

Application Instructions for Avery Dennison 7500 Series Vehicle Functional Film

Introduction

Avery Dennison 7500 series consist of a range of functional films for vehicle application. These films have been developed to protect car exteriors or to enhance car design elements. Avery Dennison 7500 films are thicker than traditional graphic films. Conformability to car body's surface irregularities is therefore limited, but not impossible. Applicators should test the performance of the films prior to commercial use.

The following calipers apply to the Avery Dennison 7500 series:

Transparent Protection Films

Avery Dennison 7521 Exterior PU Protection Film	200 micron	polyurethane
Avery Dennison 7541 Exterior Protection Film	150 micron	polymeric PVC
Avery Dennison 7545 Exterior Protection Film	325 micron	polymeric PVC

Avery Dennison 7521 is a polyurethane film, which can be applied to all car exterior places where the risk for damage as a result of stone impact is very high.

Both Avery Dennison 7541 and Avery Dennison 7545 are modified vinyl films that can offer protection against stone chipping and most mechanical damage.

Functional Black Out Films

Avery Dennison 7554 Exterior Blackout Film	150 micron	polymeric PVC
Avery Dennison 7555 Exterior Blackout Film	200 micron	polymeric PVC

Avery Dennison 7554 and 7555 are polymeric calandered Blackout films with a certain embossing which are used for the optical enhancement of car design elements. These films are typically used by Automotive OEMs to cover B-pillars, window frames and thread plates.

1. Surface preparation

It is recommended to clean the application surface with Avery Dennison Surface Cleaner. Many other commercially available cleaning/degreasing products may be suitable for cleaning and degreasing. In addition, the following factors should be included in the preparation before application:

- Car wax and polish residues must be completely removed.
- Paint surfaces must be completely dry, hardened and free of scratches. On most baked paints films can be applied immediately after cooling down. Air dried and car repair paints require at least one week to dry before films should be applied. Solvent residues in painted substrates may adversely affect film adhesion and might cause excessive shrinkage or blistering.
- Painted substrates for self-adhesive films should be dried according to the paint manufacturer's instruction to avoid solvent retention. Paint system components which are not compatible or do not adhere properly to each other may cause paint to be lifted when films have to be removed after use.
- Special attention should be given to critical areas as edges, corners, welding seams, rivets and the like. These should be thoroughly cleaned and dried before application.

- Wash your hands before starting the application, to avoid fingerprints on the adhesive.

2. Application

Avery Dennison 7500 Films have been designed to protect or enhance the car body surface. Their conformability is limited because of the thickness and the nature of the material which should be taken into account when the applicator has to decide how the application is to be executed. Some parts may be stretched over the surface, other parts may have to be cut to smaller sizes to conform easier to surface structures.

Please consult general application instructions that are given in Technical Bulletin 3.9.

2.1. Recommended application method

Transparent protection films

For optimal appearance transparent protection films can be applied wet by using a:

- soap solution Fill a 500 ml spray bottle with water and add 4 drops of hand soap
- alcohol solution Fill a 500 ml spray bottle for 75% with water and add 25% Isopropyl Alcohol (70% rubbing alcohol).

Spray the solution on the painted surface before applying the film.

The surface of the film should also be sprayed wet with the soap or alcohol solution throughout the application to allow the squeegee to slide across the film.

Functional Black Out Film

- Apply dry and use an Avery Dennison Squeegee Pro with felt cover to squeegee

Avery Dennison 7500 series can be applied to most car fronts, wheel arches, rocker panels, door edges, pillars etc. For most surfaces, similar techniques can be used as for Avery Dennison 900 Film (see Technical Bulletin 3.12). However, stretching of the films will reveal that these films do not so easily allow complete conformance to the surface irregularities.

Especially Avery Dennison 7545 (325 micron!) should be cut on difficult places to allow full coverage. All films, except Avery Dennison 7545, can be applied with overlaps: these should at least cover 10 mm. It is advised to experiment with a small piece of material on the substrate in order to feel the nature of the film and the adhesive.

Once the material has been positioned gently start to squeegee the film. Use an Avery Dennison Squeegee Pro with felt cover and gradually increase the pressure in order to remove all the air from under the film. Overlap the squeegee strokes by about 50% to avoid remaining air entrapments. Re-positioning of the film is only possible in the stage of positioning and low squeegee pressure. If done in a later stage small marks or images might remain visible in the film surfaces. In order to further facilitate film stretching during application heat can be applied to the film. Avery Dennison 7500 Protection Films will need to be heated after full application between 50° to 60°C in convex, concave and compound shaped surfaces to reach its optimal conformability level. Of course, Avery Dennison 7545 will need more heat for the same level of stretch than the other films.

Convex and compound shapes on car fronts are mostly suitable to be covered with Avery Dennison 7500 Protection Films, but in some deeper corrugated shapes it may be necessary to make an incision in order to avoid any form of air entrapment in the deep recesses. This incision does not jeopardize the functionality or durability of the product. Bubbles can be removed by punching the film and application of finger pressure.

On-surface cutting of these films may be too critical: as the film calipers are high, one needs a lot of pressure which increases the risk to damage the paint.

Generally speaking, the parts to be applied should not be too large in size: this will allow easier application (it's NOT the same as a car wrap job!).

Avery Dennison 7521 is a polyurethane film, which has a slightly higher friction when it is applied by a squeegee. Wetting of the felt cover will reduce this friction and facilitate application. This film also requires VERY sharp knives for cutting: dull knives will result in blurred cutting edges.

3. Removability

Avery Dennison 7500 Protection Films features a long-term protection of the car body during the lifetime of the product. The general instructions of removal of self-adhesive films are described in Technical Bulletin 1.2.

4. Brief summary

- use Avery Dennison Surface Cleaner
- use Avery Dennison Squeegee Pro
- no Application Tape needed
- wet application for transparent protection films and dry application for functional black out films
- pre-heat to facilitate film stretching at 50°- 60°C
- eliminate all air from under film
- re-treat entrapped air
- re-squeegee critical areas

6. References

- Technical Bulletin 1.2 : Removal of self-adhesive films
- Technical Bulletin 1.4 : Application methods for Avery Dennison self-adhesive films
- Technical Bulletin 3.9 : Application instructions for Avery Dennison 900 Super Cast