



Workshop Manual

Ameo 2017 > , Arteon 2018 > ,
Atlas 2017 > , Beetle 2012 > ,
CC 2012 > , Eos 2006 > , Golf 2004 > ,
Golf 2009 > , Golf 2013 > ,
Golf 2015 > , Golf 2017 > ,
Golf Cabriolet 2012 > ,
Golf Plus 2005 > , Golf Plus 2009 > ,
Golf Sportsvan 2015 > ,
Golf Sportsvan 2018 > ,
Golf Variant 2007 > ,
Golf Variant 2010 > ,
Golf Variant 2014 > ,
Golf Variant 2015 > ,
Golf Variant 2017 > , Jetta 1999 > ,
Jetta 2005 > , Jetta 2011 > ,
Jetta 2015 > , Jetta 2018 > ,
New Beetle 1999 > ,
New Beetle Cabrio 2003 > ,
Passat 2006 > , Passat 2011 > ,
Passat 2015 > , Passat 2019 > ,
Passat (NMS - US) 2012 > ,
Passat (NMS - US) 2016 > ,
Passat CC 2009 > ,
Passat Variant 2006 > ,
Passat Variant 2011 > ,
Passat Variant 2015 > ,
Passat Variant 2019 > , Phaeton 2003 > ,
Polo 2002 > , Polo 2010 > ,
Polo 2014 > , Polo 2018 > ,
Polo KH IN 2010 > , Polo KH IN 2015 > ,



Polo KH MY 2014 > ,
Polo KH MY 2015 > ,
Polo Lim IN 2011 > ,
Polo Lim IN 2016 > ,
Polo Lim MY 2014 > ,
Polo Lim MY 2016 > ,
Polo Lim RUS 2011 > ,
Polo Lim RUS 2016 > , Scirocco 2009 > ,
Scirocco 2015 > , Sharan 1996 > ,
Sharan 2011 > , Sharan 2016 > ,
T-Cross 2019 > , T-Roc 2018 > ,
The Beetle 2017 > ,
The Beetle Cabriolet 2012 > ,
The Beetle Cabriolet 2017 > ,
Tiguan 2008 > , Tiguan 2016 > ,
Tiguan MEX 2017 > ,
Tiguan RUS 2017 > , Touareg 2003 > ,
Touareg 2010 > , Touareg 2015 > ,
Touareg 2018 > , Touran 2003 > ,
Touran 2016 > , e-Golf 2014 > ,
e-Golf 2017 > , e-up! 2014 > ,
e-up! 2017 > , e-up! 2020 > ,
up! 2012 > , up! 2017 > , up! 2020 >

General information - Paint, passenger vehicles

Edition 10.2019



List of Workshop Manual Repair Groups

Repair Group

00 - Technical data



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.





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00 – Technical data

1 Safety information

(VRL013521; Edition 10.2019)

⇒ [“1.1 Safety precautions when painting natural gas-powered vehicles”, page 1](#)

⇒ [“1.2 Safety precautions when painting electric drive vehicles”, page 2](#)

1.1 Safety precautions when painting natural gas-powered vehicles



DANGER!

Excessively high drying temperatures endanger life! High temperatures increase the pressure in the tank for natural gas or liquefied petroleum gas. Excessive pressure can cause the tank for natural gas or liquefied petroleum gas to burst, causing severe injuries or death.

High temperatures trigger the thermal fuse of the cut-off valve on natural gas tanks. Increased pressure due to high temperatures triggers the pressure relief valve on liquefied gas tanks. Gas escapes from the tank for natural gas or liquefied gas and, in the presence of sparks, can produce a jet of flames. This may result in severe injuries or death.

- ◆ *Never expose components filled with gas to temperatures higher than +60°C.*
- ◆ *For drying in an oven above +60°, first remove all tanks for natural gas or liquefied gas and vent all gas lines.*
- ◆ *For infrared drying, never expose gas-filled components of the high-pressure storage system to temperatures above +60°C.*

Observe safety precautions and other instructions when working on gas-powered vehicles (»LPG« or »CNG«):

Observe safety precautions ⇒ Gas drive - general information; Rep. gr. 00 ; Safety precautions

Observe safety precautions ⇒ Fuel supply system - natural gas engines; Rep. gr. 00 ; Safety precautions .

Remove fuel tank ⇒ Fuel supply system - natural gas engines; Rep. gr. 20 ; Fuel tank; Removing and installing fuel tank .

Additional notes:

- ◆ ⇒ Self-study Programme No. 262; Natural gas - An alternative fuel for vehicles
- ◆ ⇒ Self-study Programme No. 373; Natural gas drive EcoFuel in the Touran
- ◆ ⇒ Self-study Programme No. 425; Natural gas drive EcoFuel with 1.4 I 110 kW TSI engine
- ◆ ⇒ Self-study Programme No. 427; Autogas drive BiFuel
- ◆ ⇒ Self-study Programme No. 528; Natural gas drive in Golf/ Golf Estate TGI Blue Motion



1.2 Safety precautions when painting electric drive vehicles



Caution

Danger of damage to battery cells at excessive drying temperatures!

- ◆ ***For drying temperatures of +80°C, observe the flash-off period of maximum 30 minutes.***
- ◆ ***For drying temperatures of +60°C, observe the flash-off period of maximum 45 minutes.***
- ◆ ***When IR drying, make sure to protect all high-voltage components from direct exposure to IR radiation.***

Safety precautions when working on electric drive:

⇒ Rep. gr. 00 ; Safety information

Golf 2009 e-BlueMotion

The above-mentioned instructions for drying do not apply to the Golf 2009 e-BlueMotion. In these vehicles, high-voltage battery must be removed before baking.



2 General information

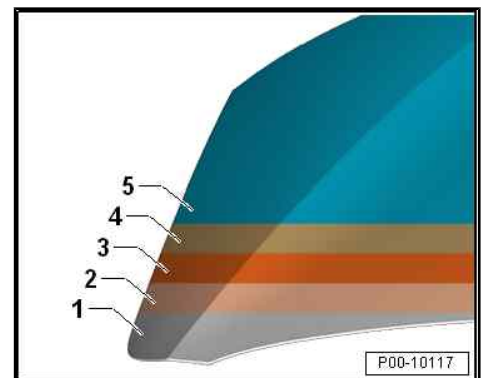
- ⇒ [“2.1 Paintwork structure of a factory finish”, page 3](#)
- ⇒ [“2.2 Paint structure of service department finish”, page 5](#)
- ⇒ [“2.3 Fundamental approach to dealing with areas sanded through to the substrate \(bare metal surface\)”, page 9](#)
- ⇒ [“2.4 Reduced paint structure in engine compartment and inside of bonnet”, page 10](#)
- ⇒ [“2.5 Instructions for work on underbody and stone chip protection”, page 10](#)
- ⇒ [“2.6 Work instruction for window flange area”, page 12](#)
- ⇒ [“2.7 Pre-treatment of bonded surfaces when renewing laser-welded roofs”, page 13](#)
- ⇒ [“2.8 Corrosion protection measures for wing surface in contact with wheel housing liner”, page 16](#)
- ⇒ [“2.9 Notes on treating corroded fold areas”, page 17](#)
- ⇒ [“2.10 Corrosion protection for body components, add-on components and welded components”, page 19](#)
- ⇒ [“2.11 Painting parking aid sensor”, page 21](#)
- ⇒ [“2.12 ACC - Adaptive Cruise Control”, page 22](#)
- ⇒ [“2.13 Instructions for painting bumper cover in area of lane change assist control unit”, page 22](#)

2.1 Paintwork structure of a factory finish

Structure of a solid-colour (uni) paint finish, conventional

Layer thickness approx. 80-120 µm

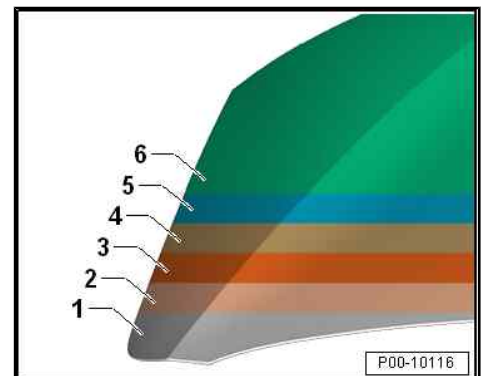
- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic primer
- 4 - Intermediate surfacer
- 5 - 2-pack uni (solid-colour) top coat



Structure of a uni (solid-colour) paint finish, water-based paint

Layer thickness approx. 80-130 µm

- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic finish
- 4 - Water-based surfacer
- 5 - Water-based base coat
- 6 - 2-pack clear coat

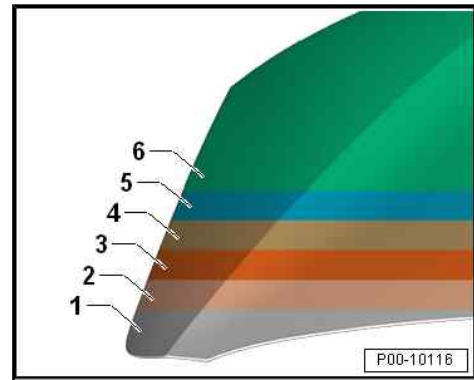




Structure of metallic and pearlescent finish (water-based paint)

Layer thickness approx. 80-130 µm

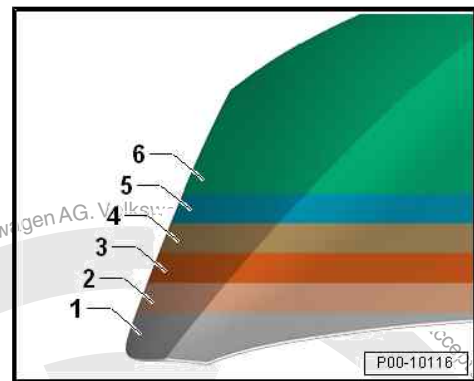
- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic finish
- 4 - Water-based surfacer
- 5 - Metallic or pearlescent water-based base coat
- 6 - 2-pack clear coat



Structure of a two-coat paint finish (conventional)

Layer thickness approx. 100 µm

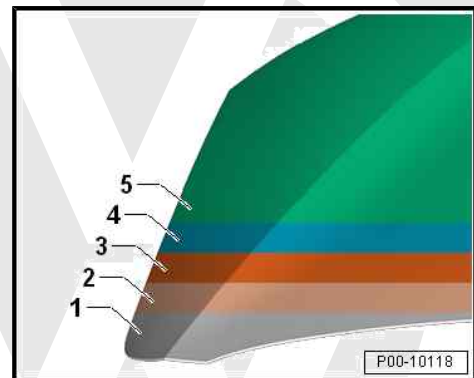
- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic finish
- 4 - Intermediate surfacer
- 5 - Uni (solid-colour) top coat
- 6 - 2-pack clear coat



Structure of the 2010-process finish (water-based paint)

Layer thickness approx. 80-120 µm

- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic finish
- 4 - Water-based base coat (special-effect coat)
- 5 - 2-pack clear coat

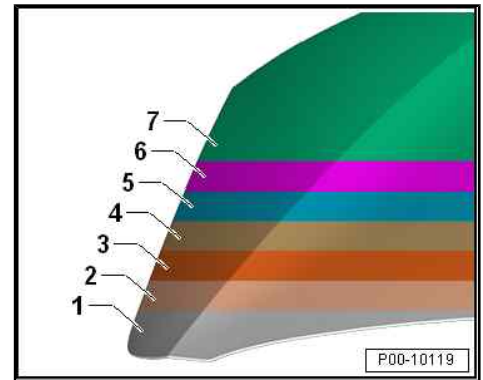




Structure of a three-coat paint finish (water-based paint)

Layer thickness approx. 80-140 µm

- 1 - Sheet steel
- 2 - Zinc phosphate
- 3 - Electrophoretic finish
- 4 - Water-based surfacer
- 5 - Water-based base coat (colour-determining base coat)
- 6 - Water-based base coat (special-effect coat)
- 7 - 2-pack clear coat



Note

- ◆ *The specifications of coat thickness are approximate because thickness can vary depending on colour and differences between horizontal and vertical surfaces.*
- ◆ *The specifications may be exceeded by individual vehicles which have been repainted once or several times. However, this need not be communicated.*

2.2 Paint structure of service department finish

⇒ ["2.2.1 Paintwork structure, base coat", page 5](#)

⇒ ["2.2.2 Paintwork structure, metallic effect", page 8](#)

2.2.1 Paintwork structure, base coat

Panels galvanised on both sides

Earlier attempts at flanged pairings have resulted in the fact that only panels that are galvanised on both sides are used now. Only in this way can the cathodic protection and the barrier effect of the zinc layer work together to provide optimum results. In particular, the cut edges which are less well protected by paint (subject to thinning of the paint coating at the edge) are provided with additional protection.



Note

- ◆ *Please make sure*
- ◆ *that when repairing bodywork all metal edges are deburred.*
- ◆ *that zinc/electrophoretic primer layer is fully present on unpainted inner surfaces.*
- ◆ *that inner weld flanges and sanded-through spots are treated with INOX spray - D 007 600 A1- or zinc spray.*

Filling

To restore the contours of bodywork surfaces, filler materials are nowadays considered as an integral part of body shop construction and paint shop operations. Please be sure to allow for the differing base surface requirements.

- ◆ *The metal filler requires a bare metal base surface that is as rough as possible. Using the brush grinder set - VAS 6446- produces the best adhesion and anti-corrosion results.*



- ◆ The diamond aluminium filler, though, must not be prepared using the brush grinder set - VAS 6446- . Owing to the risk of contact corrosion, the surface must be worked with separate sanding tools.
- ◆ Spray and polyester fillers have a hydrophilic effect, i.e. they absorb moisture like a sponge. Bare metal surfaces must therefore be sealed. To seal the surface before applying the surfacer, 2-pack wash primer - LHV 043 000 A2- is used, followed by 2-pack HS performance surfacer .

Product information:

- ◆ ⇒ [“3.3 Filler”, page 70](#)

Primer

The primer is the most important component in the corrosion protection system, as it prevents water and oxygen from getting to the metal surface. Genuine replacement parts are usually coated with black or grey cathode dip paint. What type of primer is used depends on the application.

- ◆ The cathode dip primer is not resistant to UV and acid. Body components located in areas with a risk of exposure, such as the vehicle front end, wings and wheel housings, must be coated with one spray pass of base coat and clear coat on the inside as well. For inner body surfaces on components such as the roof or side panels which are covered completely it is sufficient to touch up scratches and bare metal surfaces with glass/paint primer. In cases of doubt, the series status applies.
- ◆ When taking delivery of painted body panels, ensure that they have no surface rust. It may be necessary to clean them or sand them down.
- ◆ Sanded-through spots or weld seams must be coated as soon as possible with an anti-corrosion primer.



Note

- ◆ *Areas that have been sanded through to the substrate (bare metal surface) and areas that have been repaired are generally to be primed with 2-pack waster primer - LHV 043 000 A2- , followed by 2-pack HS performance surfacer .*
- ◆ *When using 2-pack wash primer - LHV 043 000 A2- , note that it must always be remixed before applying, and a dry layer thickness of at least 10-12 µm is required.*

Product information:

- ◆ ⇒ [“3.4 Priming metal”, page 89](#)
- ◆ ⇒ [“3.5 Priming plastic materials”, page 101](#)

Surfacer

The surfacer plays only a secondary role in terms of corrosion protection. Nevertheless, use of the right surfacer for customer service is essential.

Function:

- ◆ Surfacer protects the body against stone chips. Therefore, make sure that the surfacer layer is of the appropriate depth in the area exposed to stone chips.
- ◆ Surfacer is used to prepare surfaces. Scoring can be levelled out.



- ◆ Coloured surfacer improves the concealment of shades with weak tones.

Product information:

- ◆ ⇒ ["3.6 Surfacer", page 104](#)

PVC seam sealing and undersealing



Note

- ◆ *Seam seals made during repair work must be identical in appearance and thickness to the original seam seals.*
- ◆ *To avoid damage or faulty operation, brush seam seals smooth near parts which must be attached.*
- ◆ *Water drainage holes must remain clear.*
- ◆ *All threaded studs and welded nuts with metric threads as well as all other studs and contact areas for assembly must be functional following the extent of the sealing work.*
- ◆ *Sealant must never be applied to bare metal. Substrates must always be coated with surfacer first.*

To prevent water from penetrating into flanges, panel folds in critical areas of the body are sealed with paste-form, solvent-free PVC. A varying thickness of PVC layer is also sprayed onto precisely defined zones on the external floor pan and in the wheel housings to protect against stone chips and prevent droning.



