

# Screen printing automotive glass

Pietro Giuliani discusses recent advances from SAATI in the field of automotive glass screen printing.

It is a well known fact that the purpose of modern car windows is no longer solely to protect from wind, sun or create a safe and comfortable environment for driver and passengers. It is much more than that. Today's cars are interconnected and linked to the world, regardless of distances.

This happens mostly thanks to circuits and sensors applied onto the window glass, supported by screen printing. The automotive industry has two specific requirements: Fulfilling car industry needs, providing the solutions they demand that are increasingly complex - and not increasing production costs, or even spending less than before. Both are attainable, provided that production requirements are clearly defined and working procedures are finely controlled.

At a previous GlassPrint event, SAATI talked about 'Back to Basics'; starting with screen printing fundamentals such as the selection of the screen fabric and photo-emulsion; screen tension requirements and coating; establishing the correct off-contact on the press; the relationship between squeegee pressure and shore; the distance from the edge of the squeegee to the side of the frame; the correct relationship between ink rheology and screen mesh geometry to maintain maximum control of print parameters such as the ink flow through the mesh, ensuring

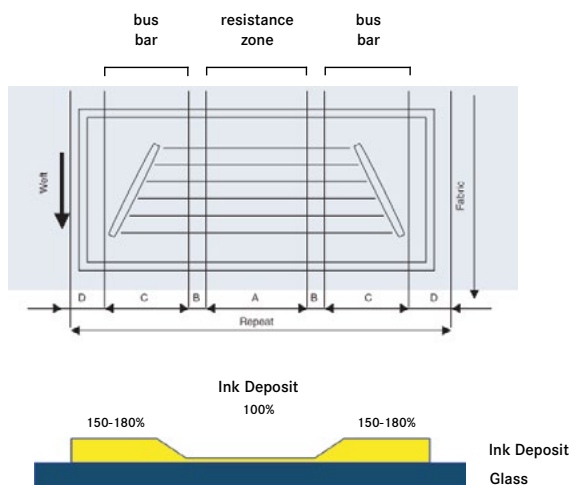
optimal imaging whether the aim is aesthetic or functional.

Today, black ink is used on all glass panels, regardless of whether it is intended to produce graphics for decorative, informative or functional effects. Black ink is used as a UV shield to protect both the underlying electronics and the adhesive that holds the windscreen in place.

Metallised ink is used to create conductive tracks that dissipate condensation from the glass, as well as melt winter ice from cameras, various sensors and even wipers, especially in the morning or when parked outside for a prolonged period of time in cold climates. As mentioned above, it is clear that good aesthetic and functionality

results can only be achieved through strict adherence to performance parameters that have been predefined, together with equipment and materials able to guarantee consistent results over time. This can prevent unexpected occurrences during the printing process, thereby avoiding the need to intervene on the printing press with modifications to off-contact, speed and squeegee pressure. Every corrective action during the print run creates additional uncertainties regarding the consistency of the end product.

SAATI is recognised as a long-time provider of a range of screen printing products dedicated to the glass printing industry; not only screen printing fabrics and photo stencil emulsions but also a ▶



Example of an application where a different ink deposit requires the usage of Saatilene Variant.



Example of mesh knot.



Screen printed rain sensors on front window.



Rear window defroster.

comprehensive range of chemical products to pre-treat the mesh, clean the mesh or recycle screens.

SAATI has been supplying the glass market with its recently developed Saatilene Hi-Glass Mesh. This mesh product incorporates all of the features touted by Saatilene HiBond Plus and guarantees a specific knots control and mesh thickness but is manufactured through even greater efforts to optimise mesh geometry, such as the profile of mesh knuckles and fabric thickness, which further reduces fabric elongation and enhances dimensional stability.

Last but not least is the Saatilene VARIANT, the easiest, fastest and best way to transfer conductive ink on automotive glass to obtain a variable ink deposit, fundamental to achieving a homogeneous heating result on all parts of the glass, 'with just one printing stroke'.

Where chemical products are concerned, SAATI offers

a specially formulated range of photo-emulsions (Vitrum/ SAATlvit) to better respond to the requirements of industrial applications: Print definition and stencil resolution, critical for the faithful reproduction of lines and tracks that are continually being designed narrower for greater efficiency. SAATI produces targeted photo-emulsions that meet the varying requirements for water and solvent resistance, plus the flexibility of using either traditional stencil exposure systems or CTS, the latter increasingly adopted by stencil laboratories in the automotive industry.

Finally, SAATI's chemical range is

completed by the inclusion of auxiliary products such as adhesives to bond mesh to the frame, mesh degreaser and chemicals for cleaning and screen recycling. ●

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