

Crystal Protect 150

Application guide for Car Paint Protection Film

1. Product description

Crystal Protect 150 is an optically clear, 150 µm thick paint protection film, to be applied directly onto car bodies. It is a self-healing product, resistant to abrasion and stone chips. Self-healing will naturally occur under sunlight, or with the help of hot water or a heat gun.

Two grades of Crystal Protect are available: with or without casting sheet. Crystal Protect 150 NCS (ie with No Casting Sheet) is not recommended in faraway countries (from mainland Europe) as transportation could alter the face glossiness. Crystal Protect 150 (with casting sheet) is therefore recommended in these regions. The casting sheet should be removed before application and the product should be allowed to 'breathe' for a few hours to achieve its optimum self-healing performance.

2. Tools needed

- **Squeegee:** a soft plastic squeegee with a velvet stripe is advised for the positioning of the film and the application in the curved areas. A window film squeegee is advised for expelling the application fluid on flat surfaces.
- **Knife or knifeless cutting system**
- **Application solution:** One can choose among the following possibilities to apply Crystal Protect 150: Use distilled water containing a very limited quantity of dishwasher rinse agent or baby shampoo (1 droplet of baby shampoo in 2,5L of distilled water).

The other possibility is using our application gel dedicated to PPF application and which contains no alcohol / IPA.

It is advised to:

1. Test the effectiveness of the application liquid/gel with Crystal Protect to ensure no marks, miliness, modification of the adhesive is caused by the use of such liquid/gel.
2. Avoid using pure water as it will result in a higher initial tack, making it more difficult to reposition the film.
3. Avoid adding (too much) soap to the water since this will increase the risk of edge lifting.
4. Avoid using an application liquid or gel that contains isopropyl alcohol (IPA) as this could alter the clarity of the Crystal Protect and create small defects in the adhesive layer.

3. Surface preparation

- The vehicle surface should be at a temperature of between 13°C and 25°C. Application in direct sunlight or windy conditions should be avoided.
- Surface of application must be flat or slightly curved. Due to the strong memory effect of the PU film, it is not advised to apply Crystal Protect 150 on 3D surfaces without cutting the product. It is therefore advised to work with pre-cut shapes to facilitate the application on these surfaces.
- To have a perfectly clear appearance, the vehicle needs to be perfectly clean and free from tar, grease and any other contaminants. Use of a degreasing agent like MACCleaner before the application of Crystal Protect 150.
- The application should be carried out in a clean (dust-free) and well lit area.
- Crystal Protect 150 should not be applied on a freshly painted vehicle or before the paint is completely cured. Applying a protective film to a paint that is not fully cured may result in a poor visible aspect (bubbling due to paint outgassing). Please consult your paint manufacturer's instructions regarding the paint curing process.
- Applying Crystal Protect 150 on unpolished surfaces may result in bubbles appearing under the film after the application. It is therefore advised to polish the surface with a non-silicone based polish before applying Crystal Protect 150.

4. Wet application method with no pre-cut pieces

- Wet application is necessary to obtain a perfectly clear professional appearance. Hands must be perfectly clean or wear cloth gloves in order to avoid contamination of the film with dirt or fingerprints.
- Car lights are today often made of polycarbonate onto which Crystal Protect 150 adheres strongly. To avoid leaving adhesive residue onto the car lights, cover them with removable tape.
- If you're used to working with a knifeless system, apply it onto the car body in the required areas.
- Cut a piece of Crystal Protect to the required dimension, leaving an extra 100mm on all edges and lay the film on a clean surface.
- **Generously spray the application solution on the vehicle surface.** If you don't wear gloves, wet your fingers to avoid fingerprints and contamination. Then remove the Crystal Protect 150 casting sheet and liner and generously spray the application solution onto the adhesive side of the film. This will significantly ease positioning the film on the vehicle.



- Lay the film onto the surface to be protected. Once the film is correctly positioned, spray the top face of film with the application solution to allow the squeegee to slide smoothly.
- Start applying the film, working with half of the film at a time, using a squeegee from the centre towards the edges to **expel 100% of the air and liquid**.
- Apply **pressure as constant as possible** on all parts of the film to avoid film distortion which may cause appearance defects. When reaching places where substrate deformation gets stronger, gently stretch the film without using any heat and conform it to the surface.
- **Continue to push out all the remaining water or air bubbles** from under the film ensuring the squeegee slides smoothly from the middle area of the film to the outside edges. This will produce a perfectly clear look.
- If the film needs to be repositioned during the application process, remove it partially and respray some liquid on both the car body and the adhesive side of the film.
- **Insert the film edges into the body panel gaps**, making sure all the water has been expelled from under the film.
- Use a new sharp knife blade to cut the film, making sure you apply the correct pressure on the blade in order not to damage the paint. Use your squeegee to firmly apply the film in the gap. Remove the cut strip in the same direction as the cutting one.
- **If the car is equipped with parking sensors**, do not forget to cut the film around these.
- **For the bonnet:** either cut the Crystal Protect 150 on the edge of the car, using a knifeless system to avoid damaging the car or leave ~ 5mm of film to wrap under the inside of the car body. In this case, the inside edge of the bonnet should be carefully cleaned before applying the Crystal Protect 150 in order to avoid edge lifting due to dust, grease etc.
- **If necessary, a heat-gun can be used** to dry the film, provided the T° does not exceed 80°C.



5. Wet application method with pre-cut pieces

- Follow main recommendations given in section 3 for surface preparation.
- Generously spray the application solution on the vehicle surface.
- Remove backing of the pre-cut piece. Spray application solution at the back of the pre-cut piece (adhesive side).
- Correctly position the pre-cut piece onto the car and start squeegeeing the surface from the centre to the edges working on half of the surface at a time. Apply consistent pressure on all the surface to expel 100% of the liquid and air under the Crystal Protect 150 pre-cut piece. Re-apply some of the application solution on the front and at the back if you have to lift the film and reposition it.

6. Removal of the film

- With a heat-gun, heat the film to 60°C.
- Lift the corner with the help of a knife without damaging the car.
- Gradually remove the film at an angle of 30°C relative to the substrate.

For further information, please contact your local distributor or MACtac Sales Office

Visit our website www.mactac.eu to see an application demonstration

IMPORTANT NOTICE: The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy or completeness is made. In every case, user shall determine before using any product in full scale production, or in any way, whether such product is suitable for user's intended use for their particular purpose under their own operating conditions. User assumes all risk and liability whatsoever in connection with their use of any product. The products discussed herein are sold without any warranty as to merchantability or fitness for a particular purpose, or any other warranty, express or implied. No representative of ours has any authority to waive or change the foregoing provisions, and no statement or recommendation not contained herein shall have any force of effect unless in an agreement signed by the officers of seller and manufacturer. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent without authority from the owner of the patent. The following is made in lieu of all warranties, express or implied: Seller's and manufacturer's only obligation shall be to replace or credit such quantity of the product proved to be defective at its discretion.