Note

- ◆ *Always isolate areas in which corrosion damage has been repaired as well as any bare metal surfaces using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .*
- ◆ *Make sure the underseal layer is of the specified thickness.*

Product information:

- ◆ ⇒ ["3.12 Underseal", page 256](#)
- ◆ ⇒ ["3.13 Stone deflector", page 268](#)
- ◆ ⇒ ["3.15 Sealing materials", page 280](#)

Base coat

The primary role of the base coat is decorative. It plays only a secondary role in terms of corrosion protection.

The paints have varying concealing power depending on their pigmentation. Pay attention to the manufacturers' specifications.

Product information:

- ◆ ⇒ ["3.7 Top coats", page 151](#)

Clear coat

The primary role of the clear coat is decorative. The clear coat likewise plays only a secondary role in terms of corrosion protection. The clear coat protects the base coat against UV radiation and from environmental damage such as by the acid in bird droppings.

Product information:

- ◆ ⇒ ["3.8 Clear coats", page 196](#)



Wax sealing

Wax/cavity sealing plays a key role in terms of corrosion protection. Various materials are available in the service department, according to the area of application. The outstanding protection offered by these materials is based on the following properties:

- ◆ Hydrophobic (non-absorbent).
- ◆ Good adhesion.
- ◆ No undermining by rust.
- ◆ Permeability to water vapour some 1,500 times less than a paint coating of the same thickness.

Product information:

- ◆ ⇒ ["3.11 Anti-corrosion materials", page 251](#)
- ◆ ⇒ ["3.14 Wax-based underseal", page 275](#)

2.2.2 Paintwork structure, metallic effect

Technology

Vehicles with a matt effect usually only have paintwork with a matt clear coat. The paint can be applied either directly on the base coat or on an existing clear coat.

Application in excessively dry conditions poses the risk of clouding due to uneven flash-off or due to the spray mist not being absorbed. Larger surfaces should therefore be painted early in the morning. It may be necessary to postpone the application for a few days.

Colour matching, base coat

The matt structure of the clear coat makes it difficult to clearly identify the colour and the effect pigments of the base coat. It is therefore recommended to prepare some sample panels in advance with two to three types of base coat.

Colour matching, matt clear coat

The use of a gloss level tester is recommended.

Despite measuring the gloss level, three different matt finishes should still be applied.

Application

The following instructions are recommended to achieve a homogeneous matt effect:



i Note

- ◆ *To reach the calculated level of matting, the clear coat must be mixed on the scales.*
- ◆ *The spraying distance to the object is slightly greater than the standard application so that the spray mist atomisation can be used to the maximum effect.*
- ◆ *With horizontal component parts, making the two spray applications crosswise is also advantageous.*
- ◆ *It must be ensured that spray applications feathered edge evenly and an adequately wet spray film is applied.*
- ◆ *In the case of larger components, the overlap area of the 2nd spray pass must not be placed in the overlap zone of the 1st spray pass, but must be offset.*
- ◆ *Where possible, full-body paintwork should be split into sections, i.e. the vehicle body is separated from the add-on parts in order to avoid feathered edges and spray mist.*
- ◆ *Please note that the matt finish may change over time.*

General rule:

- Spot Repair is not possible.
- Air drying is not recommended.
- Touch-up paintwork is normally required.
- Usually, the only way to treat matt surfaces that have acquired an undesirable sheen is to apply a new coat of paint.

Once the matt clear coat is applied it cannot be changed. The following instructions should therefore be observed to avoid dust inclusions:

- The vehicle must be completely clean on the outside. An underbody wash or the use of a steam cleaner is recommended.
- The painting booth must also be spotlessly clean. Bring forward an imminent filter change if necessary. But then only begin with the second or third application as a great deal of dust is generated after the filter is changed.
- After sanding, blow off the components thoroughly and clean with a silicone remover .
- Mask off the vehicle suitably. Cover paint stands.
- Just before applying the base coat, clean the vehicle parts to be painted again using a tack cloth - VAS 6177- .

2.3 Fundamental approach to dealing with areas sanded through to the substrate (bare metal surface)

i Note

Generally, prime any areas sanded down to the substrate using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS performance surfacer .



2.4 Reduced paint structure in engine compartment and inside of bonnet



Note

Depending on the model, the paint in the "engine compartment and on the inside of the bonnet" may deviate in structure and colour from the exterior paint. This deviation is production-related and does not constitute a defect. The series-production status is to be restored.

2.5 Instructions for work on underbody and stone chip protection



Note

- ◆ *The structure of the underbody and stone chip protection is to be reconstructed to conform to the original condition in appearance and thickness.*
- ◆ *Water drainage holes must remain clear.*
- ◆ *All threaded studs and welded nuts with metric threads as well as all other studs and contact areas for assembly must be functional following the extent of the sealing work.*

Accident damage (replacement parts)

- Clean new part with slow-drying silicone remover .
- Roughen factory base coat using an emery pad.
- Clean part with slow-drying silicone remover again.
- Apply 2-pack wash primer - LHV 043 000 A2- to any bare metal spots.
- Dry (observe drying time).
- Then, apply 2-pack HS Performance surfacer .
- Dry (observe drying time).
- Dry sand filler with P400 to P500 sandpaper, taking care not to sand through.
- Clean surface with slow-drying silicone remover .
- Apply a suitable anti-chip coating
⇒ ["3.13 Stone deflector", page 268](#) .
- Dry (observe drying time).
- Rework and/or smooth structure as needed.
- Clean substrate with aqueous silicone remover .
- Complete paintwork structure with top coat or a base coat and clear coat.

Damage caused by accidents (repair)

- Clean damaged component/surface thoroughly.
- Remove undercoating using brush grinder set - VAS 6446- .
- Beat dents out of damaged area and sand down to bare metal.
- Thoroughly remove any corrosion present using brush grinder set - VAS 6446- , taking care to finely sand transitions.



- Clean substrate with slow-drying silicone remover .
- Apply 2-pack wash primer - LHV 043 000 A2- .
- Dry (observe drying time).
- Then, apply 2-pack HS Performance surfacer .
- Dry (observe drying time).
- Sand surfacer.
- Clean substrate with slow-drying silicone remover .
- Apply a suitable filler.
- Sand filler using P80 to P240 sandpaper, liberally sanding feathered edge areas.
- Clean substrate with slow-drying silicone remover .
- Apply 2-pack wash primer .
- Then, apply 2-pack HS Performance surfacer .
- Dry (observe drying time).
- Dry sand surfacer in area of anti-chip coating with P400 to P500-grade sandpaper, taking care not to sand through.
- Clean surface with slow-drying silicone remover .
- Apply a suitable anti-chip coating
⇒ ["3.13 Stone deflector", page 268](#) .
- Dry (observe drying time).
- Rework and/or smooth structure as needed.
- Dry sand entire surfacer area with P400 to P500-grade sandpaper.
- Clean substrate with aqueous silicone remover .
- Create paint structure with a top coat or with base coat and clear coat.

Cracks in stone chip protection



Note

Carry out repairs according to the description "Accident damage (repair by removing dents)".

Damage caused by stone impact (stone chippings, grit, etc.)

- Thoroughly clean damaged area.
- Lightly sand damaged surfaces using emery pad. Dry sand deeper chips with P120 to P240 sandpaper.
- Clean substrate with slow-drying silicone remover .
- Apply 2-pack wash primer - LHV 043 000 A2- to any bare metal spots.
- Dry (observe drying time).
- Then, apply 2-pack HS Performance surfacer .
- Dry (observe drying time).
- Dry sand filler with P400 to P500 sandpaper, taking care not to sand through.
- Clean substrate with slow-drying silicone remover .



- Apply a suitable anti-chip coating
⇒ "3.13 Stone deflector", page 268 onto damaged areas. If the damage is extensive, the entire surface must be reworked.
- Dry (observe drying time).
- Rework and/or smooth structure as needed.
- Clean surface with aqueous silicone remover .
- Complete paintwork structure with a top coat or with base coat and clear coat.

2.6 Work instruction for window flange area



Note

- ◆ *Repainting is only permissible if the same colour is used.*
- ◆ *If the window aperture needs to be repainted, the bonding surface on the window flange must first be masked off all around.*

New part and component without damage in window flange

- Clean window flange thoroughly using silicon remover .
- Sand down CDP primer with non-woven abrasive (red).
- Then apply 2-pack HS performance surfacer .



Note

- ◆ *Observe the drying time for the 2-pack HS performance surfacer at an object temperature of +60°C!*
- ◆ *60 - 150 µm: 15 - 20 minutes*
- ◆ *150 - 250 µm: 20 - 25 minutes*
- ◆ *Further information 2-pack HS performance surfacer :
⇒ [page 119](#) .*
- ◆ *Alternatively, 2-pack HS wet-on-wet surfacer can be used.
Note the further information on the 2-pack HS wet-on-wet surfacer : ⇒ [page 130](#) .*
- Dry sand filler with sandpaper (P400 to P500) lightly, taking care not to sand through.
- Clean using silicon remover .
- Mask off bonding surface on window flange with suitable, heat and solvent-resistant adhesive tape. This prevents adhesive residue.
- If necessary, paint window opening in same colour as vehicle.
- To avoid sharp edges, remove adhesive tape from window flange after last spray cycle.



Note

Apply glass/paint primer for window adhesive using applicator - D 009 500 25- .

- Install windscreen ⇒ General body repairs, exterior; Rep. gr. 64 ; Windscreen; Removing and installing windscreen .



- Install rear window ⇒ General body repairs, exterior;; Rep. gr. 64 ; Rear window; Removing and installing rear window .

Component with damage (substrate evident) in window flange

- Clean window flange thoroughly using silicon remover .
- Dry sand damaged area with sandpaper (P100).
- Clean substrate using silicon remover .
- Apply 2-pack wash primer - LHV 043 000 A2- to damaged area.
- After a flash-off time of 10 minutes at an object temperature of 20°C, apply 2-pack HS performance surfacer .



Note

- ◆ *Observe the drying time for the 2-pack HS performance surfacer at an object temperature of +60°C!*
- ◆ *60 - 150 µm: 15 - 20 minutes*
- ◆ *150 - 250 µm: 20 - 25 minutes*
- ◆ *Further information 2-pack HS performance surfacer :
⇒ [page 119](#) .*
- ◆ *Alternatively, 2-pack HS wet-on-wet surfacer can be used.
Note the further information on the 2-pack HS wet-on-wet surfacer : ⇒ [page 130](#) .*
- Further information 2-pack wash primer ⇒ [page 97](#) .
- Dry sand filler with sandpaper (P400 to P500) lightly, taking care not to sand through.
- Clean using silicon remover .
- Mask off bonding surface on window flange with suitable, heat and solvent-resistant adhesive tape. This prevents adhesive residue.
- If necessary, paint window opening in same colour as vehicle.
- To avoid sharp edges, remove adhesive tape from window flange after last spray cycle.



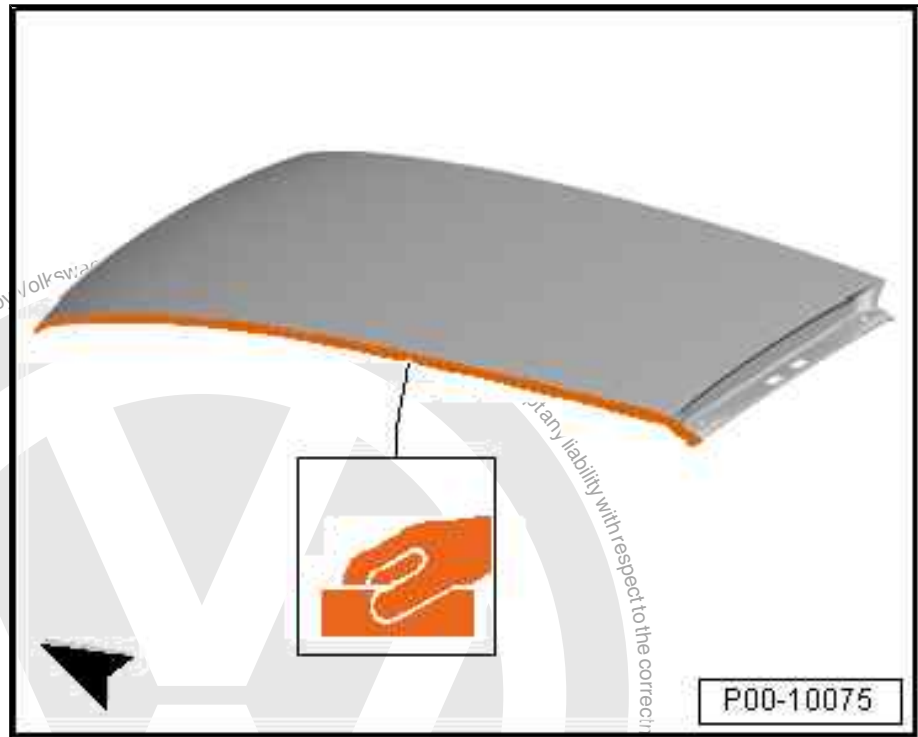
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- Install windscreen ⇒ General body repairs, exterior; Rep. gr. 64 ; Windscreen; Removing and installing windscreen .
- Install rear window ⇒ General body repairs, exterior;; Rep. gr. 64 ; Rear window; Removing and installing rear window .

2.7 Pre-treatment of bonded surfaces when renewing laser-welded roofs

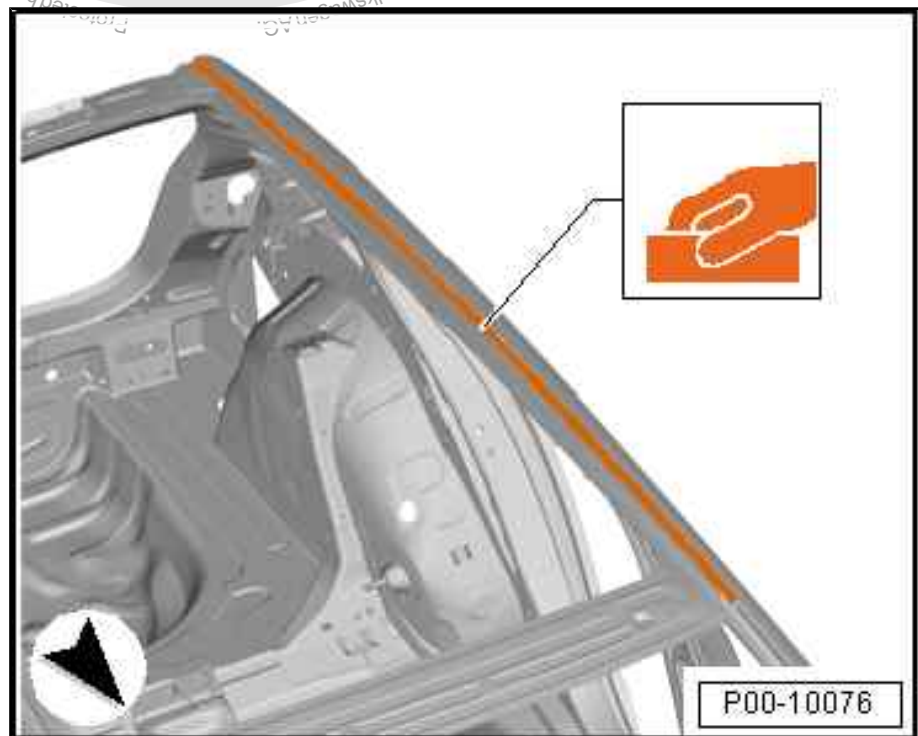
- Using P180-grade sandpaper, dry-sand cathodic dip primer on bonding surface for roof down to bare metal.



- Using P180-grade sandpaper, dry-sand bonding surface for roof side members down to bare metal.

i Note

Prime any bare metal surfaces outside the bonding surfaces using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS performance surfacer .

