



PAINT PROTECTION FILM INSTALL GUIDE

1. Tool & Solution

A. Tools

- Clay pad & Bar

>>> Clay bar is recommended rather than pad. If you want to use Clay pad, we recommend soft type
>>> Must be used with Soap formula (soap ratio need to be higher than installation formula)

- Squeegee

>>> Urethan squeegee is recommended due to scratch or film damage. Felt is required when you use plastic hard card
>>> Medium hardness (Hard squeegee may give a pressure to the film and may cause the problem. Soft squeegee may not remove water completely, and cause water spot longer period after installation.
>>> 3" – 5" squeegee is recommended which you can hold easily in one hand

- Knife& Blade

>>> Light and thin body material is better for precise cutting
>>> 30° angle of carbon steel or ceramic blade is recommended for precise cutting.

- Spray

>>> The spray which has large spray particle, with large quantity, and wide spray angle is recommended

- Heat gun

>>> Product with temperature is better for consistent finish

B. Solutions

- Water

>>> Distilled water is the best option. Recommendation is to use purified water if it is too expensive or inconvenient to get distilled water
>>> The temperature of water is important factor which affect on film elasticity and strength of adhesive. Generally, 25°/ 77°F is suitable. Based on working environment of temperature (25°/ 77°F), 30°~35° / 86°F ~ 95°F is adjustable water temperature for lower temperature of recommended working environment. 22°/72°F is adjustable water temperature for high temperature of recommended working environment.

- Degreasing

>>> It is used to remove oil on the vehicle surface before the installation
>>> 'Degreasing Solution' which is proposed by Clif Designs is recommended
>>> Isopropyl alcohol (70%) is alternative if recommended solution is not available.

- Squeegee

>>> Smoothly squeegee the film surface
>>> Criteria : Mix water and Johnson's Baby Shampoo (Water : Shampoo = 1liter : 4 drop), it should be adjusted according to the working environment temperature and product.

- >>> The shampoo is controlled by 1 drop less when working environment temperature is lower than recommended(25°/ 77°F) and 1 drop more when working environment temperature is higher than recommended temperature(25°/ 77°F).
- >>> The product with Hydrophobic such as Octagon / Prima-k / Carbon / Elite / Black Ice / Matte / Pearl requires 1 more drop than criteria

- Adhesive

- >>> It is sprayed on Film adhesive and vehicle to prevent the adhesive from sticking to the vehicle when it is dry
- >>> Recommend to use 'Installation Gel' as original
- >>> When you use installation gel, 1 drop of shampoo need to diluted when working environment temperature is higher than (25°/ 77°F).
- >>> 'Squeegee Solution' is alternative of 'Installation Gel'

- Cleanse

- >>> 'Adhesive Solution' around the edge of the film must be washed to recover original adhesive strength of the film after the film is attached and squeezed.
- >>> It is recommended to clean it with water (Appropriate temperature) as much as possible. Shower hose is preferred than spray.
- >>> Diluted Isopropyl Alcohol (30%) and Water (70%) is alternative if you don't have hose in your working environment.
- >>> Advantage of Isopropyl alcohol is not only washing, also it causes rapid evaporation of water which activate the adhesive more quickly. However, alcohol may affect the adhesive and cause haze on the film if the dilution ratio is high.

2. Working Environment

- It is recommended to work indoors without direct sunlight and to minimize dust
- Illuminance should be as bright as possible. It is recommended to use 3 wavelength LED when using artificial light.
- The film has a good elasticity and does not affect the adhesive when your workplace is the temperature of 25° / 77°F.
 - >>> Warm water is recommended within lower temperature. Because, the film is less stretchable, and adhesive strength become weak.
 - >>> On the other hand, water temperature and adhesive solution need to be controlled when workplace is higher temperature than recommended. Because, the film is easy to stretch, but adhesive strength may too strong.

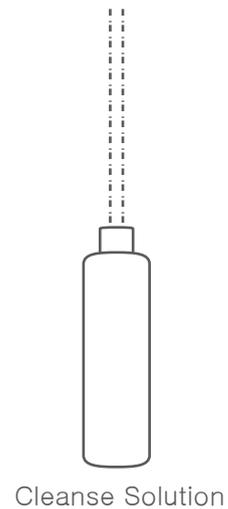
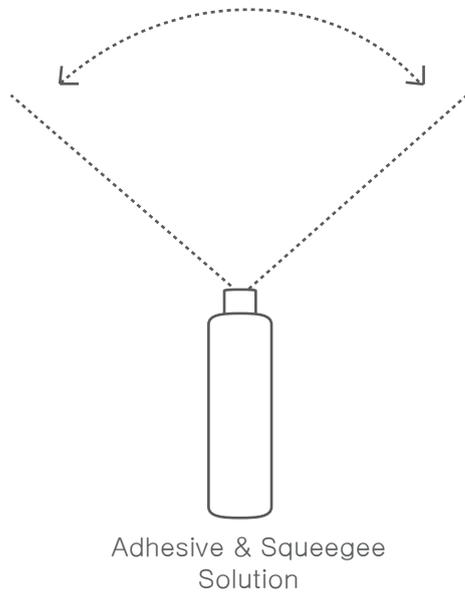
3. Pre-Installation

