

AUTO SE

Application Guidelines

Self-adhesive films for application on cars



General Remarks

AUTO SE films for application on car components and car wrapping are premium self-adhesive cast film products manufactured by ORAFOL Europe GmbH for temporary vehicle decoration.

Please note that films are more sensitive than vehicle paintwork, and therefore require special care when applying and cleaning. To ensure maximum service life, please refer to and comply with the current version of our Application Guidelines when applying, using, cleaning, or removing AUTO SE colour films.

Applying and removing AUTO SE colour films should be done exclusively by trained specialists (i.e. skilled and experienced advertising engineers or technicians).

Inappropriate or incorrect application or removal of AUTO SE colour films or use of film types unsuited for the application may result in paint damage or considerably reduced AUTO SE colour film performance and/or service life.

Service Life

The service life specified in the technical data sheets represents is the maximum service life for vertical outdoor exposure under normal central European environmental conditions.

The following table provides an overview of the expected reduction in maximum service life under deviating environmental conditions and orientations. Applications with a deviation from the vertical level of more than 10° are considered horizontal applications. The specification is valid for all AUTO SE colour films and metallic films suitable for vertical and horizontal application.

<p>Climate zone 1: Albania, Andorra, Belgium, Bosnia and Herzegovina, Bulgaria, Denmark, Germany, Ecuador, Estonia, Finland, France, Georgia, Ireland, Iceland, Italy, Kosovo, Croatia, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Monaco, Montenegro, the Netherlands, Norway, Austria, Poland, Romania, Russia, San Marino, Sweden, Switzerland, Serbia, Slovakia, Slovenia, Czech Republic, Ukraine, Hungary, USA (no deserts), Vatican City, United Kingdom, Belarus.</p>	<p>Climate zone 2: Afghanistan, Angola, Equatorial Guinea, Armenia, Azerbaijan, Australia (no deserts), Bahamas, Bangladesh, Barbados, Belize, Benin, Bhutan, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Chile, China, Costa Rica, Dominica, Dominican Republic, El Salvador, Ivory Coast, Fiji, Gabon, Gambia, Ghana, Grenada, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Jamaica, Japan, Cambodia, Cameroon, Cape Verde, Caribbean Island, Kazakhstan, Kenya, Kyrgyzstan, Colombia, Congo, Laos, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Maldives, Mali, Mauritania, Mauritius, Micronesia, Mozambique, Myanmar, Namibia, Nepal, New Zealand, Nicaragua, Niger, Nigeria, East Timor, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Portugal, Puerto Rico, Rwanda, Zambia, Samoa, San Marino, São Tomé and Príncipe, Senegal, Sierra Leone, Zambabwe, Singapore, Spain, Sri Lanka, South Sfrica, South Korea, Suriname, Eswatini, Tajikistan, Taiwan, Tanzania, Thailand, Togo, Trinidad and Tobago, Turkey, Turkmenistan, Uganda, Uruguay, Uzbekistan, Venezuela, Vietnam, Central African Republic, Cyprus.</p>
<p>Climate zone 3: Dry/Hot All deserts, exposed heights from 1000m above sea level and regions with extreme high UV exposure. Egypt, Algeria, Ethiopia, Bahrain, Eritea, Iraq, Israel, Yemen, Jordan, Qatr, Kuwait, Lebanon, Libya, Morocco, Mexico, Oman, Saudi Arabia, Somalia, Chad, Tunisia, United Arab Emirates.</p>	<p>Exceptions For service live of ≤ 5 years in C1) vertical applications: C3) vertical = C2) vertical minus 50% C3) horizontal = C2) horizontal minus 50%</p>

Climate zone 1* Temperate		Climate zone 2* Humid/warm		Climate zone 3* Dry/hot	
Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal
3.0	1.5	1.0	0.5	0.5	0.25

*Maximum expected service life in years

Note: The information regarding maximum expected service life does not constitute a legally binding guarantee, warranty or other claim. The information provided is based on practical experience from artificial and natural weathering tests under normal conditions. It cannot be transferred to the maximum expected service life for every vehicle given the wide variety of possible influences (e.g. additional mechanical and chemical impacts).

The maximum expected service life for car wrapping applications is generally based on the data for horizontal application.

Reduction of expected service life

Please be advised that a reduction in expected service life can occur in the following instances: •
When used on unsuitable substrates

- If the substrate has not been cleaned sufficiently
- When exposed to high temperature and/or high humidity
- If the films are not cleaned regularly, e.g. if insects or bird droppings are not removed promptly
- At a high degree of air pollution, e.g. in industrial areas, in conurbations, or in large cities
- When exposed to high UV exposure, e.g. at high altitudes

Preparation

For best results, please follow the preparation guidelines below.

