

AUTOMOTIVE TOOLS AND EQUIPMENT

Recommended Tools And Supplies

Having the proper tools and supplies for vehicle tint applications is extremely important, not only in quality of the installation, but productivity as well.

1. Cutting/Trimming Tool

- a. Choose the most comfortable
- b. Most widely used have replacement break-away blades
- c. Stainless blade is recommended over standard steel
 - 1. Will not scratch glass if proper pressure is applied
 - 2. Will lose sharpness quicker, so never use same tip for more than three cuts

2. Window Cleaning Scrappers

- a. One inch (25mm) for smaller windows
- b. Four inches (100mm) for most others
- c. Use amber color replacement blade for 4" (100mm) scraper - softer metal to conform better to curved glass

3. Trimming Guides

- a. 5-Way tool (whole or cut-a-way)
- b. Curved
- c. Triangle with hole cutting guide

4. Application Squeegees

- a. Black tube type (Smoothie Squeegee) - most popular
- b. Cut-A-Way 5-way tool with absorbent towel - to remove maximum amount of water

5. Window Cleaning Squeegee

- a. Good for cleaning windows
- b. Not good for applying film

6. Absorbent Towels

- a. Need absorbency and lint free

7. Pressure Spray Tank and Hand Spray Bottle

- a. Always use plastic or stainless steel containers instead of galvanized steel to prevent rust from coming between film and glass
- b. Three-gallon (11 liters) pressure spray is best
 - 1. More volume of water
 - 2. More pressure to flush away dirt and dust
 - 3. Larger spray pattern
 - 4. Save time during application
 - 5. Less physical activity
 - 6. Save time refilling

- c. Three-gallon (11 liters) replacement spray nozzle
 - 1. Contains plastic in-line filter
 - 2. Best spray pattern for cleaning and film application
- d. Install in-line filter onto hose of three-gallon (11 liters) pressure sprayer
 - 1. Use a clear casing to see amount of contamination from water supply
 - 2. Change often
- e. Do not add to water in tank. Empty tank and refill with clean water

8. Slip/Positioning Solution

- a. Recommend product for use in the slip solution is Joy dishwashing liquid or 3M.
- b. The use of other types of detergents may cause poor adhesion
- c. Proper slip solution ratio is 5 drops/gallon (3.8 liter)
- d. Too high a concentration level causes:
 - 1. Adhesive to detackify
 - 2. More fingers
 - 3. Film not to lay down properly

9. Adhesive Remover

- a. 3M™ Glass Cleaner - available through Authorized 3M™ Scotchtint™ film Distributor
- b. Use 00 steel wool or White 3M™ Scotch-brite™ pad when cleaning glass with heater lines

10. Fluorescent Light

- a. Provides light to shine through glass and film when cutting patterns
- b. Cooler light:
 - 1. Easy on eyes
 - 2. Will not burn interior of vehicle

11. "Don't Roll Down Window" Notice or Stickers

- a. Place onto switches for electric windows or on roll-down window handles
- b. Reminds customers not to roll down window for 3 - 5 days

Optional

- 1. Heat Gun - for one piece (few piece) rear windows
- 2. Cutting Table
- 3. Heat Lamps

AUTOMOTIVE PROCESS

Vehicle Application Recommendations

“Take the proper amount of time and care up front to maintain a high quality dirt-free application, rather than lose production time because of redo’s.”

1. Have tools and supplies close to vehicle - saves production time
2. Clean inside of window
 - a. Scrape
 - b. Rinse
 - c. Squeegee
3. Clean outside of window to eliminate dust/dirt coming into contact with film
4. Cut film pattern
 - a. Get film to conform to curvature of glass
 - b. Trim away excess film
 - c. Always break off blade after 3 cuts. Improperly cut edges will cause film to not lay down, or excessive fingers
5. Clean outside window again and leave a layer of water on glass to hold the film in place
6. Wash away water soluble overcoat as liner is being pulled off
7. Using the slip/positioning solution we the inside of the window

REMEMBER!! The more water between the film and the glass prior to squeegeeing, the cleaner the final application will be

8. Place the film on the inside of the vehicle window and squeegee out the maximum amount of water. To remove water from edge of window use a squeegee with an absorbent towel covering the squeegee blade.

