-spot detection, lane-departure warnings, onboard navigation, and smartphone integration—car manufacturers can now present an array of critical information in a convenient and advantageous space without overloading driver attention or causing distraction.

Studies have shown that a driver's reaction time is delayed by 2 to 4 seconds when they take their eyes off the road, even if only briefly. In an emergency braking situation at 65 mph (105 km/h), this can result in an additional 282 ft (86 m) before the car comes to a stop.¹

Application

Windscreen



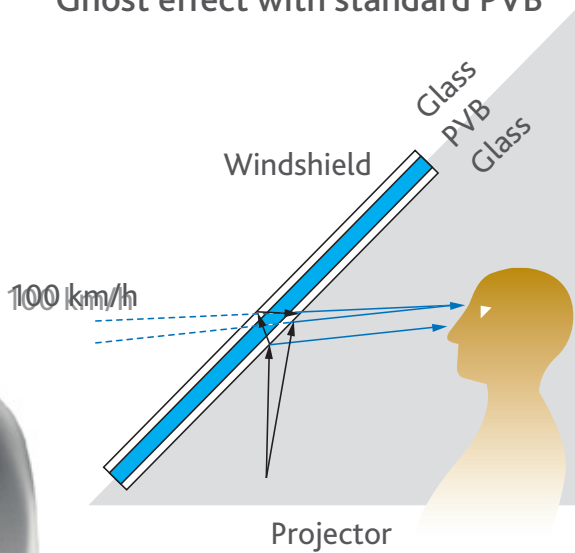
¹Based on calculations by C. Roberts Consulting Engineers, Inc. (www.croberts.com)

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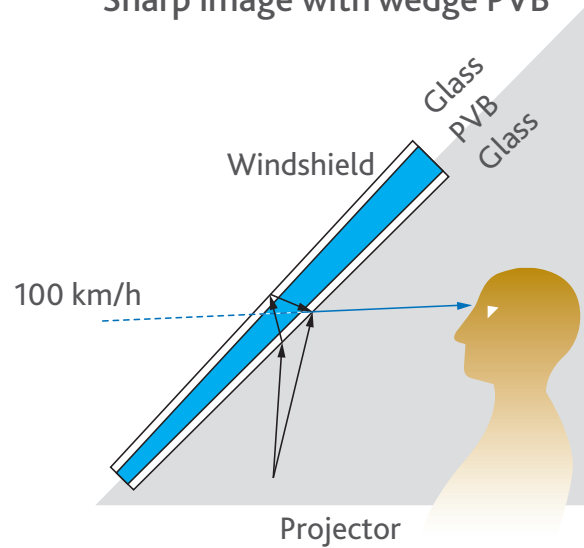
Unlike traditional PVB interlayers that have a flat, uniform surface, Saflex acoustic HUD interlayers are made by a proprietary process that creates nonparallel surfaces to create a windscreen that provides optical correction—resulting in the highest quality projected image in the market. Saflex Q series acoustic HUD delivers this high quality while also cutting wind noise in half.

Eastman helped pioneer the development of HUD interlayers more than 20 years ago, and through our experience in working jointly with HUD channel partners, we have accumulated a robust understanding of how to enable best-in-class HUD optics performance and ensure the smooth launch of each HUD vehicle program.

Ghost effect with standard PVB



Sharp image with wedge PVB



Driving performance through material innovation.



For more information,
visit us online at saflex.com.

Trust the experts.

Around the world, automotive engineers trust Eastman when performance and safety are critical concerns. The reason is simple: Saflex interlayer technology delivers advanced glazing performance for demanding applications, meeting exacting specifications and targets. The industry counts on Eastman for technical and development expertise—making Eastman a global leader in PVB interlayers for automotive applications.



EASTMAN

The results of insight™

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