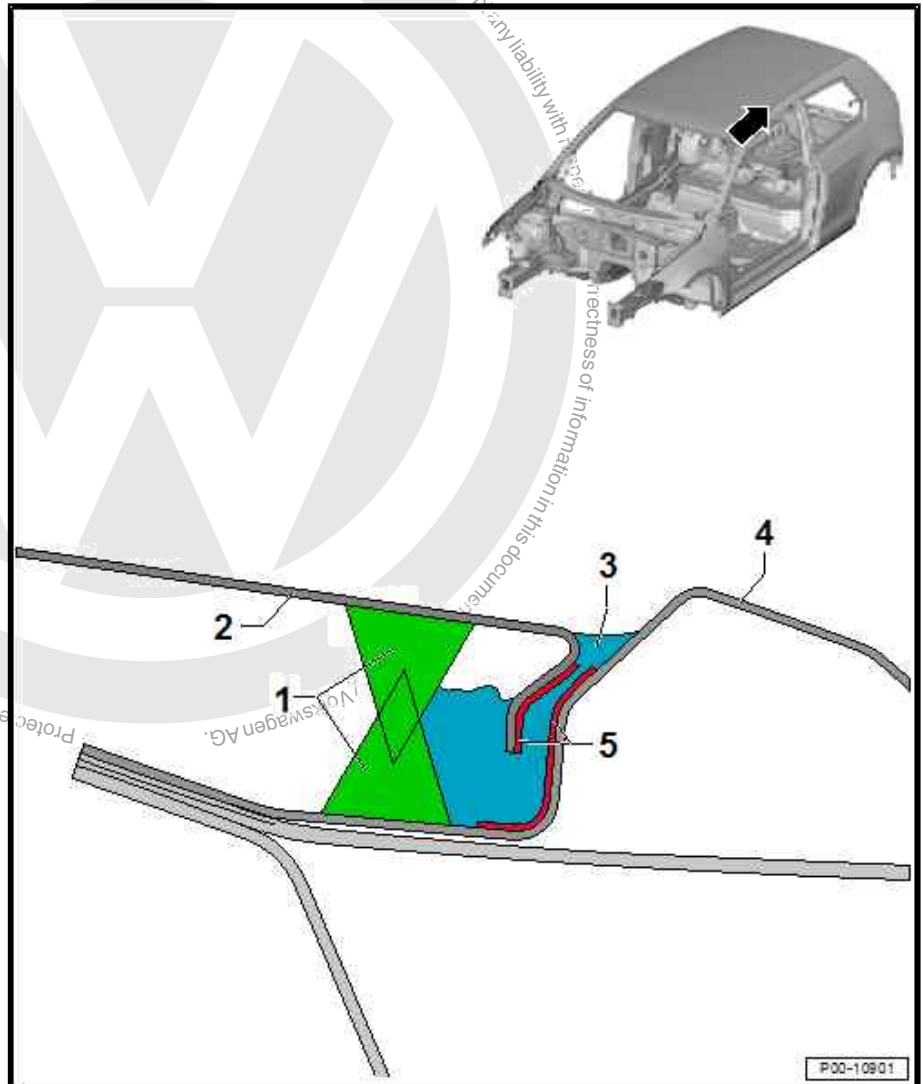




- Clean bonding surface with silicone remover
- Renew roof => Body Repairs; Rep. gr. 51 .

Detailed overview of bonding surfaces

- 1 - 1-pack assembly adhesive - D 190 MKD A3-
- 2 - Roof
- 3 - 2-pack body adhesive - D 180 003 M2- or 2-pack body adhesive - D 180 004 M2-
- 4 - Roof pillar/side panel
- 5 - Area sanded down to bare metal



Detailed view of surfacer application and fine seam seals



1 - Roof

2 - 2-pack HS Performance surfacer



Note

Prime any bare metal surfaces using 2-pack wash primer - LHV 043 000 A2- before applying surfacer.

3 - Fine seam sealing

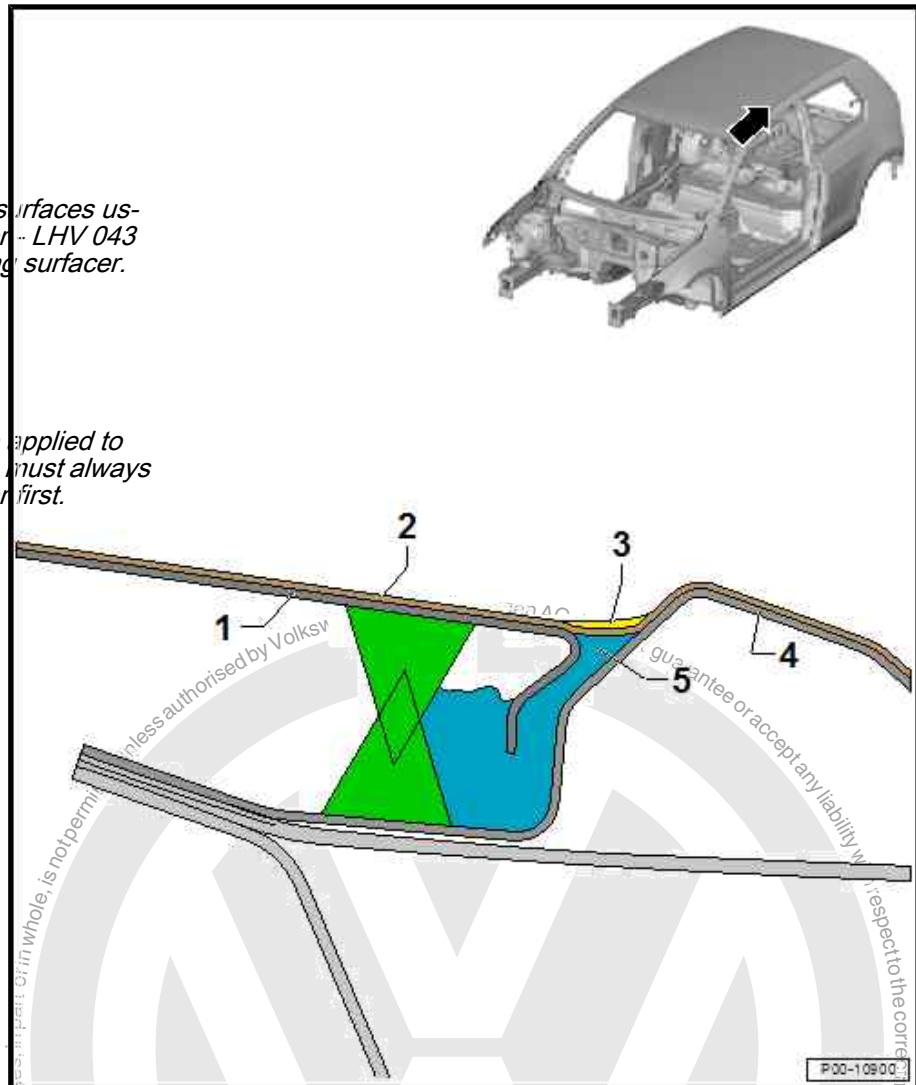


Note

Sealant must never be applied to bare metal. Substrates must always be coated with surfacer first.

4 - Roof pillar/side panel

5 - 2-pack body adhesive - D 180 003 M2- or 2-pack body adhesive - D 180 004 M2-



Restore paintwork structure according to the paintwork repair manual.

2.8 Corrosion protection measures for wing surface in contact with wheel housing liner



Note

- ◆ The corrosion protection measure is to be carried out in the groove of the wing of all new replacement parts which have not had the additional sealant applied at the factory.
 - ◆ The additional sealant is intended to prevent the wheel housing liner from possibly "scouring" the groove of the wing, which could cause corrosion.
- Apply surfacer on inside and outside of wing.



- After surfacer has dried, apply and spread sealant - D 511 500 A2- in contact area of wheel housing liner (groove of wing).

Maß a - 20 mm

- Height of seal

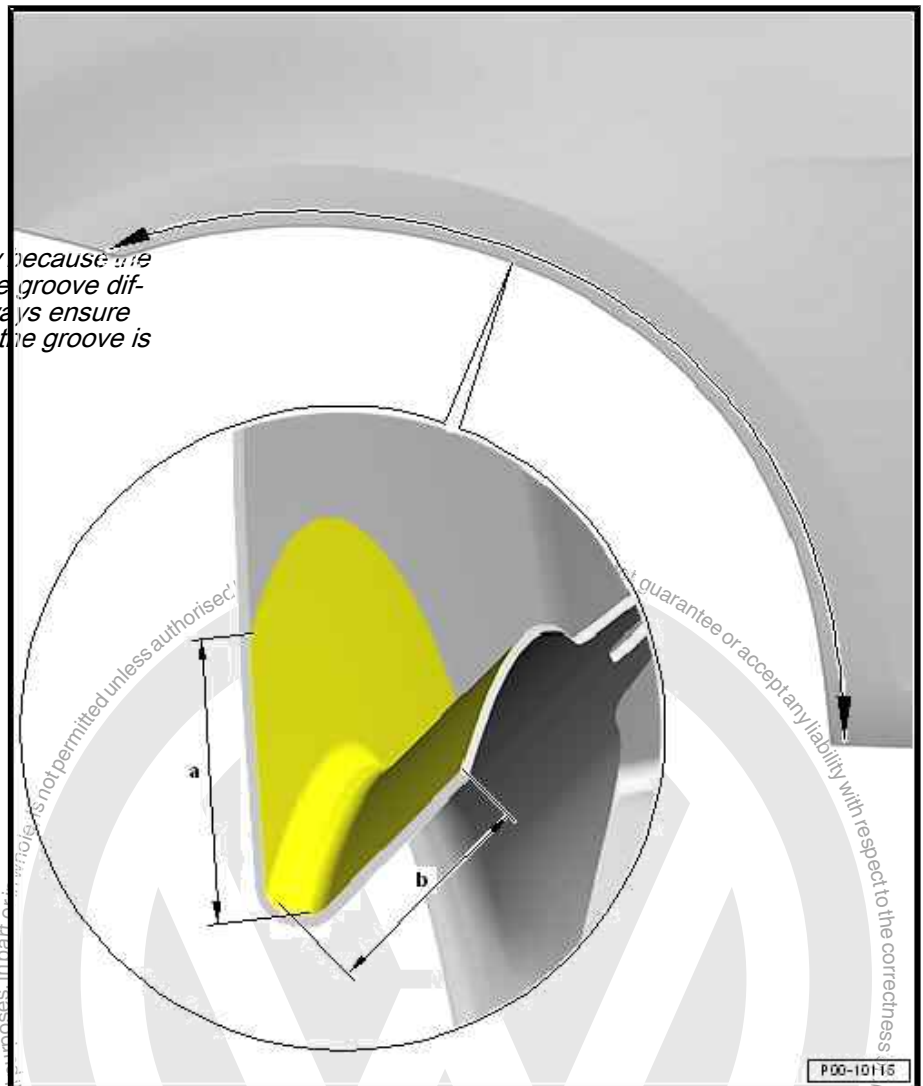
Maß b - 10 mm

- Width of seal



Note

-Dimension b- can vary because the width of the edge of the groove differs among wings. Always ensure that the entire edge of the groove is sealed.



Before installing, seal inside of wheel arch and web plate with cavity sealant.

Product information:

- ◆ => ["3.11 Anti-corrosion materials", page 251](#)

2.9 Notes on treating corroded fold areas

Examples for corrosion in the fold area of bonnet, door or rear lid

- Remove corrosion using
=> ["4.1.6 Pneumatic brush grinder set VAS 6446", page 372](#) or
=> ["4.1.7 Brush grinder set VAS 6776", page 373](#).
- Smooth off transitions using sandpaper (P360 to P400 grade).
- Clean substrate using silicon remover .
- After a corrosion damage has been repaired and before sealing, isolate substrate using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .
- As soon as the surfacer is completely dry, treated areas must be dry-sanded using P400 to P500 sandpaper. When sanding,



take particular care not to "sand through". Afterwards, clean sanded surfaces with silicon remover .

- After sanding the dry surfacer, the metal edges in the fold area must be sealed with fine seam sealant
⇒ ["3.15 Sealing materials", page 280](#) . Ensure that the fine seam seals are identical in appearance to the original seam seals, as specified in the ["Vehicle-specific paintwork information"](#) for the particular vehicle.



Note

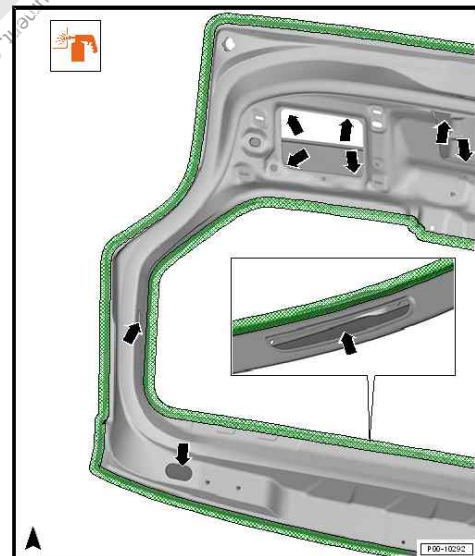
- ◆ *Seam seals made during repair work must be identical in appearance and thickness to the original seam seals.*
 - ◆ *To avoid damage or faulty operation, brush seam seals smooth near parts which must be attached.*
 - ◆ *Water drainage holes must remain clear.*
 - ◆ *All threaded studs and welded nuts with metric threads as well as all other studs and contact areas for assembly must be functional following the extent of the sealing work.*
 - ◆ *Sealant must never be applied to bare metal. Substrates must always be coated with surfacer first.*
- Restore paintwork structure according to the paintwork repair manual.
 - Apply cavity sealant along entire fold area using
⇒ ["4.1.8 Suction feed spray-gun V.A.G 1538", page 374](#) ;
⇒ ["3.11 Anti-corrosion materials", page 251](#) .



Note

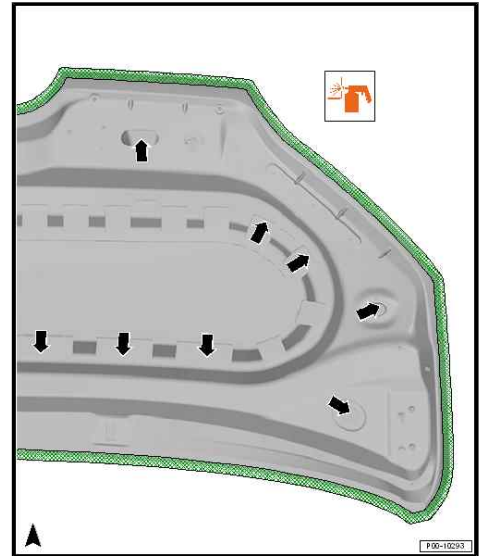
The repair can only be considered successful if the fold area is sealed air-tight from inside (so that no ingress of moisture is possible).

Cavity sealing, rear lid

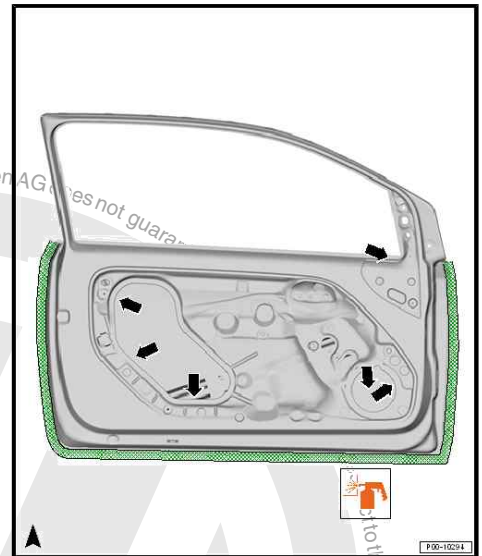




Cavity sealing, bonnet



Cavity sealing, door



2.10 Corrosion protection for body components, add-on components and welded components

⇒ ["2.11 Painting parking aid sensor", page 21](#)

⇒ ["2.12 ACC - Adaptive Cruise Control", page 22](#)

⇒ ["2.13 Instructions for painting bumper cover in area of lane change assist control unit", page 22](#)

Warranty claims cannot be honoured if:

- ◆ damage to the body or the paint has not been promptly repaired in accordance with the manufacturer's specification.
- ◆ corrosion perforation is directly attributable to the fact that earlier bodywork repairs were performed without original factory materials and replacement components and/or using procedures that did not comply with the manufacturer's specifications.
- ◆ paintwork defects stemming from individual neglect (lack of care and maintenance) or from accident damage that has not been repaired in accordance with the manufacturer's stipulations.



