LOCTITE®

LOCTITE HHD 3597 and LOCTITE AD 8650
Structural bonding and Optical bonding for Head-Up Displays (HUD)

1 CUSTOMER CHALLENGES

» **Structural Bonding**

A Tier 1 automotive component maker had a problem bonding a polycarbonate cover film to the curved structural frame of their HUD. They bonded it with a currently available tape adhesive at first, but its adhesion strength was not enough to maintain bonding in the middle of the curved area which is subject to tensile forces. And there was another problem: they found that applying tape adhesive to a small and narrow area is rather difficult and it takes a very long time.

PUR hotmelt Structural Adhesive
LOCTITE HHD 3597

The curved area is subject to tensile forces.

2 RECOMMENDED TECHNOLOGY

» **Structural Bonding**

Henkel recommended a soft and flexible adhesive in consideration of the CTE difference of the substrates (thin PC film and plastic frame structure). It is a one-component polyurethane-based reactive (PUR) hotmelt adhesive. This product is suitable because of several benefits that meet the customer's requirements;

- no mixing required & easy to use in an automatic dispensing process
- Quick handling strength right after assembling
- Adhesion strength at least 6 MPa

» However, after several trials, the customer requested a much shorter open time than this, aiming at a further reduction of total process time. The Henkel product development team subsequently made modifications to the formulation and introduced a modified version with a shorter open time (< 2 min) and stronger adhesion strength, to increase the reliability compared to the first recommendation. The new one- component polyurethane-based reactive hotmelt is LOCTITE HHD 3597.

GET IN TOUCH WITH US

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3 MASS PRODUCTION PROCESS SET-UP

» **Structural bonding**

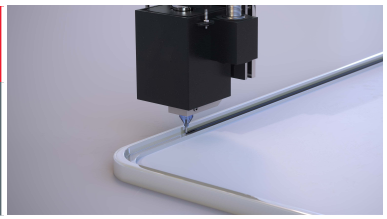
Henkel Technical Customer Service engineers helped them to set up an optimized process for the product on a large-scale production line. Setting the optimal dispensing volume to apply the adhesive on a narrow frame was key to allowing fast & effective production.

» **Optical bonding**

One-component LOCA (= Liquid Optically Clear Adhesive) is also applied on the optical unit in HUD to increase the visibility of the displayed picture. Henkel's unique UV & visible light curing LOCA, LOCTITE AD 8650, can reduce process time & waste of materials in production as well as allowing easy adaptation to any of the customer's future design changes.

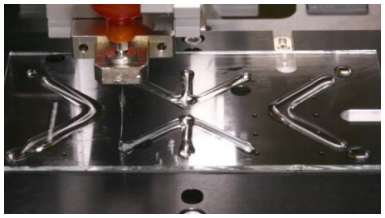
Key Success Factors

Materials for Process optimization to realize customer's ideal production.



Structural adhesive:
Reliable adhesion and quick handling process realization for a small sensitive substrates with curved bond lines.

LOCA:
Henkel's unique UV or visible cure liquid Optically Clear Adhesive can minimize process time for Optical bonding.



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Or click / scan the QR code for a direct link to our Automotive Display web page.

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