Inspect the Vehicle Surface

AUTO SE graphic films for car lettering, car decoration and full car wrapping are all supplied with an adhesive which is balanced in terms of its composition and adhesive strength. This means that the films will not lift or damage the vehicle paintwork, provided that painting has been professionally done and has cured completely prior to application of the graphic film. AUTO SE materials should only be applied to vehicle surfaces where the paintwork completely fulfils these quality requirements.

Please ensure that vehicle paintwork complies with OEM specifications. In case of any doubt, consult the car manufacturer or a specialized paint shop before application.

Inspect the paintwork to ensure there is no damage from rust, fire, scratches, grit, age-related embrittlement, or similar influences.

AUTO SE colour films may be applied to plastic automotive components only if they are painted in accordance with OEM specifications, and if they have a completely smooth surface. Otherwise, the AUTO SE colour films' adhesion will be significantly compromised. A water drop test can help to determine whether these conditions exist: Moisten the plastic surface with water. If the water runs off in drops, it is not advisable to apply the film. If the water runs off without marked drop formation, the film can be applied to the plastic surface.

Select the Right Film Type for your Application

In a next step, the best type of film depending on the application needs to be chosen.

- a) Applications to difficult 3D geometries and rivets or vehicles or vehicle parts without difficult 3D geometries: Cast AUTO SE films

When in doubt, ask your Spandex contact person.

Lighter shades and coloured metallic shades have by nature a lower opacity (higher ability to see through) than darker shades. Dark substrates may thus change the colour impression of AUTO SE colour films in light shades or light metallic shades. Please make sure in advance whether the chosen AUTO SE colour film enables your desired result.

Inspect the Film

Carefully inspect your AUTO SE colour film for visible defects before application. Please contact Spandex if any defects are detected and do not use the film, as the manufacturer cannot process claims of pre-application defects once the material has been processed in any way.

Check the batch number printed at the edge of the back of the film to ensure that only materials from the same batch are used together. Using other manufacturers' products for the same application is not advisable, as it may negatively affect processing, aesthetics, performance, or service life.

Save an unused sample of the selected AUTO SE colour film (approx. 20 x 30 cm) with complete labelling at the margin for documentation and reference purposes.

Prepare the Vehicle

Before application of AUTO SE colour film the vehicle must be prepared as described below:

- a) Take the vehicle to a car wash before application (no manual cleaning). Select a cleaning programme that uses no wax. The car must be completely clean and dry when applying the film.
- b) Remove all elements that obstruct the application (e.g. outside mirrors, door handles, trims, windscreen wipers etc.).
- c) Inspect all surfaces and edges for residual preservation wax or polish. Any residues must only be removed with a silicone-free citrus-based industrial detergent. Surfaces with more stubborn stains can be cleaned additionally with a commercially available insect or tar remover.
- d) Never apply detergents that use nanotechnology to establish nano-sealing or nano-coating on the surface to be cleaned. Please observe manufacturer's instructions.
- e) Clean all surfaces to which the film is to be applied with ORAFOL® Pre-wrap surface cleaner. Do not use spirits. Make sure that any remaining detergents are thoroughly and completely removed.
- f) Make sure that the surfaces, edges, corrugations, hollows and joints of the vehicle are completely dry. Carefully remove remaining humidity under rubber seals.

Apply AUTO SE colour films

The film is applied under dry conditions. Films with micro-structured adhesive (RapidAir®) and Premium Structure Cast films are not suitable for wet application.

Required Application Tools

The following tools are necessary for application:

Application tools:

- Film squeegee with felt edge (soft natural fibre-based felts are recommended)
- Film knife, paper knife or scalpel
- Magnets
- Hot-air gun
- Infrared thermometer

Basic tools:

- Set of Torx screwdrivers
- Set of hexagon screwdrivers
- Screwdrivers of various sizes
- Spanners of different sizes and/or ratchet tool set
- Universal and needle-nose pliers
- Rubber mallet

Required Conditions

- Clean, dust-free and light-filled room (rising or assembly platform is strongly recommended).
- Minimum vehicle surface temperature as specified in the data sheet. Optimum surface temperature ranges between +21° C and +23° C. The car surface temperature is easily measured with an infrared thermometer.

Test Application

A test application is strongly recommended before full application and after vehicle preparation is complete (see above). Check the final adhesion of the AUTO SE colour film 24 hours after the test application. Repeat the preparatory cleaning process if the adhesion of the AUTO SE colour film is sub-optimal and/or air bubbles develop under the film. For reasons of comparison or to rule out other factors if adhesion or performance is not optimal, it is advisable to simultaneously apply the film to uncritical surfaces (e.g. vehicle window panes).

Pre-treating the vehicle or the vehicle parts with substances using nanotechnology may result in sub-optimal adhesion of the AUTO SE colour films and will require repeating the preparation and test application steps.

Application Method

Basic remarks

High performance AUTO SE cast films: These can be heated and deep-drawn into corrugations. In very deep recesses (such as sharp-edged angled corrugations) these films should be worked in, cut and applied with an overlap at the edges.