Wings

- ◆ The wing panel must be fully coated on the inside. One wet-in-wet spray pass is adequate for this.
- ◆ Vehicles with wheel housing liners must have additional anti-abrasive protection on the wheel arch
⇒ ["2.8 Corrosion protection measures for wing surface in contact with wheel housing liner", page 16](#) Genuine wings usually already feature sealing material.



Note

Before installing, seal inside of wheel arch and web plate with cavity sealant - D 330 KD 1 A2- .

Doors

- ◆ Doors must also be fully coated on the inside.
- ◆ The inside of the door is to be sealed with cavity sealant.

Hatches/bonnets/tailgates

- ◆ The procedure is the same as that for wings and doors.
- ◆ The inside should be treated with cavity sealant in this instance, too.

Welded parts

All welded parts, except the roof, must be fully primed and surfaced on the inside. The visible inner surfaces must be coated with one wet-on-wet spray pass and one spray pass of clear coat; if necessary, this should be done before welding in.

Bare weld flanges or damaged welded components must be coated with INOX spray or zinc spray beforehand. After painting, the cavities are to be fully protected with cavity sealant.

It is important to perform any required sealing operations only after carrying out the prescribed paintwork, to ensure maximum protection against corrosion!

All components that form enclosed sections, such as pillars, cross braces, side panels, etc., must be treated with cavity sealant. All standard parts that are coated with noise insulating or anti-chip material (e.g. wheel housing, floor panel, front/rear cross panels or outer side member) need to be coated as follows:

- ◆
- ◆ Wheel housings and underbody with spray-on seam seal
- ◆ Use foundation material to smooth over larger gaps and deeper layers.
- ◆ Coat sill panel area, bottom of side panel and corners of cross panels with anti-chip coating

Materials

- ◆ Underbody sealing wax - D 316 D38 A2-



2.11 Painting parking aid sensor

To avoid malfunctions in the parking aid sensor, always observe the following when painting:

Painting new parts

- ◆ Maximum layer thickness 125 µm; measurement of layer depth is essential following application of paint
- ◆ Maximum hardening temperature 1 hour at 90 °C

Painting used parts

- ◆ Remove old finish (sand) only as far as the primer
- ◆ Minimum layer depth of 5-10 µm must be observed
- ◆ Maximum layer thickness 125 µm; measurement of layer depth is essential following application of paint
- ◆ Maximum hardening temperature 1 hour at 90 °C

Electrical conductivity

- ◆ Do not allow paint or paint mist to enter connector; connector pin must continue to provide electrical contact after painting.

Cleaning

- ◆ Immersion in cleaning solutions without previous masking of the connector pins is prohibited.

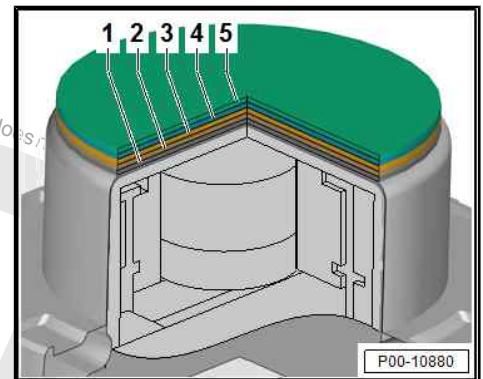
Functional check

- ◆ Connect vehicle diagnostic tester, and check proper operation
 ⇒ Electrical system, General information; Rep. gr. 97 ; Lines;
 Vehicle diagnosis, testing and information system .



Paintwork repair structure and layer depth

- 1 - Primed new part with replacement part primer: 2 - 10 µm
- 2 - Surfacer: 30 - 40 µm
- 3 - Unicolour base paint 10 - 20 µm
- 4 - Base coat metallic/pearl effect: 20 - 25 µm
- 5 - Clear coat: 35 - 50 µm

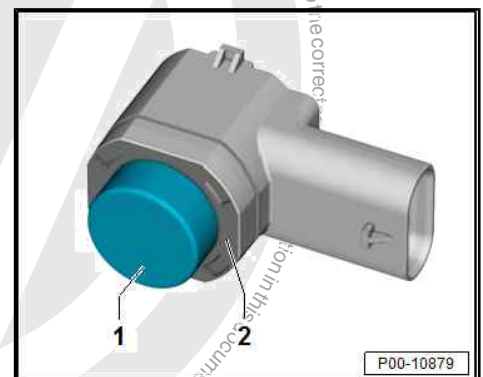


Note

In addition, observe ⇒ vehicle-specific paint information; Rep. gr. 00 ; Offset colours .

Painting area

- 1 - Only the front and side faces of the sensor membrane are to be painted. The painting area ranges from a minimum 3 mm to a maximum 4 mm from the front face of the membrane towards the rear.
- 2 - No paint is permitted in this area.



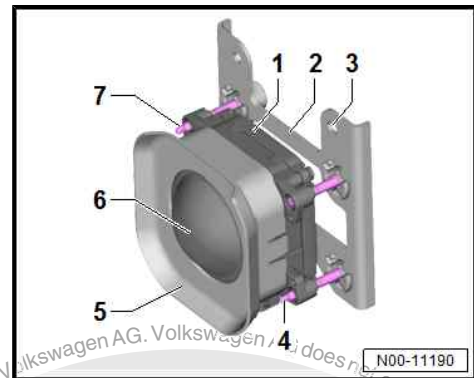


2.12 ACC - Adaptive Cruise Control



Note

- ◆ On vehicles with ACC, the trim in the right-hand cover of the front bumper must not be painted during a repair paint job or replacement. The ACC system located behind can become operational due to the thickness of the added paint layer.
- ◆ The cover over the distance control sensor in the bumper grille consists of radar-permeable material. The cover is heatable, in order to prevent functions from being impaired by snow and ice.
- ◆ All changes to the surface, such as retrospective paintwork, stickers and other retrospectively applied objects may result in functional impairment.



Adaptive cruise control unit - J428-

The illustration shows the adaptive cruise control unit - J428- on the Golf. The control unit on other vehicle models may differ from that shown in the illustration.

- 1 - Adapter plate
- 2 - Bracket
- 3 - Locating hole
- 4 - Vertical adjusting screw
- 5 - Trim
- 6 - Adaptive cruise control sender/adaptive cruise control unit
- 7 - Horizontal adjusting screw

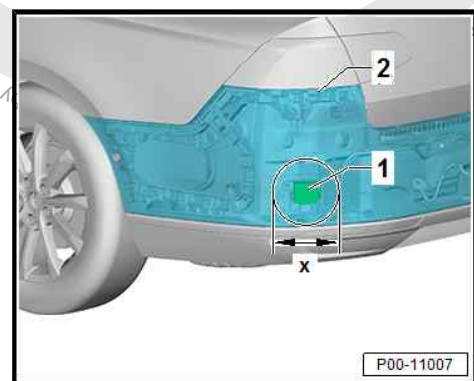
2.13 Instructions for painting bumper cover in area of lane change assist control unit

Bumper cover in area of lane change assist control unit

Diagram shows left side, right side is mirror image depending on vehicle model and equipment

To avoid malfunctions in the control unit (lane change assist) -1-, always observe the following parameters when painting the bumper cover -2-:

- ◆ In the area in front of the control units (lane change assist) -1-, the maximum layer thickness of 150 µm must not be exceeded.
- ◆ A plastic repair may not be carried out in this area measuring at least -x- = 25 cm.
- ◆ Filling/surfacing may not be carried out in this area measuring at least -x- = 25 cm.
- ◆ Triple painting of the bumper cover -2- is not permissible.
- ◆ Before proceeding with paint application, ensure by sanding down an adjacent area that the bumper cover -2- has not previously been repainted.
- ◆ A spot repair in the area in front of the control units (lane change assist) -1- is not permissible.





3 Genuine products

- ⇒ [“3.1 Paint products in customer service”, page 23](#)
- ⇒ [“3.2 General application instructions for repair and painting systems”, page 24](#)
- ⇒ [“3.3 Filler”, page 70](#)
- ⇒ [“3.4 Priming metal”, page 89](#)
- ⇒ [“3.5 Priming plastic materials”, page 101](#)
- ⇒ [“3.6 Surfer”, page 104](#)
- ⇒ [“3.7 Top coats”, page 151](#)
- ⇒ [“3.8 Clear coats”, page 196](#)
- ⇒ [“3.9 Hardener”, page 237](#)
- ⇒ [“3.10 Thinners”, page 246](#)
- ⇒ [“3.11 Anti-corrosion materials”, page 251](#)
- ⇒ [“3.12 Underseal”, page 256](#)
- ⇒ [“3.13 Stone deflector”, page 268](#)
- ⇒ [“3.14 Wax-based underseal”, page 275](#)
- ⇒ [“3.15 Sealing materials”, page 280](#)
- ⇒ [“3.16 Cleaning agents”, page 287](#)
- ⇒ [“3.17 SprayMax system”, page 292](#)
- ⇒ [“3.18 Additional materials”, page 351](#)

3.1 Paint products in customer service



Note

- ◆ *Please note that the Volkswagen Group prescribes exclusive use of genuine Volkswagen products ¹⁾ or products of paint suppliers which are approved by the manufacturer according to manufacturer specifications for any warranty-related repair work. Only these products comply with the requirements for a continued warranty on the paintwork structure.*
- ◆ *If there are complaints related to paint work performed using the products of paint suppliers which are approved by the manufacturer, the warranty claims must be submitted (via the importer) to the respective paint supplier.*

1) In Germany only genuine Volkswagen products must be used.



3.2 General application instructions for repair and painting systems

⇒ [“3.2.1 Aqua Premium - application instructions for water-based products”, page 24](#)

⇒ [“3.2.2 Setting gloss level of HS clear coats and HS top coats with matting additive”, page 27](#)

⇒ [“3.2.3 Setting gloss level of 2-pack HS clear coats with 2-pack clear coat, matt”, page 35](#)

⇒ [“3.2.4 Repair paintwork system for matt-finished vehicles”, page 36](#)

⇒ [“3.2.5 Paintwork system for plastic components”, page 41](#)

⇒ [“3.2.6 Aqua Premium system, blending system for 2-stage colours”, page 48](#)

⇒ [“3.2.7 Aqua Premium system, blending system for 3-stage colours”, page 54](#)

⇒ [“3.2.8 Aqua Premium system, product preparation for processing”, page 61](#)

⇒ [“3.2.9 Aquaplus design and multi-colour painting”, page 66](#)

⇒ [“3.2.10 Processing instructions for paint with limited hiding power”, page 70](#)

3.2.1 Aqua Premium - application instructions for water-based products

Issue 02.2018

When using water-based products always devote scrupulous care to the substrate preparations before pretreating with the materials specifically recommended for use with water-based products.

Substrate

Substrate pre-treatment:

- ◆ Clean metallic substrates preferably with nitrocellulose thinner - LVE 856 000 A3- .
- ◆ Use silicone remover - LSW 019 000 A5- to clean sanded surface surfaces and old paint.
- ◆ Pretreat plastic surfaces thoroughly according to ⇒ [“3.2.5 Paintwork system for plastic components”, page 41](#) , and then clean it again using silicone remover - LSW 019 000 A5- before proceeding with subsequent work.

Masking

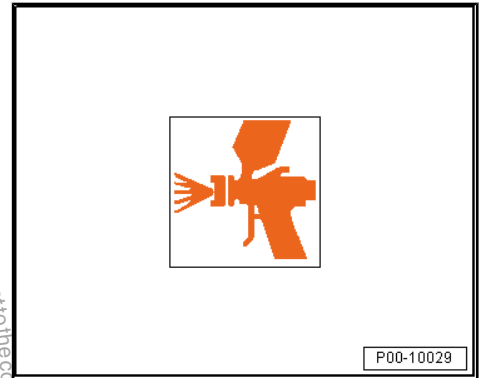
Use only commercially available, waterproof masking tape and water-resistant glued masking paper or plastic cover sheets.



Spray guns/spraying systems

Suitable spray guns: spraying pressure 1.8 - 2.0 bar input pressure.

- Adjusting spray jet (see manufacturer's specifications): "Devilbiss GTI-Pro T110" 1.2 mm (standard).
- Adjusting spray jet (see manufacturer's specifications): "Devilbiss GTI-Pro Lite TE20" 1.2 mm (standard).
- Adjusting spray jet (see manufacturer's specifications): "Devilbiss GTI-Pro T1" 1.2 mm (standard).
- Adjusting spray jet (see manufacturer's specifications): "Devilbiss GTI-Pro T2" 1.2 mm (standard).
- Adjusting spray jet (see manufacturer's specifications): "IWA-TA WS 400 EVOTECH 1.3 OBS" (standard).
- Adjusting spray jet (see manufacturer's specifications): "IWA-TA W 400 WBS 1.2 / 1.2 W" (standard).
- Adjusting spray jet (see manufacturer's specifications): "SATA RP 3000 1.2" (standard).
- Adjusting spray jet (see manufacturer's specifications): "SATA RP 4000 1.2 / RP 1.2W" / "SATA RP 5000 1.2 / RP 1.2W" (standard).



Note

Alternating application of water-based and conventional products using a spray gun/spraying system is not recommended. The components that come in contact with the application medium in spray guns/spray systems employed in the application of water-based products must be made of corrosion-resistant materials (stainless steel, plastic).

Mixing /Adjusting vessels

Only containers in plastic or in tin with an inside coating are approved for mixing and adjusting viscosity on water-based products.

Material temperature

Since the viscosity and the application behaviour of water-thinned products depends on the material temperature, ensure that the water-based products have a temperature of between +18°C and +35°C at the time of adjusting the viscosity or the time of application.

Application

The handling of water-based products is in essence influenced by temperature and humidity. This influence can limit or even prevent application, if certain preconditions are not present or met. In the application window for water-based products, the key points are identified.

To ensure optimum application at different climatic conditions and object sizes, the following table provides a recommendation for the use of additive for Aqua Premium - LVM 035 200 A3- or additive for Aqua Premium - LVM 035 301 A3- .

Table for different climates

- ◆ Use of the table for different climates for selecting the correct Aqua-Premium additive
- ◆ Take the scope of repairs into account



- ◆ Major repairs may require longer adjustment
- ◆ Read booth temperature in painting mode
- ◆ Check relative humidity in booth using hygrometer



Note

- ◆ *Only for metallic paint and mother-of-pearl effect paint and for a relative humidity of 65% 30% of additive for Aqua-Premium - LVM 035 200- may be added.*
- ◆ *For smaller to medium sized repair scopes and a relative humidity between 30 to 70%, the standard additive for Aqua-Premium - LVM 035 200- must be used.*
- ◆ *For a low relative humidity below 30% and larger repair scopes, the extended additive for Aqua-Premium - LVM 035 301- must be used. It is also well suited for high temperatures in combination with medium to low humidity and helpful for large surfaces with low humidity, regardless of temperature.*
- ◆ *For low humidity combined with high temperatures, demineralised water may be added - LVW 010 000- .*
- ◆ *Demineralised water - LVW 010 000- is also helpful for large surfaces with low humidity, regardless of temperature.*

°C in booth	Relative humidity in %	0 - 30%	31 - 42 %	31 - 64 %	43 - 64 %	65 - 90 %
10 - 15°C		-	-	-	-	-
15 - 30 °C		20% -LVM 035 301-	-	20% -LVM 035 200-	-	30 % -LVM 035 200-
30 - 55 °C		20% -LVM 035 301- / 10% -LVW 010 000-	20% -LVM 035 301-	-	20% -LVM 035 200-	30 % -LVM 035 200-

Properties for standard additive - LVM 035 200-

- ◆ Addition of 30% for metallic and mother of pearl colour tones if relative humidity is above 65%.
- ◆ Suitable for small to medium repairs and a humidity of between 30-70%.

