

## Windscreen Replacement – Technical

### Windscreen Construction

The modern windscreen is made of Laminated Safety Glass , a type of treated glass which consists of two sheets of glass with a plastic layer(Polyvinyl Butyrate)PVB laminated between them for safety. They are glued to the vehicle with a structural Polyurethane adhesive.

### Windscreen Functions

Today's windscreen is part of the vehicles safety restraint system (SRS) that which also includes Air Bags and Seat Belts. If any of these safety components are damaged, or are inoperable for any reason, the effectiveness of the entire SRS could be compromised. The SRS is designed to keep vehicle occupants within the relative safety of the passenger compartment during accidents. The windscreen also supports the roof thereby preserving the structural integrity of the passenger compartment and keeping it from collapsing and crushing driver and passengers. The passenger airbag deploys against the windscreen in an accident – if the windscreen has been improperly fitted and becomes detached the airbag will not perform its function.

As well as the safety blanket the windscreen provides it has also evolved into a complex technical feature providing the platform for additional features such as

- Solar Glass (repels harmful UV)
- Heads – Up Display Systems
- Photovoltaic Glass
- Rain Sensors
- Light Sensors
- Night Vision Glass
- Additional Antennas eg. Cellular, GPS, Radio, Satellite
- Acoustic Glass (reduces road noise)

### Purpose of Urethane

The primary purpose of polyurethane is to serve as the solution to the multiple challenges of installing auto glass, balancing safety standards and customer demands. But structural adhesives also perform additional functions that currently make them the preferred, and only ,solution of vehicle manufacturers. Besides safety, polyurethane adhesives also help to reduce noise, improve vehicle handling and performance, and provide a waterproof seal around the glass.

In order to meet critical safety standards and the design criteria of today's vehicles, manufacturers needed a structural adhesive that would not only hold under the extreme conditions of an auto collision but one that would remain flexible enough so that the glass would not break under the stress of expansion, contraction and other – vehicle movement during normal driving.

High – Modulus urethane adhesives are now being used in many vehicles to lock the glass more rigidly into the vehicle body to utilize it as a stabilizing tool. Glass flexes less than metal and helps high performance vehicles offer improved handling and cornering by eliminating the sway that is commonly felt as the vehicle enters and exits turns.

Finally, urethane adhesives, when the complete adhesive system is used properly, forms a waterproof seal around the perimeter of the glass. Since no mechanical fasteners are used, there are no points where water can enter the passenger compartment.

Primarily because of the safety advantages, but also due to urethane adhesives other attributes, urethanes have become the vehicle manufacturers structural adhesive of choice and the adhesive of choice for the Aftermarket Glass Replacement (AGR) market. Aftermarket installers must utilize this product in order to ensure that the work they perform meets Original Equipment Manufacturer (OEM) and Federal Safety Standards.

**Our Urethane Adhesive Supplier**

NOVUS utilize and have exclusive rights to the SRP line of automotive adhesives in New Zealand. SRP's supplier and collaborator in the development of these adhesives is Le Joint Francais. LJF is a division of Total one of the world's largest petroleum and petroleum product producers. LJF has been providing adhesives and sealants to worldwide OEM and AGR markets since the mid 1960's



**All Totalseal Products Meet All Federal Motor Vehicle Safety Standards**



### Corporate Capabilities Automotive

BMW		Audi	
Honda		Mercedes	
Fiat		Daewoo	
Mitsubishi		Ford	
Volvo		Jaguar	
Renault		Suzuki	
Matra		VW	
Rolls Royce		GM	



ALL SRP Adhesives Meet or Exceed ALL OEM and Federal Standards.

### Technical Capabilities R&D

- R&D Commitment is an absolute priority of LJF & Hutchinson
- R&D is the cornerstone to achieve sustainable growth for LJF & Hutchinson
- LJF's laboratory facilities:
  - Bezon, France
  - Eschborn, Germany
  - Suzhou, China



### Technical Capabilities R&D

LJF has approximately 15 advanced degree R&D scientists plus over 35 laboratory technicians.

LJF has access to Hutchinson and Total's global R&D facilities. Hutchinson spends over €150 million Euros in R&D alone.



Q – What does High Modulus Mean?

A – The windscreen plays an important role in keeping the car stabilized and rigid, especially on corners. The stress that is placed on the adhesive to hold the glass is high. An adhesive that can flex with the vehicle and still retain the glass in its original position is required. NOVUS utilize SRP High Modulus.

Q – What does Non – Conductive Mean?

A – Non – Conductive urethane will minimize current (electricity) flow between the electronics in the windscreen and the metal body frame of the vehicle. If this is allowed to happen, radio and cell phone signals will be disrupted and electronics will fail and damage may occur to these devices. NOVUS utilize SRP Non – Conductive.

Q – What is Galvanic Corrosion?

A – When electricity is allowed to flow from the glass to an aluminum body frame which are common in European Vehicles the current will eat away at the aluminum causing major damage to the structure of the vehicle. NOVUS Utilize SRP Non – Conductive.

Q – What is Drive Away Time?

A – Drive Away Time is the time the urethane takes to cure before the vehicle can be safely driven. Drive Away Time varies due to Temperature and Humidity. NOVUS Utilize SRP Fast Cure Urethane.