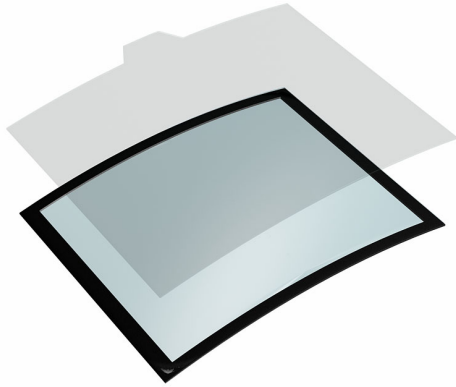


Application Study

PLACEMENT OF LENS PROTECTIVE FILM ONTO MOBILE PHONE LENS



TASK

Apply protective film onto mobile phone lenses.

CHALLENGES

- The protective film has only a temporary function and must be easily removable without leaving any adhesive residue. The film, therefore, has very little adhesion and is difficult to transfer to the target part.
- Placement must be bubble-free placement even on curved surfaces.
- Both the protective film and the liner are clear material; distinguishing one from the other is difficult.

SOLUTION

Protective Film:

3M(TM) Ultra Clear Removable Overlaminating Film 76991

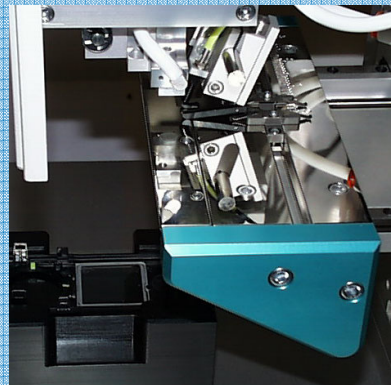
- 36 micron highly transparent polyester backing with 14 microns of acrylic adhesive provided on an opaque white 50 micron polyester film release liner



Placement Machine:

AccuPlace Model 3065, including:

- Customized bubble-free chuck
- Customized nest
- Bench top configuration for semi-automatic operation
- Nickel peel plate Kit
- Theta-axis rotation option



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Application Study

FEATURES & BENEFITS

3M(™) Ultra Clear Removable Overlaminating Film 76991:

- Can be used to provide temporary protection of sensitive surfaces from dirt, dust, and damage during processing, handling, or storing.
- Is made with 14 microns of acrylic adhesive on a 36 micron thick polyester backing, and is provided on a 50 micron thick opaque white polyester film release liner.
- Has a low level of adhesion that makes it suitable for temporary protection of plastic surfaces, including those with varnishes / hardcoats, glass surfaces and for aluminum, with clean removability still achieved six months after application (for room temperature storage).
- Is highly transparent and die-cuttable and has good resistance to moisture, oils, and solvents. These properties, combined with its clean removability, have made Ultra Clear Removable Overlaminating Film 76991 a product of choice for temporary protection of electronic devices.
- The use of automated die-cut placement equipment in applying Ultra Clear Removable Overlaminating Film 76991 ensures a high quality lamination, maintaining the visual appeal of the electronic device it temporarily protects.

AccuPlace 3065 Film Adhesive Placement Technology:

- AccuPlace's patented peeling technology ensures a repeatable and accurate peeling and placing of even low-level adhesion and optically clear components.
- The bench top platform consisting of a base with feet, built-in power supply, and 2-hand control provides a simple cost-effective solution that captures the quality benefits of automation.
- The customized bubble-free vacuum chuck inflates to eliminate air entrapment between the film and mobile phone lens on both flat and curved surfaces. Also, the chuck is made from non-adhesive foam to ensure a clean transfer of the film from chuck to lens.
- The nickel peel plate kit enhances the ability of the machine's sensor to detect the edge of the film on the liner.
- The optional theta axis rotation rotates the film after peeling and prior to placement. This allows for film application in the optimal orientation for maximizing yield.

3M provides applications development support. For more information, contact 3M at 1-800-3M-HELPS (1-800-251-8634), or visit 3M on the web at www.3M.com/electronics.

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