Properties for additive - LVM 035 301- , long

- ◆ Suitable for more major repairs and low humidity below 30%.
- ◆ Suitable at high temperatures in combination with medium to low humidity.
- ◆ Suitable for large surface areas and low humidity, irrespective of the temperature.

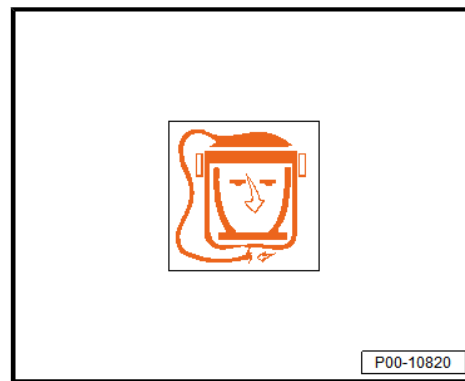
Properties for VE water - LVW 010 000-

- ◆ Addition at very low humidity in combination with high temperature.
- ◆ Suitable for large surface areas and low humidity, irrespective of the temperature.



Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.2 Setting gloss level of HS clear coats and HS top coats with matting additive

Issue 05.2016

The gloss level of HS clear coats and HS top coats is set by mixing them with matting additive - LVM 769 810 A2- for plastic and metal substrates.

The information on the factors that influence gloss level contained in these instructions is intended to assist the technician in obtaining the desired gloss level, even under varying working conditions.

Area of application

- ◆ For small and add-on parts

Usable products

- ◆ Matting additive - LVM 769 810 A2-
- ◆ 2-pack HS clear coat - L2K 769 500 A5-
- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5-
- ◆ 2-pack HS Vario clear coat - L2K 769 K01 A2-
- ◆ 2-pack HS performance clear coat - LZK 769 K06 A5-
- ◆ 2-pack HS optimum plus clear coat - LZK 769 K07 A5-
- ◆ 2-pack HS mixture paint/top coat - L2K 074/073 ...-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-
- ◆ 2-pack slow-drying VHS hardener - LHA 009 052...-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack thinner, special - LVM 009 200 ...-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ Clear coat additive - LVM 007 000 A2-

Gloss setting/matting

Refer to system information

⇒ ["3.2.4 Repair paintwork system for matt-finished vehicles", page 36](#) .

Refer to technical data sheet

⇒ ["3.18.2 Matting additive LVM 769 810 A2", page 357](#) .

The actual gloss level achieved is influenced by a number of factors apart from differences relating to the colour shade.



While other hardeners or thinners not described in this data sheet may also be used, they may result in different gloss levels (up to 20 %) in the same way as different application types, drying conditions and layer thicknesses do.

Higher gloss	Low gloss
Faster-drying hardener	Slow-drying hardener
Faster-drying thinners	Slower-drying thinners
Higher application viscosity	Higher application viscosity
Higher dry layer thickness	Lower dry layer thickness
Shorter flash-off time	Longer flash-off time
Forced drying	Air drying



Note

It is absolutely necessary to use spray samples prior to application in order to achieve the gloss level that matches the vehicle. Measuring the gloss level (at an angle of 60°) on adjacent components may also be helpful.

Mixture table for 2-pack HS clear coats

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	73 g	65 g	59 g	56 g
2-pack HS clear coat - L2K 769 500-	27 g	35 g	41 g	44 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.

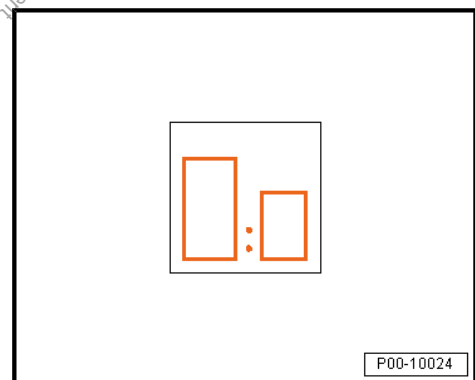
Mixing with HS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810-, the mixture must be mixed with HS hardener at a ratio of 2:1. Ready to spray without the addition of thinner.

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	68 g	59 g	54 g	52 g
2-pack HS clear coat - L2K 769 500-	32 g	41 g	46 g	48 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.





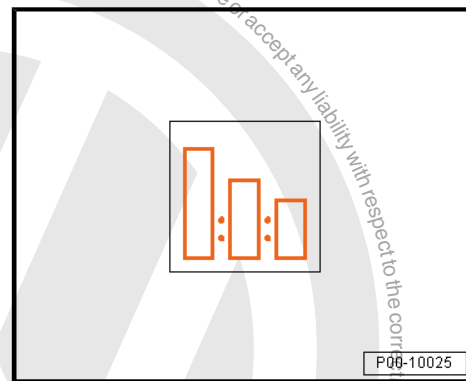
Mixing with VHS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 15 % thinner.

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	72 g	66 g	59 g	53 g
2-pack HS brilliant plus clear coat - L2K 769 K05-	28 g	34 g	41 g	47 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.



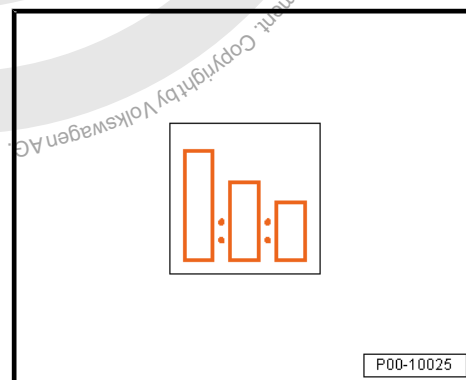
Mixing with VHS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 5% clear coat additive - LVM 007 000 A2- .

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	70 g	61 g	56 g	51 g
2-pack HS Vario clear coat - L2K 769 K01-	30 g	39 g	44 g	49 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.





Mixing with HS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with HS hardener at a ratio of 2:1. Ready to spray without the addition of thinner.

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	68 g	60 g	55 g	51 g
2-pack HS Vario clear coat - L2K 769 K01	32 g	40 g	45 g	49 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.

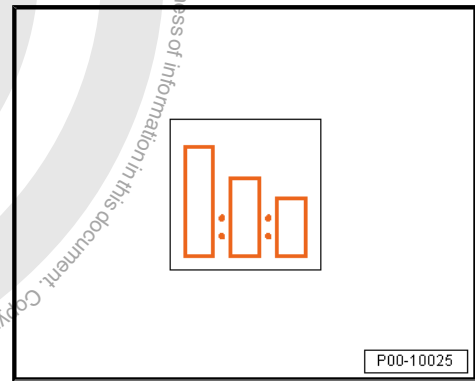
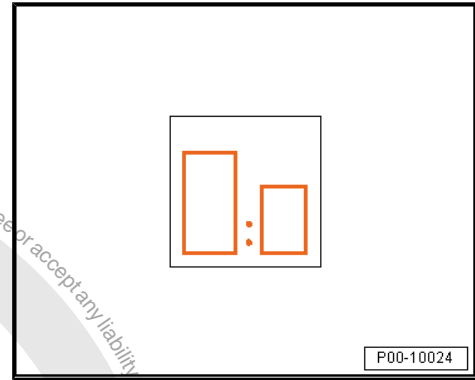
Mixing with VHS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 15 % thinner.

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	71 g	64 g	52 g	44 g
2-pack HS performance clear coat - L2K 769 K06-	29 g	36 g	48 g	56 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.





Mixing with VHS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 5% clear coat additive - LVM 007 000 A2- .

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting ad- ditive - LVM 769 810-	71 g	65 g	58 g	41 g
2-pack HS optimum plus clear coat - L2K 769 K07-	29 g	35 g	42 g	59 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.



Mixing with VHS hardener

- After the clear coat has been mixed with matting additive - LVM 769 810- , the mixture must be mixed with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 10 % thinner.

Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting ad- ditive - LVM 769 810-	65 g	57 g	50 g	44 g
2-pack HS mixture paint, white - L2K 074	35 g	43 g	50 g	56 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.





Mixing with VHS hardener

- After the matting additive - LVM 769 810- has been mixed with HS top coat, the mixture must be cross-linked with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 15 % thinner.

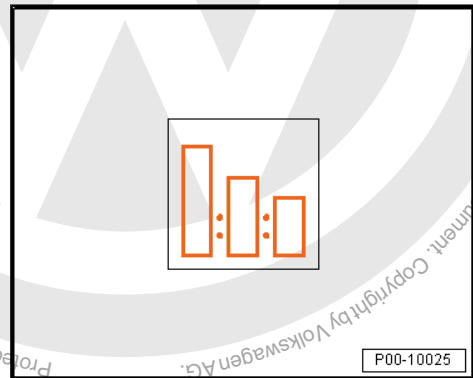
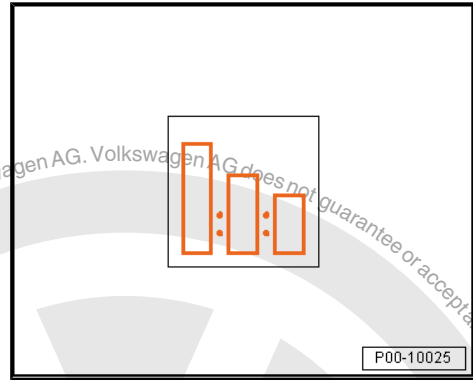
Gloss levels

	Matt < 20% *	Satin-matt < 40% *	Satin-gloss < 60% *	Glossy < 80% *
Matting additive - LVM 769 810-	71 g	58 g	51 g	31 g
2-pack HS mixture paint, black - L2K 074 ...-	29 g	42 g	49 g	69 g

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.

Mixing with VHS hardener

- After the matting additive - LVM 769 810- has been mixed with HS top coat, the mixture must be cross-linked with VHS hardener at a ratio of 4:1. Ready to spray after the addition of 15 % thinner.

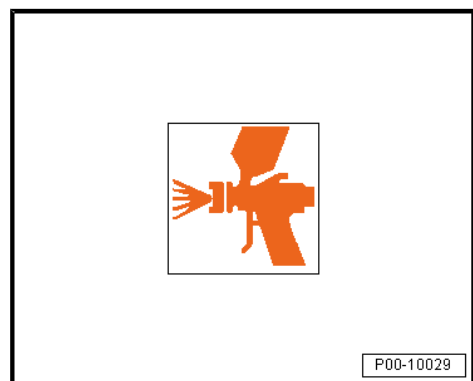


Application

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

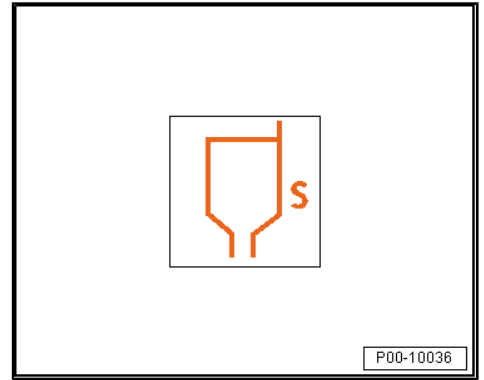
Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVL P"



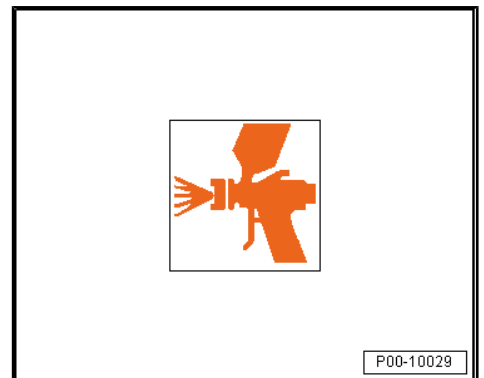
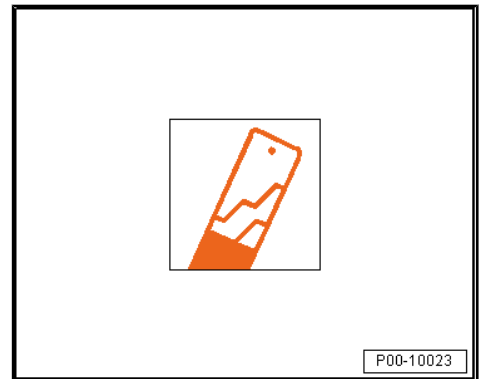


DIN 4 mm: 16-20 seconds

- Addition of thinner at material temperature of +20 °C: depending on product used



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVL P" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVL P" 0.7 bar.





- Apply in 2 spray passes with a flash-off time of 5 to 10 minutes between the passes. The first coat is applied with restraint, but still uniformly (observe application instructions).

Recommended dry film thickness is 60-80 µm.

Application instructions

To achieve the best possible and homogeneous matting effect, the following points should be adhered to during application:



Note

- ◆ *The spraying distance to the object is somewhat greater than the standard application in order to use the spray atomisation to its fullest effect. (Prevents streaking)*
- ◆ *It must be ensured that "spray passes" feathered edge evenly and an adequately wet spray film is applied. Application in excessively dry conditions poses the risk of clouding due to uneven flash-off or due to the spray mist not being absorbed.*
- ◆ *For paint with poor covering properties, it may be necessary to apply another spray pass after a suitable flash-off time.*
- ◆ *Blending or refinishing the matt clear coat within a part, e.g. a side part, or speed repair is not possible.*

Drying

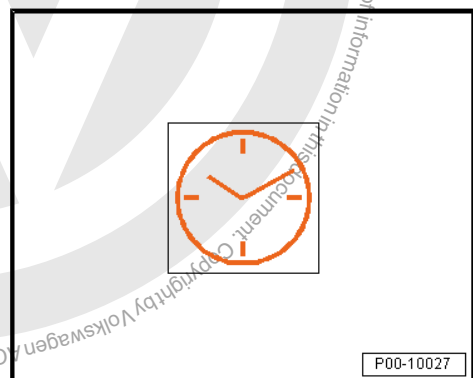
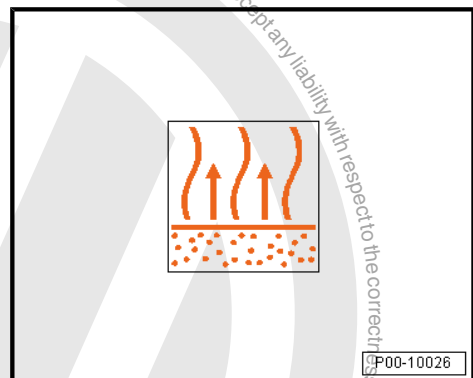
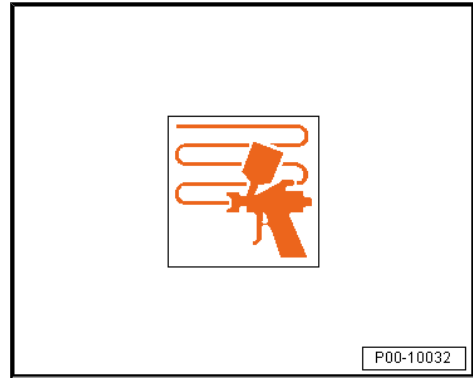
- Final flash-off time with force drying is 15 to 20 minutes.

- Force drying at +60 to 65°C material temperature in 45 minutes.



Note

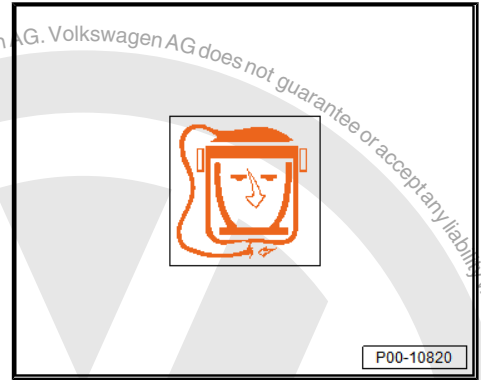
- ◆ *It is not necessary to add 2-pack plasticizer additive - ALZ 011 001-.*
- ◆ *Shake or stir the matting additive - LVM 769 810 A2- well in the can. Then mix the matting additive with HS clear coat or HS top coat according to the respective specifications. Add the hardener and the thinner right before application.*
- ◆ *The ready-to-spray mixture should be applied immediately. If the mixture is left to stand in the mixing cup or spray gun cup for a longer period of time (15 min.), it must be stirred again prior to further application (sedimentation behaviour).*
- ◆ *Adding matting additive - LVM 769 810 A2- might influence the concealing capacity.*
- ◆ *It is not possible to polish out dust inclusions so cleanliness during the entire refinishing process is of utmost importance.*





Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.3 Setting gloss level of 2-pack HS clear coats with 2-pack clear coat, matt

Issue 05.2016

Set different gloss levels of 2-pack HS clear coats by mixing with 2-pack HS matt clear coat - L2K 769 020 A2 - for plastic substrates.