- Grease, stain, dirt etc on the surface of vehicle must be removed. It is essential for making perfect installation. It affects film adhesion and debris during the installation. Degreasing is directly related to the adhesive strength, also to the lifting of the film after finishing edges.
- Degreasing / Cleaning
 - >>> Step1. Wash the surface with a high-pressure nozzle (Observe the water temperature according to working environment)
 - >>> Step2. Use Clay Pad (or Bar) to remove residue which is not removed in the above process. Then follow step 1 again, and dry completely.
 - >>> step3. Use Degreasing Solution on dry buffing towel to clean the vehicle which will be installed. (If the towel is too wet, replace it with another one)

4. Installation

- Use the solution step by step 'Adhesive Solution'>'Squeegee Solution'>'Cleanse Solution' for installation.

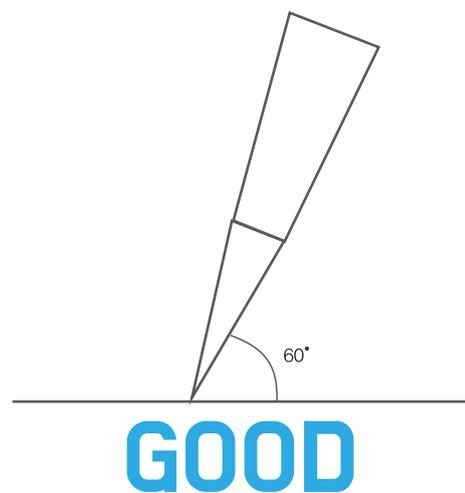
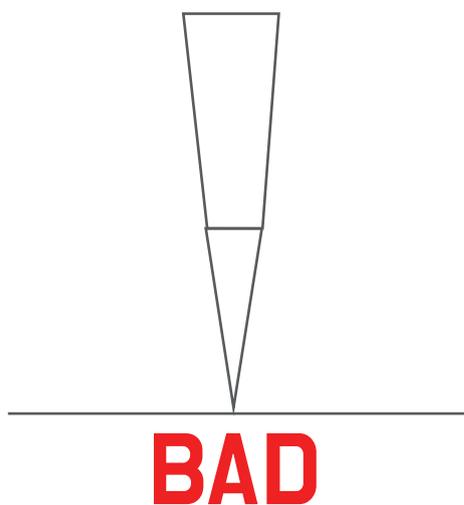
- 'Adhesive Solution' and 'Squeegee Solution' is recommended to use the spray nozzle with wide spray angle and spray as much as possible.
- 'Cleanse Solution' requires strong water pressure rather than wide spraying. Use your finger to wash edge of the film with spray. (See the photo)



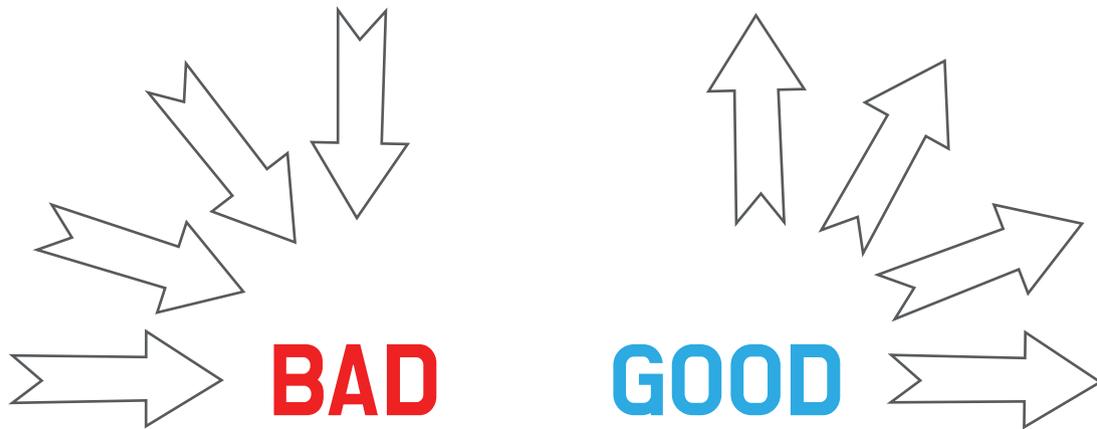
- Keep the film not to stretch much. If you stretch it too much, it causes cracking on coating layer, as well as rapid contamination of the film and impairment of its functionality (Self healing or anti-fouling)