HELPFUL HINTS

1. You **can't** use too much water
2. You **can** use too much slip/positioning solution
3. You **can't** use too many blades
4. You **never** use silicone near adhesives
5. Always rinse and squeegee off any window cleaning solutions or adhesive removers prior to film application
6. Always start squeegeeing from behind a finger and squeegee completely to edge of film

7. If film will not lay down, or you are experiencing excessive fingers, possible causes are:
 - a. Using improper slip/positioning solution with too much solvent or alcohol
 - b. Slip/positioning concentration too high
 - c. Edge of film cut with dull blade
 - d. Film cut too close to edge of window
 - e. Overcoat not completely washed (dissolved) off
 - f. Non-sticky substance on glass
8. Remove all decal's
9. If too much dust/dirt is behind film and glass, possible causes are:
 - a. Overcoat not completely washed (dissolved) off
 - b. Not enough water was used
10. Use fluorescent light inside of vehicles when cutting pattern from outside
11. Always apply "Don't Roll Down" stickers on roll-down windows with film
12. Apply narrow piece of masking tape over fuzzy channel material on framed side windows - reduces amount of dust/dirt on glass
13. Rinse your fingers prior to touching adhesive system
14. Always apply film below rubber molding on bottom of roll-down windows
15. When relief cutting, always cut twice the length of the finger
16. Always squeegee film on the flattest area of the glass first, then work toward the sides, and then the corners

Color-Stable Installation Techniques

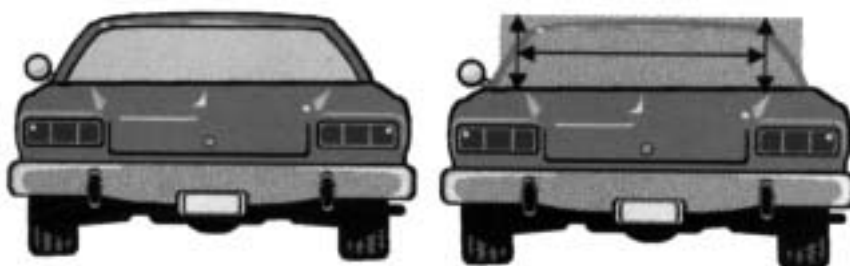
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Because of its unique construction, Color-Stable feels and handles somewhat differently than conventional window films. Following are a few techniques that will make difficult installations seem easier.

Heat Shrinking

- Thoroughly clean the outside surface of the window to which the film will be heat formed.
- From a 40" roll, cut the film to cover the width of the glass. Place the film so that it is in the machine direction. Leave a 1-inch overlap on the sides and 4 inches on the top and bottom. You'll need the extra film with this technique.
- Spray the mounting solution to the clean surface of the glass and apply the piece of film to be heat formed. Make sure the liner is towards you.
- Position the film on the window and squeegee making an H pattern to hold film in place on the glass. Do not form fingers, but make sure all excess film is at the top and bottom of the film, not the sides.



- Make a relief cut. Four inches from the top of the glass start cutting 1 inch from the dot matrix.



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SPECIAL POINTS OF INTEREST:

- *Color-Stable is actually thicker than most regular dyed films (1.1 mil), but a lot more pliable.*
- *Because of its maneuverability, it actually forms better to the dot matrix less silvering.*
- *No interference with satellite signals or worries with back-glass antennas.*
- *Never turns purple.*
- *3M is the only window film manufacturer capable of making this product from start to finish.*

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Ideas that Stick!

**Color-Stable Bronze
Coming Soon!**

- Turn heat gun on to high and with your free hand, hold and lift the film at the top of the car, approximately 1 inch from the glass. You should now have created an air pocket. Horns will form around the pocket, commence heating the horns by fanning your heat gun with a side-to-side motion (5" from one side to the other). You'll notice that the film needs less heat to shrink; we recommend you hold the gun 4" from the film. After the horns disappear, start applying heat to the pocket.
- Once you have the film at the right temperature, you'll notice the pocket will melt rapidly (much faster than conventional films) and take the shape of the glass. Follow it until it disappears and then squeegee out with the 3M Gold Card. Do this for all the excess film on the top and bottom of the glass.
- For the extra film in the center area of the glass, you need to "walk the dog." Apply moderate heat (use the same fanning motion) to the film bubble and follow the air pocket until it is eliminated. Once eradicated, squeegee out with 3M Gold Card. Never lift the film in the center area or try to eliminate an air pocket that is horizontal.
- If you come across a high-tension area, you will notice that this film is a lot more forgiving than conventional films. Just apply opposite tension and moderate heat to the affected area.
- Once all of the excess film has been shrunk, the film can be removed from the glass and installed after normal cleaning procedures for the internal glass have been completed.

3M *Innovation*

Color-Stable film installation is similar to any other window film installation, the more you practice, the easier it becomes.

Be patient, with a little practice, you'll notice how much easier and quicker it is to apply Color-Stable Automotive Window Films.