The information on the factors that influence gloss level contained in these instructions is intended to assist the technician in obtaining the desired gloss level, even under varying working conditions.

While other hardeners not described in these instructions may also be used, they may lead to other gloss levels.

Usable products

- ◆ 2-pack HS clear coat - L2K 769 500 A5-
- ◆ 2-pack HS matt clear coat - L2K 769 020 A2-
- ◆ 2-pack HS Vario clear coat - L2K 769 K01 A5-
- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack VHS hardener - LHA/LVM 009 051...-
- ◆ 2-pack slow-drying VHS hardener - LHA 009 052...-

Setting gloss level

The actual gloss will, yet again, be defined by various factors.

The use of different hardeners, thinners, application methods, drying conditions and film thicknesses will result in different gloss levels (up to 20%).

The following scenario demonstrates some of the parameters and their effects on the gloss level.

Higher gloss	Low gloss
Hardener with higher solid proportion	Hardener with lower solid content
Faster-drying hardener	Slow-drying hardener
Faster-drying thinners	Slower-drying thinners
Higher application viscosity	Higher application viscosity
Higher dry layer thickness	Lower dry layer thickness
Shorter flash-off time	Longer flash-off time
Forced drying	Air drying



Mixture table for 2-pack HS clear coats

Gloss levels

Gloss levels = 1 operation

	Silk matt 40 units *	Semi-gloss 60 units *	Mixing ratio of hardener
2-pack HS matt clear coat - L2K 769 020 A2-	900 g	850 g	2:1 by volume with HS hardener (ready to spray)
2-pack HS Vario clear coat - L2K 769 K01 A5-	100 g	150 g	2:1 by volume with HS hardener (ready to spray)

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.

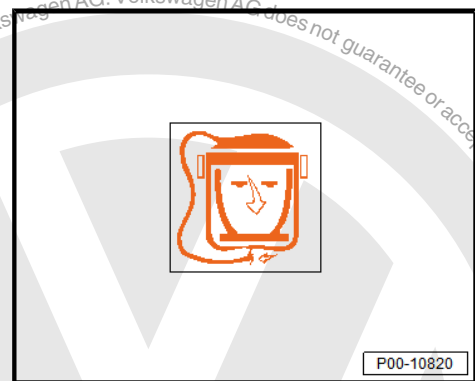
Gloss levels = 1 operation

	Silk matt 40 units *	Semi-gloss 60 units *	Mixing ratio of hardener
2-pack HS matt clear coat - L2K 769 020 A2-	920 g	900 g	2:1 by volume with HS hardener (ready to spray)
2-pack HS clear coat - L2K 769 500 A5-	80 g	100 g	2:1 by volume with HS hardener (ready to spray)

* Since these designations are not standardised, the indicated gloss levels cannot be regarded as binding and are only approximate values commonly used throughout the market.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.4 Repair paintwork system for matt-finished vehicles

Issued 04.13

The repair paintwork system for matt-finished vehicles is outlined below. Area of use: larger areas/full painting operations

Application

- ◆ Metal substrate
- ◆ Plastic
- ◆ Partial painting/full painting



◆ Painting of matt-finished vehicles

Substrate

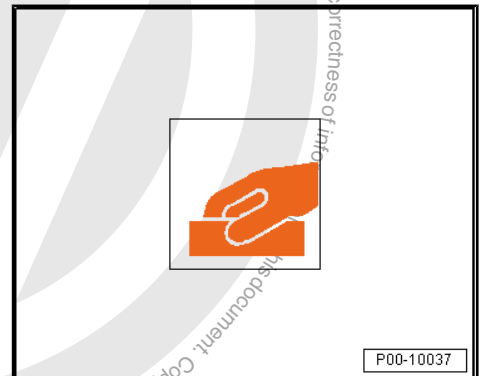
Suitable substrates:

- ◆ Sheet steel
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Lightly sanded factory primer
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

Pretreatment/cleaning

- Carefully clean with silicone remover, slow-drying - LVM 020 100 A5- or silicone remover - LVM 020 000 A5- .

- Then, sand substrate.





- Use a suitable cleaning agent to ensure a clean, residue-free surface prior to reworking.

Approved products

Filler:

- ◆ 2-pack spray filler - ALN 788 007-
- ◆ 2-pack IR premium filler - LSP 787 220-
- ◆ Fine filler - LSP 784 002 A2-

Primer/primer surfacer:

- ◆ 2-pack primer surfacer for plastics, white/black - LKF 696 009/040 A2-
- ◆ Glazed adhesion promoter - ALO 822 000 10-
- ◆ 2-pack wash primer - LHV 043 000 A2-
- ◆ 1-pack wash primer, light grey/dark grey - LVM 044 007/171 A2-

Surfacer:

- ◆ 2-pack HS premium surfacer - LGF/LVM 013 ...A4-
- ◆ 2-pack HS Vario surfacer - LGF 786 004 A4-

Plasticizer:

- ◆ 2-pack plastic additive - ALZ 011 001- (for all 2-pack HS surfacers used on plastic components)

Top coat:

- ◆ 2-pack HS clear coat - L2K 769 500 A5-

Matting

- ◆ Matting additive - LVM 769 810 A2-

Observe the application instructions for the respective genuine products ⇒ **"3 Genuine products", page 23** .

Mixing/matting of clear coat

- Mix component A + component B (matting additive - LVM 769 810 A2- + 2-pack HS clear coat - L2K 769 500 A5-).

Mixing ratio:

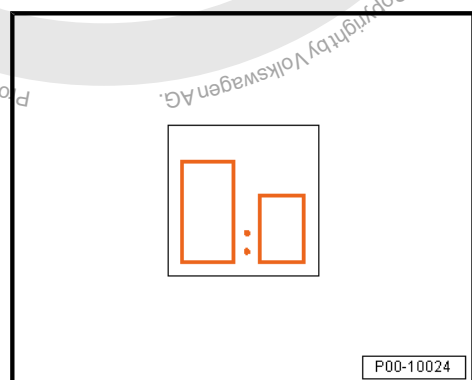
Depending on the desired gloss level, the matting additive - LVM 769 810 A2- and the 2-pack HS clear coat - L2K 769 500 A5- are mixed at a weight ratio of 75:25% or 70:30%.



Note

Shake or stir the matting additive - LVM 769 810 A2- well in the can. Mix components A and B thoroughly and do not add hardener and thinner until just before use. The ready-to-spray mixture should be applied immediately. If the mixture is left to stand in the mixing cup or spray gun cup for a longer period of time (15 min.), it must be stirred again prior to further application (sedimentation behaviour).

Addition of hardener to component A + B





- 4:1 by volume with 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-

Thinner:

- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-

Pot life:

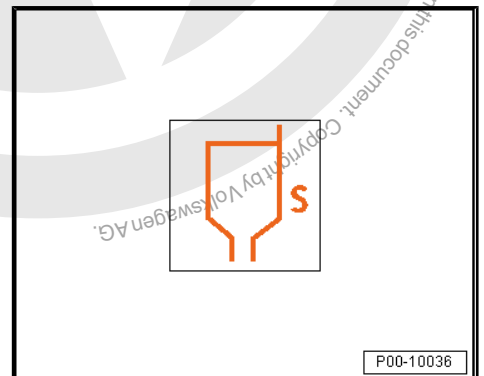
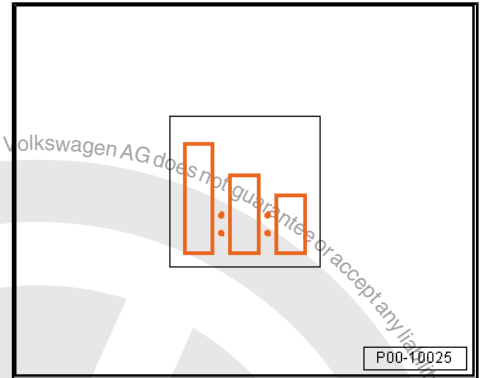
Ready-to-spray preparation 60–75 minutes processing time at +20°C.

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity feed spray gun "Compliant" and "HVLP"

DIN 4 mm: 16-20 seconds





- Add 10% thinner at +20°C material temperature.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- Apply in 2 spray passes with a flash-off time of 10 to 15 minutes between the passes.

The specified dry film thickness is 70 to 90 µm.

Application:

To achieve the best possible and homogeneous matting effect, the following points should be adhered to during application:

The spraying distance to the object is somewhat greater than the standard application in order to use the spray atomisation to its fullest effect. (Prevents streaking)

If possible, making the two spray passes crosswise is also advantageous with horizontal component parts, such as the bonnet.

When used on large objects, such as the vehicle's bonnet or roof, the featheredge of the 2nd spray pass is to be offset from the featheredge of the 1st spray pass.

It must be ensured that »spray passes« featheredge evenly and an adequately wet spray film is applied.

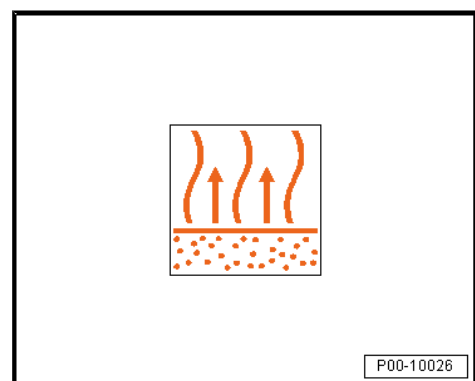
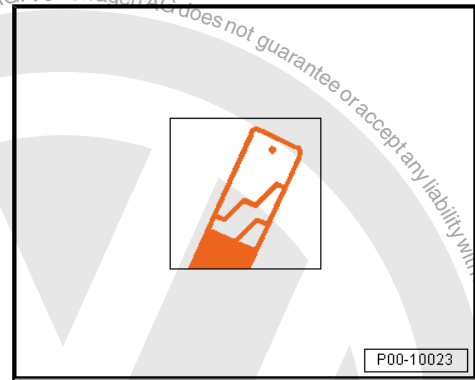
Application in excessively dry conditions poses the risk of clouding due to uneven flash-off or due to the spray mist not being absorbed.

Where possible, the complete paintwork should be split into sections, i.e. the vehicle body is painted separately from the add-on components (hoods, doors etc.) in order to avoid featheredges and spray mist.

Drying:

Forced drying:

- Final flash-off time 15-20 minutes



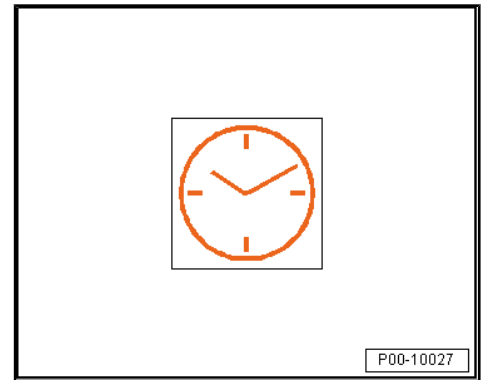


- Drying time 45 minutes at +60°C object temperature

Air drying is not recommended

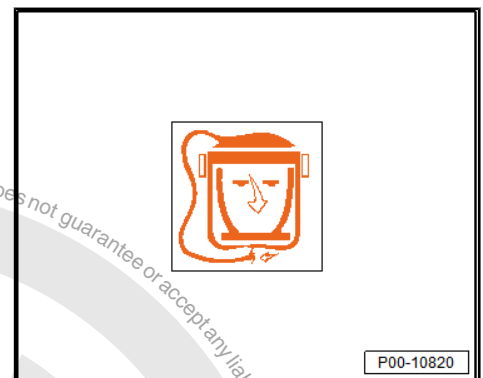
Note

- ◆ *The gloss level that is actually achieved is influenced by a range of factors such as different hardeners, thinners, application types, drying conditions and layer thicknesses.*
- ◆ *The recommended material settings must always be adhered to.*
- ◆ *It is absolutely essential that sample panels are created for the mixture 75/25% or 70/30% in order to achieve the gloss level appropriate to the vehicle. Interim steps are also possible.*
- ◆ *Measuring the degree of gloss (at an angle of 60°) on adjacent parts may also be helpful.*
- ◆ *Blending or refinishing the matt clear coat within a part, e.g. a side part, or speed repair is not possible.*
- ◆ *Large-area paintwork (full painting operations, roof, bonnets, side wall etc.) should not be carried out at higher temperatures (max. 20°C).*
- ◆ *It is not possible to polish out dust inclusions so cleanliness during the entire refinishing process is of utmost importance.*



Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.5 Paintwork system for plastic components

Issue 03.2010

This universal system allows simple and reliable painting of all external plastic components in standard applications. (Synthetic types: PP, EPDM, ABS, PC, PPO, PBTP, UP-GF, PA, PVC, R-TPU, PUR). This technical data sheet is not applicable for factory-primed plastic components.

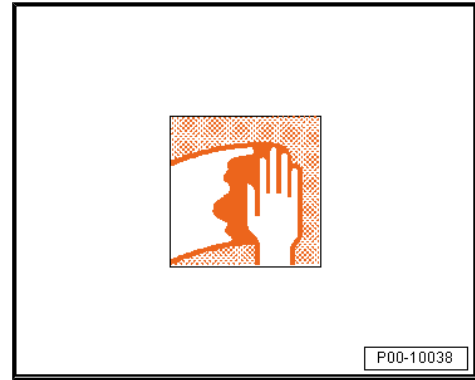
Substrate

Preparing the substrate:



- The substrate must be free of release agents. Before cleaning plastic part, temper for 60 minutes at +60°C to sweat out the separating agents.
- Clean with anti-static plastic cleaner - LKR 001 001 A3- or with the milder slow-drying silicone remover - LSE 20 100 A3- .

The extent of the cleaning required will vary according to the type and quantity of separator used. It is recommended that a sanding pad be used to help cleaning. Allow the thinner to evaporate well (e.g. air-dry overnight at room temperature or 30-40 minutes at +60°C).





- Before priming, clean lightly again using anti-static plastic cleaner - LKR 001 001 A3- or slow-drying silicone remover - LSE 20 100 A3- .

Paintwork structure for unprimed plastic components

Priming:

To ensure reliable adhesion plastics must be primed following thorough cleaning. There are two options:

1. - Prime with 2-pack primer surfacer for plastics, white - LKF 696 009- or with 2-pack primer surfacer for plastics, black - LKF 696 040- . The 2-pack primer surfacer for plastics, white - LKF 696 009- and the 2-pack primer surfacer for plastics, black - LKF 696 040- can be recoated with top coat right away.

2. - Prime with transparent adhesion promoter - ALO 822 000 10- , and then fill with plasticized 2-pack HS surfacer. Proceed with top coat and clear coat.

In case of damage:

- Small scratches can be filled with 2-pack fine filler - LSP 784 002 A2- after priming.

- Isolate the filled surface after sanding:

1. - With 2-pack primer surfacer for plastics, white - LKF 696 009- or with 2-pack primer surfacer for plastics, black - LKF 696 040- .

2. - Prime with transparent adhesion promoter - ALO 822 000 10- , and then fill with plasticized 2-pack HS surfacer. Proceed with top coat and clear coat.

For information on the application instructions, flash-off times and drying times, refer to the technical data sheet:

◆ ⇒ ["3.6.4 2-pack primer surfacer for plastics", page 126](#)

◆ ⇒ ["3.5.1 Adhesion promoter \(transparent\)", page 101](#)

◆ ⇒ ["3.7 Top coats", page 151](#)

◆ ⇒ ["3.8 Clear coats", page 196](#)

Use of 2-pack plasticizer additive - ALZ 011 001- in 2-pack HS surfacers:

- ◆ 15 % on semi-rigid and rigid plastics
- ◆ 30 % on highly flexible plastics

Refer to technical data sheet of the respective surfacer for information on the application ⇒ [page 104](#) .