Application to a rear window requires a second outside mirror. Do not cover the window frame or rubber seals. Do not clamp the film between the window frame.

Application Tips

- Measure the vehicle parts and pre-cut the AUTO SE colour film generously. Cut the film in such a way that avoids overlapping and studs. A width of 152 cm allows application to many car types without gaps or overlap.
- The AUTO SE colour film should be trimmed on the vehicle.
- Cutting should always be done on the clearance edge that borders the part to which the film is applied.
- The overlapping part of the AUTO SE colour film (clearance width) should be used for wrapping the AUTO SE colour film into the interior area of the car.
- To avoid film shrinkage or mechanical wear on the open edge from elements such as cleaning brushes or wind, do not cut AUTO SE colour film flush with car.
- Apply the AUTO SE colour film under rubber seals to avoid open edges.
- If it is unavoidable to cut the AUTO SE colour film on the car surface, apply siliconised crepe where the cut is performed. Lift the AUTO SE colour film slightly after cutting and remove the siliconised crepe material before finally applying the film.

Applying the Film

- Position the pre-cut AUTO SE colour film to be applied to the car surface and affix to the vehicle with adhesive tape or magnets.
- Make sure the AUTO SE colour film rises approximately 5 cm above the edges of the vehicle part to which the film is to be applied.
- Remove the backing paper from the AUTO SE colour film and stretch the AUTO SE colour film equally over the part to be wrapped.
- Apply the AUTO SE colour film to the vehicle part with big equal swipes of a squeegee.
- For curved surfaces (e.g. car wings), use a hot-air gun to heat the entire AUTO SE colour film to +40° C or a maximum +60° C .
- Any deep-drawn areas, borders and edges should be carefully reheated with a hot-air gun immediately after application of the film in order to activate the adhesive. It is necessary to reheat the AUTO SE colour film in deep corrugations to a temperature of +110° C up to maximum +120° C to ensure film structure stability in these areas.
- Once the AUTO SE colour film has cooled down, cut or turn in the film edges. After re-installing any parts that were removed, reheat all borders, edges and corrugations again with a hot-air gun to +110° C up to maximum +120° C to ensure film structure stability in these areas.

Important Notes:

Use an infrared thermometer to ascertain exact substrate temperature.

Use continuous motion with the hot-air gun to avoid the risk of damaging the AUTO SE colour film.

Remaining tiny air bubbles (of a diameter less than 5 mm) will diffuse through the film within a few days or up to three weeks, depending on the ambient temperature. Slightly puncture larger bubbles with a pin or pointed scalpel, and then use a squeegee to expel the air and smooth out.

Post-Application

Maintain application temperature for at least 24 hours after completing application.

Typically, the AUTO SE colour film will reach optimum adhesion after three days. Do not take the vehicle through a car wash before this time has elapsed.

To protect the service life of the AUTO SE colour film, the vehicle should only be cleaned manually or taken to a car wash that does not use brushes and does not use a hot wax programme.

In general, AUTO SE recommends regular cleaning and maintenance of the vehicle by hand with ORACAL cleaning and care products (www.spandex.com). These are available as complete kits for glossy and for matte films respectively. These products are mild yet effective and are developed specifically for these materials and applications.

AUTO SE strongly recommends a primary application of the ORACAL® Long-Lasting Seal contained in the Cleaning and Care sets directly after car wrapping or before first use of the vehicle.

The surfaces of matte and/or structured AUTO SE colour films are naturally more sensitive than glossy and smooth ones. Accordingly, these AUTO SE colour films must be treated very carefully during application, cleaning, and care. Depending on service life and amount of vehicle use, more frequent cleaning and care may be necessary.

High-pressure cleaning aggressive chemicals or solvents (such as acetone or paint thinner) usually damage the film and possibly also the vehicle paintwork. No high-pressure cleaning or aggressive chemicals should be used for cleaning the car.

The current Maintenance and Usage Terms published by Spandex must be provided and explained to the customer when handing over the vehicle coated with AUTO SE colour film.

Removing AUTO SE Colour Films

AUTO SE colour films are equipped with a high-quality adhesive to enable optimum performance. It is possible for some adhesive residue to remain on the surface when removing the film. Such residues can easily be removed with a silicone-free citrus-based industrial detergent. AUTO SE cannot provide a guarantee or warranty for the speed or easiness of the removal of AUTO SE colour films.

Environment and surface temperature must be at least +20° C before the AUTO SE colour films can be removed. First, carefully lift up one corner of the AUTO SE colour film with a knife. Then slowly draw the film from the surface at a 180° angle. Heating the film moderately with a hot-air gun to +40° C or maximum +60° C while pulling makes removal considerably easier. A commercially available superheated steam device is also a good option. Removing behaviour is also markedly affected by the type and texture of the surface and the conditions of use.

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