- Squeegeeing

>>> Use the squeegee with angle of 60° rather than right angle(See the photo)



>>> It is better to squeegee from the inside to outward (See the photo)

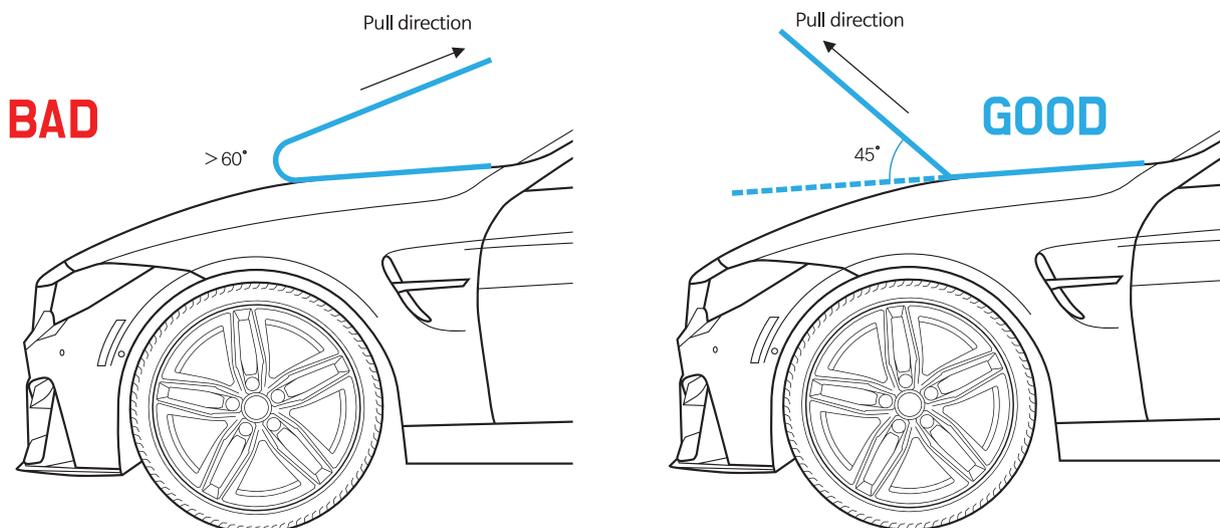


>>> It is recommended that the squeegee is not stopped in the middle. If the area is large, the squeegee is pushed outward from the inside while pushing the squeegee naturally up. Because, it may cause the line where the squeegee stopped after installation.

- After using 'Cleanse Solution', it is better to wait 3~5 mins till drying edges. It is more convenient to finish the edges.
- To avoid exposing the finish line, you wrap the edges. It is better to keep as short as you can. The lift may occur when the left over film is too long. (For Hood, 3mm / 0.12")
- Heat treatment is essential to prevent edge lift. Appropriate temperature is 200° / 390°F. Press the film with your finger (wear Heat resistant gloves for high temperature) or a felt-hard card after heat-gun passes slowly.

5. Remove Film

- Check the car paint whether it is repainting or not when PPF was installed. Car paint may peel off when removing the film if PPF is installed on the repainting surface due to an accident.
- When the temperature of workplace is lower than recommended, delamination of the film and bond layers can easily occur. Recommended temperature of workplace is essential.
- The film can be removed more easily by heat-gun. Remove the film after using heat -gun with 300°/570°F temperature and take the film away (20cm / 7") step by step.
- Do not flip the film upside down. Just lift it up and pull the film when remove the film (See the photo)



6. Management post installation

- Do not wash the car for 72 hours after installation. It may take more time in Winter.
- Water bubble after installation will be disappeared naturally over time. Do not press or blow it with your finger.
- Regular hand wash is recommended. Washing with mild detergent and a soft cloth is acceptable.
- Do not shoot directly at the edge of the film near the film (within 45cm / 17") It may cause the film to lift or puncture.
- Regular PPF 'Care Solution' from Clif Designs is recommended after car wash.
- It is good to wipe it off as soon as it's rained or when stained.
- Polishing (using a soft foam pad) can be done every two years to remove the old stain on film surface. The film will return to its initial transparency. However, the coating becomes thinner than original after polishing. It may cause faster contamination and deterioration than before. We recommend PPF 'Care Solution' from Clif Designs.