Note

Painted plastic parts must not be cleaned with a high-pressure cleaner during the first 6 weeks. Even then the minimum distance between the nozzle and the object is 30 cm.

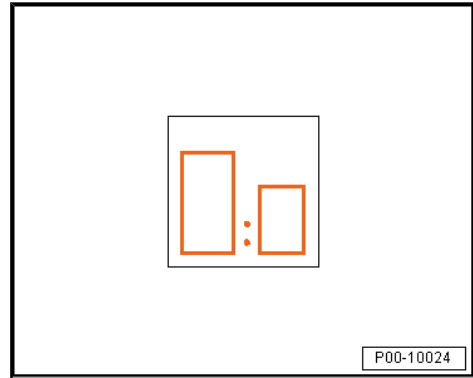
One-coat painting

Top coat:



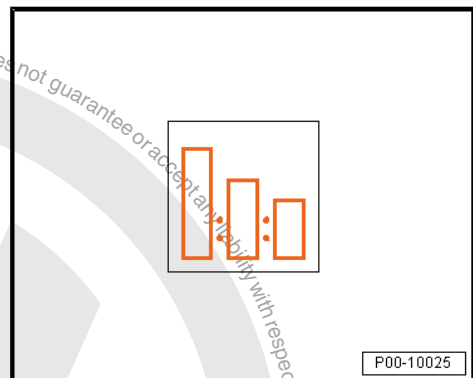


- Mix 2-pack HS top coat with 15% 2-pack plasticizer additive - ALZ 011 001- , and then cross-link this mixture.

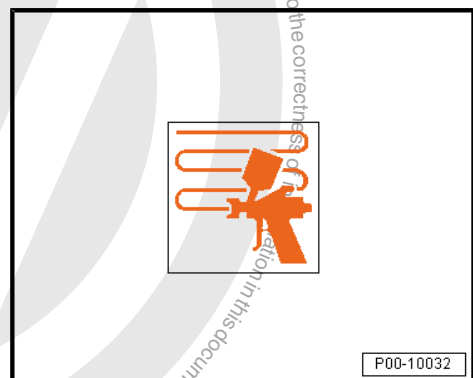


- Mixing ratio 3:1 with 2-pack VHS hardener and 15% special 2-pack thinner - LVM 009 200 A2- .

Application:



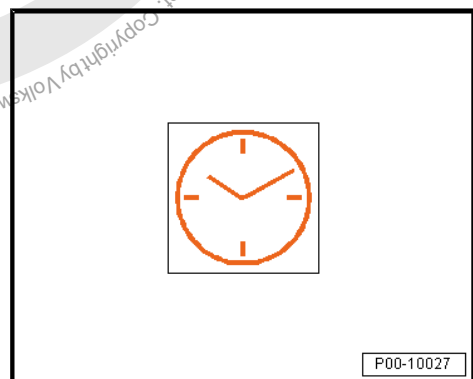
- Apply in one-and-a-half coats.



- Air dry overnight at +20°C, or after 5-10 minutes of final flash-off time for 30-40 minutes at +60°C. If 2-pack plasticizer additive - ALZ 011 001- is used, the drying times are longer.

Two-coat paintwork - non-metallic, metallic, pearls

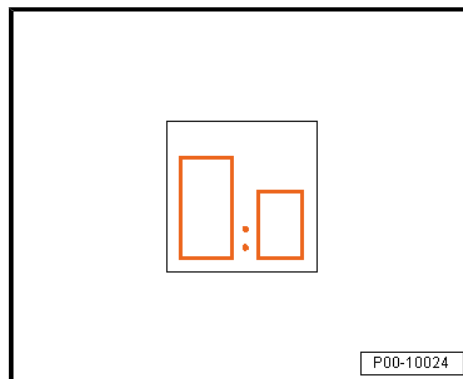
Base coats:





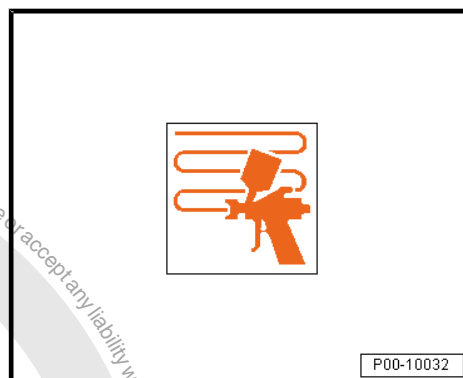
- Water-based base coat with 10% demineralised water - LVW 010 000 A5- .

Application:



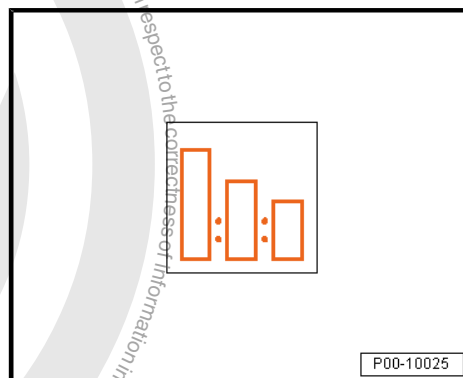
- Apply in one-and-a-half coats.

Clear coats:



- Mix 2-pack HS clear coats with 2-pack plasticizer additive - ALZ 011 001- .

Application:



- According to relevant technical data sheet for the clear coat => ["3.8 Clear coats", page 196](#) .

Drying:





- Air dry overnight at +20°C, or after 10 minutes of final flash-off time for 40-45 minutes at +60°C. If 2-pack plasticizer additive - ALZ 011 001- is used, the drying times are longer.

Painting satin-gloss colour hues

One-coat painting; top coat:

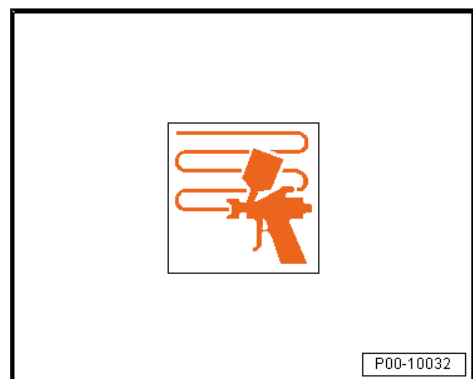
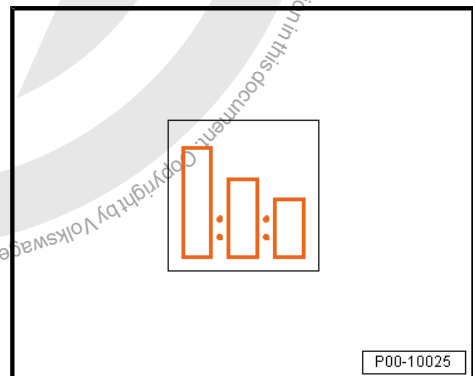
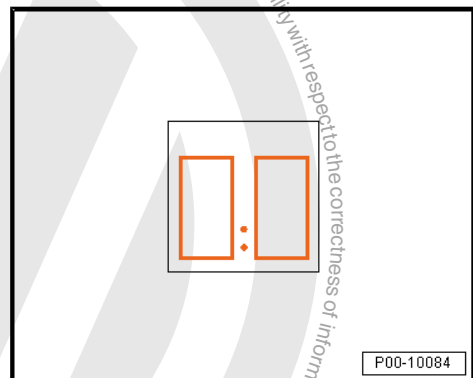
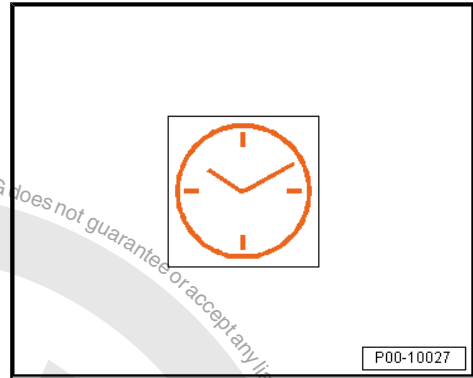
- Mix 2-pack HS top coat at a ratio of 1:1 with 2-pack matting additive - ALN 775 106- , and then cross-link this mixture.

- Mixing ratio 4:1 with 2-pack VHS hardener and 15% special 2-pack thinner - LVM 009 200 A2- .

Application:

- To achieve a uniform paint film surface, apply 2 spray passes with 5-10 minutes interim flash-off time.

Drying:





- Air dry overnight at +20 °C, or after 5-10 minutes final flash-off time 30-40 minutes at +60 °C

Painting colour shades with textured effect

One-coat painting; top coat:

- Mix 2-pack HS top coat at a ratio of 1:1 with 2-pack coarse/ fine texture additive - ALN 775 107/108- , and then cross-link this mixture.

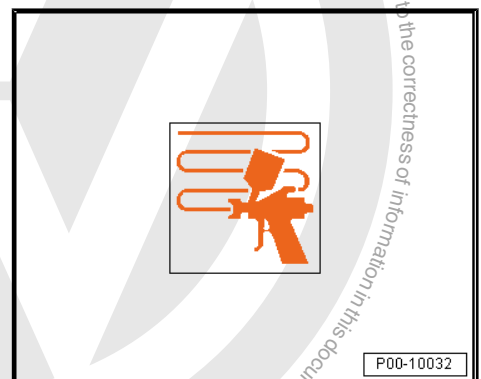
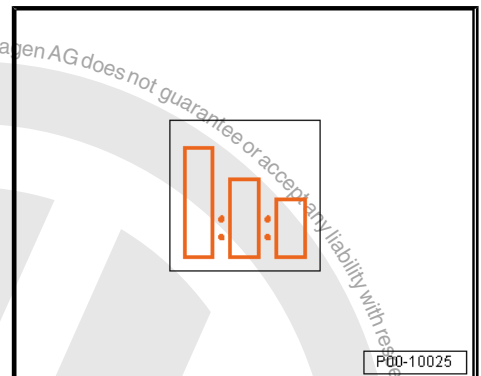
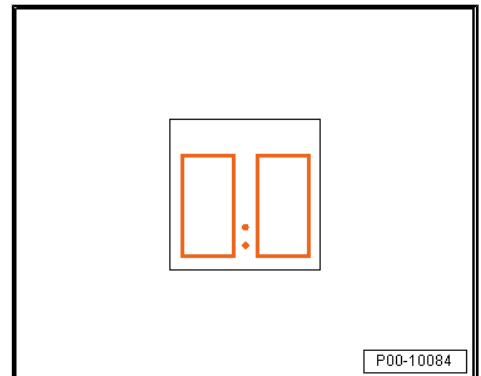
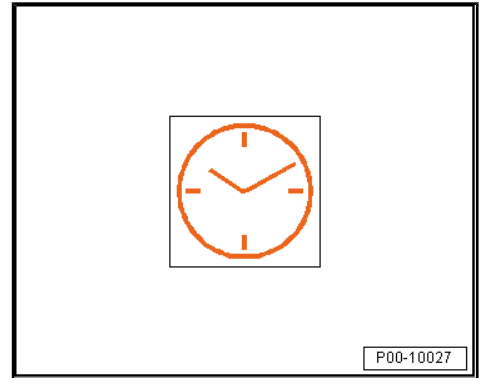
- Mixing ratio 4:1 with 2-pack VHS hardener and 15% special 2-pack thinner - LVM 009 200 A2- .

Application:

- 2 spray passes:

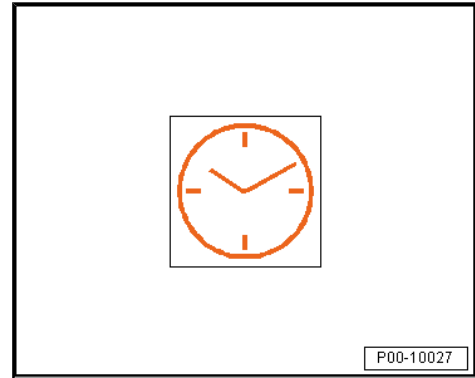
1st spray pass, normal application, 5-10 minutes flash-off time

2nd spray pass adapted to desired texture



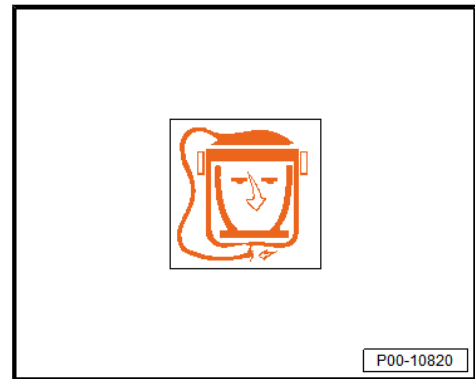


- Air dry overnight at +20 °C, or after 5-10 minutes final flash-off time 30-40 minutes at +60 °C



Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.6 Aqua Premium system, blending system for 2-stage colours

Issue 02.2018

Product description/objectives

- ◆ To attain visually perfect colour transition in blending area or to adjacent parts such as wings or doors.

Technical data sheet

- ◆ Fast, easy to use system
- ◆ Versatile in use (interior, multi-stage and multi-colour finishes)
- ◆ Very reliable colour match and uniform effect formation
- ◆ High coverage
- ◆ Short process times
- ◆ Easy and reliable blending

Substrate

Suitable substrates:

- ◆ 2-pack HS surfacer, sanded and cleaned
- ◆ 2-pack HS surfacer, not sanded with wet-on-wet processing
- ◆ Intact old paint
- ◆ Prime plastic surfaces with transparent adhesion promoter - ALO 822 000 10- , and then fill with plasticized 2-pack HS surfacer.



Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



P00-10038

- Dry sanded with P500 - 600 grit sandpaper.



P00-10040

Or:

- Dry sanded with P800 - 1000 grit sandpaper.



Note

Use an emery pad to sand swage lines, edges or door-handle recesses during preparation work.



P00-10037

Cleaning

- Thoroughly clean whole surface with silicone remover - LVM 020 000 A5- to remove any dust, paint residue from sanding or any other impurities.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.

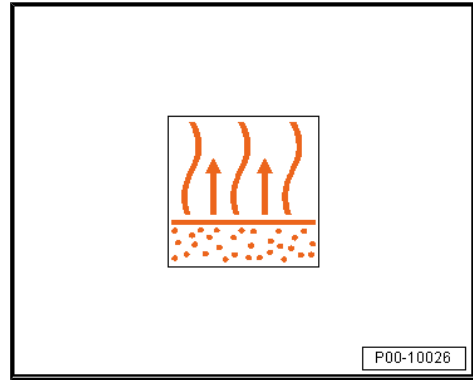


P00-10038

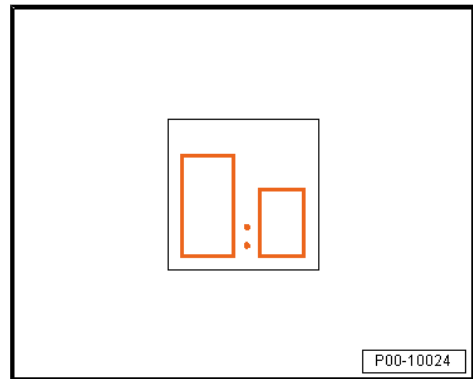


– Allow clean surfaces to dry completely.

Tack cloths of the latest generation with an effective adhesion formula, e.g. duster - VAS 6177-) to minimise the risk of chemical or sticky residue ⇒ [“4.2.1 Tack cloth VAS 6177”, page 379](#) .



Mixing ratio



		Base coat	Additive
		AquaPremium	-LVM 035 200 / 301-
Standard	Effect colours	100	20%
Standard	Unicolours	100	10%

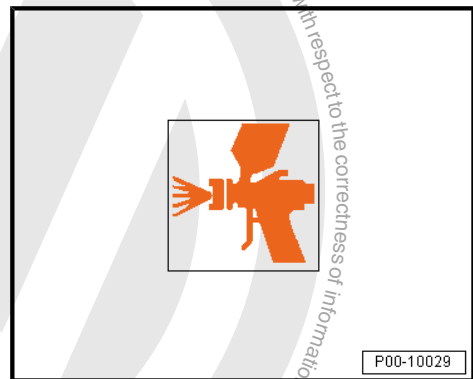
A maximum of 10% of demineralised water -LVM 010 000- may be added in addition.

Application instructions

For optimum processing properties, apply the base coat immediately after adding -LVM 035 200 / 301- additive for Aqua-Premium .

Use up any material on the same workday. Mixed colours should be stored without adding additive for Aqua-Premium .

- Adjust spray nozzle (see manufacturer's instructions): “Compliant” 1.2-1.3 mm.
- Adjust spray pressure (see manufacturer's instructions): “Compliant” 1.8-2.0 bar input pressure.

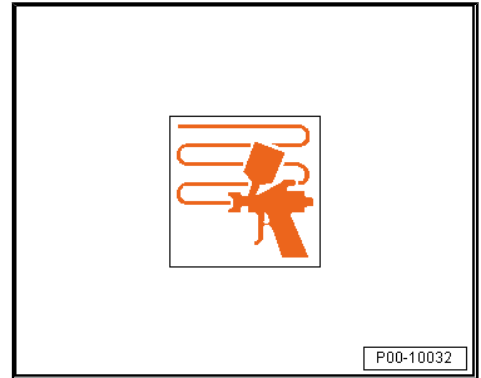




- Apply in 1 + 0.5 spray passes.

Special notes

- ◆ Isolate any bare metal surfaces using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .



Method 1:

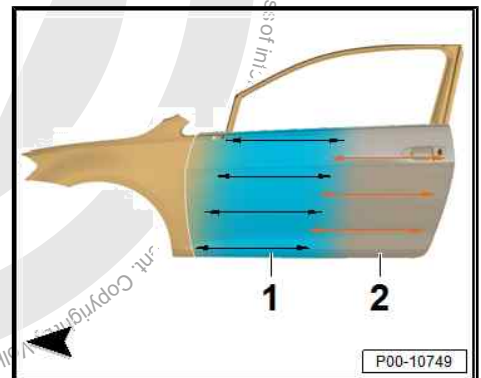
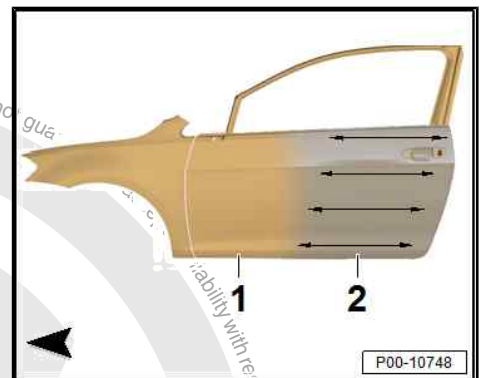
Repair process, blending into adjacent surfaces (e.g. colour-matching between wing and door)

- In the blending area, apply one or two full coats of blending additive for Aqua Premium - LVM 035 100 / 110- -2- at normal spraying pressure onto the old paint/surfaced substrate -1-.

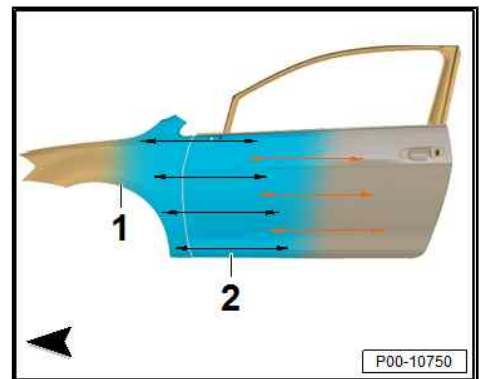
i Note

- ◆ Ensure that the blending area is large enough.
- ◆ The blending additive for Aqua-Premium - LVM 035 100 / 110- is suitable for a low relative humidity < 30% and/or temperatures above 30°C.
- ◆ For dark colours, the blending additive for Aqua-Premium - LVM 035 100 / 110- is not required.

- Then, apply the first moderate spray pass of base coat -1- from the blending area into the wet blending additive for Aqua-Premium - LVM 035 100 / 110- -2-.

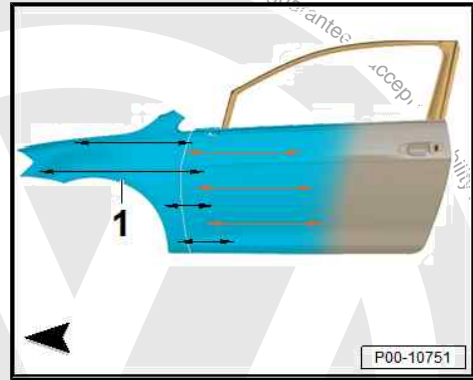


- After that, apply a second moderate spray pass -2- directly without waiting for any flash-off time to elapse. Always make sure to apply this spray pass offset towards front relative to the previous spray pass -1- to ensure a uniform effect.

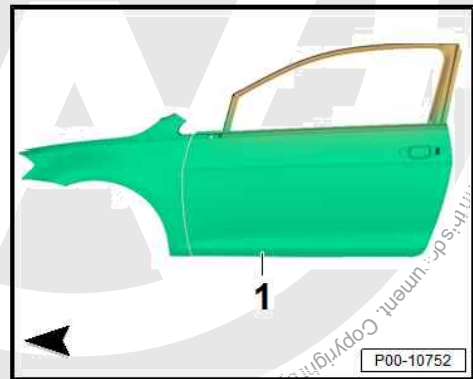




- After blending in, the transition and the remaining surface -1- must be completed in 1.5 spray passes (starting at new part) (standard process).



- After flashing-off, apply a coat of 2-pack HS clear coat -1- to the entire repair area.



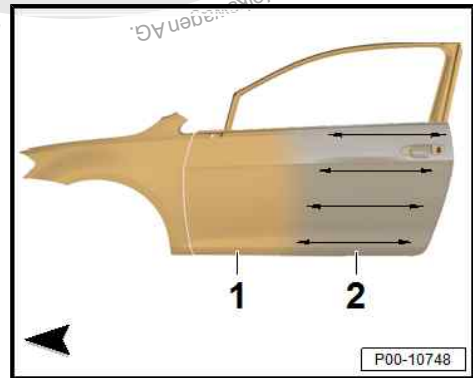
Method 2:

Repair process, blending into adjacent surfaces (e.g. colour-matching between wing and door, alternative method for solid colours and dark effect colours)

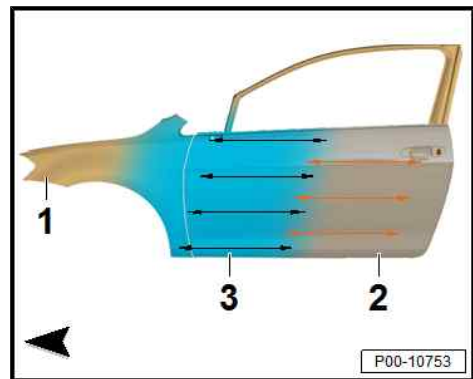
- In the blending area, apply one or two full coats of blending additive for Aqua Premium - LVM 035 100 / 110- -2- at normal spraying pressure onto the old paint/surfaced substrate -1-.

Note

- ◆ Ensure that the blending area is large enough.
- ◆ The blending additive for Aqua-Premium - LVM 035 100 / 110- is suitable for a low relative humidity < 30% and/or temperatures above 30°C.
- ◆ For dark colours, the blending additive for Aqua-Premium - LVM 035 100 / 110- is not required.

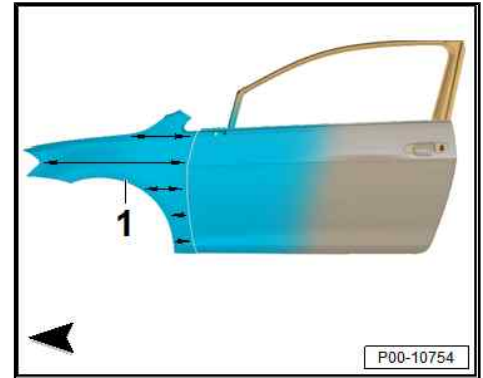


- Then, apply the first spray pass of base coat -3- from the blending area (starting at new part) up to the boundary of the wet blending additive -2-. Half of the effect or finish spray coat is applied immediately over the wet blending additive -2- at a greater spraying distance and also towards the new part -1-.





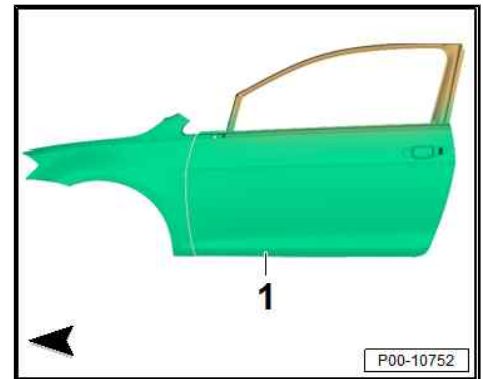
- After blending in, complete the remaining surfaces with base coat -1- in 1.5 spray passes (standard process).



- After flashing-off, apply a coat of 2-pack HS clear coat -1- to the entire repair area.

i Note

- ◆ It is recommended that starting with the first spray pass, all subsequent spray passes are already matched to the repair area, starting from the furthest blending area. In other words, all subsequent spray passes remain within the previous spray pass to ensure a uniform effect.
- ◆ Keep the material flow trigger of the spray gun completely open while applying Aqua Premium water-based base coat.
- ◆ The spray pressure for the effect coat may be varied between 1.5 and 2.0 bar depending on the size of the object.



Method 3:

Repair process, blending into very small damage, e.g. Clever Repair

i Note

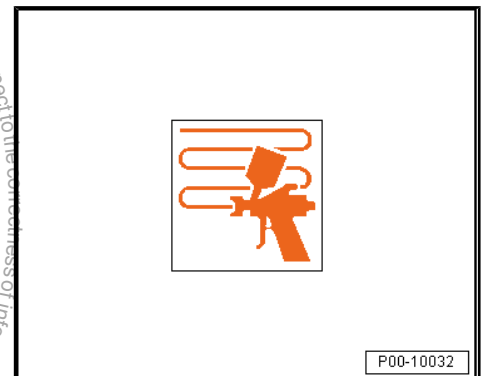
The repair and/or surfacer area should be kept as small as possible.

1st option:

- ◆ Ready-to-spray water-based base coats are used for most colours.

2nd option:

- ◆ Recommended for colours with very high metal content; mix Aqua Premium water-based base coat and blending additive for Aqua Premium - LVM 035 100 A3- in a 1:1 ratio with 10% Flop Control - LWM 085 386 A2- (blending additive for Aqua Premium - LVM 035 200/301- is not required). Use the Aqua Premium measuring stick for the Clever-Repair spot repair method.
- ◆ Depending on colour and opacity, this mixture is applied in 3 to 5 light spray coats with reduced pressure (0.8 to 1.5 bar) to the repair area and fade-out area. Ensure that each spray coat is somewhat larger in area and flashed off until matt. The flash-off time can be accelerated by blowing.





- The clear coat can be applied after the final flash-off time has elapsed.



Note

- ◆ *Keep the material flow trigger of the spray gun completely open while applying Aqua Premium water-based base coat.*
- ◆ *The use of stationary air diffusers or force drying, e.g. low baking, for efficient flash-off and drying processes is recommended.*

Product application

- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The Aqua Premium mixture paint can be used only as part of a colour formula.
- ◆ If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

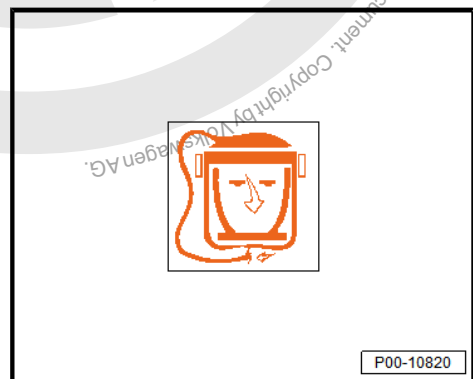
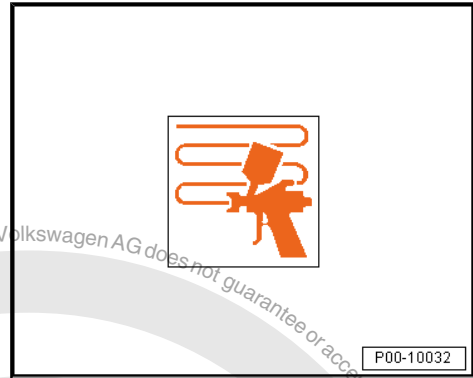
- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.7 Aqua Premium system, blending system for 3-stage colours

Issue 02.2018

Product description/objectives

To attain visually perfect colour transition in blending area or to adjacent parts such as wings or doors.

Technical data sheet

Substrate

Suitable substrates:

- ◆ 2-pack HS surfacer, sanded and cleaned
- ◆ Well-sanded and cleaned old paint



- ◆ Prime plastic surfaces with transparent adhesion promoter - ALO 822 000 10- , and then fill with plasticized 2-pack HS surfacer (2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-)

Pretreating the substrates

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Dry sanded with P500 - 600 grit sandpaper.



Or:

- Wet-sand with P800 to P1000-grit sandpaper.

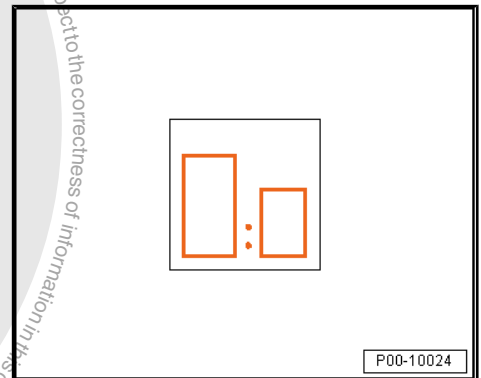


Note

Use an emery pad to sand swage lines, edges or door-handle recesses during preparation work.



Mixing ratio



		Base coat	Hardener	Additive
		AquaPremium	-LVM 045 000-	-LVM 035 200 / 301-
Standard	Effect colours	100	-	20%



		Base coat	Hardener	Additive
2-pack, hardened	Effect colours	100	5%	20%
Standard	Unicolours	100	-	10%
2-pack, hardened	Unicolours	100	5%	10%
Base colour	-LVM 035 100 / 110-	100	5%	-

A maximum of 10% of demineralised water -LVM 010 000- may be added in addition.

Application instructions

For optimum processing properties, process the waterborne base coat immediately after hardener for AquaPremium - LVM 045 000- and additive for AquaPremium - LVM 035 200 / 301- have been added.

- ◆ Uni base colours, -5%: 1.5 to 2.0 hours
- ◆ Effect base colours, -5%: 45 minutes to 1 h
- ◆ Blending additive, -5%: 1.0 to 1.5 hours

Cleaning

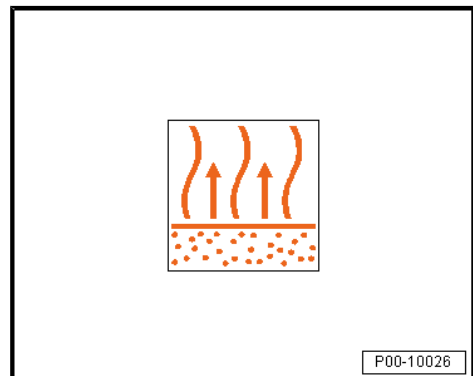
- Thoroughly clean the whole surface with silicone remover - LVM 020 000 A5- to remove any dust, paint residue from sanding or any other impurities.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.



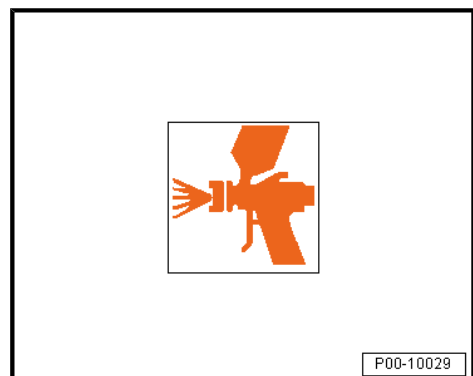
- Allow the moisture on substrates which have been wet-sanded or cleaned to evaporate completely.

Tack cloths of the latest generation with an effective adhesion formula, e.g. tack cloth - VAS 6177-) to minimise the risk of chemical or sticky residue

⇒ ["4.2.1 Tack cloth VAS 6177", page 379](#) .

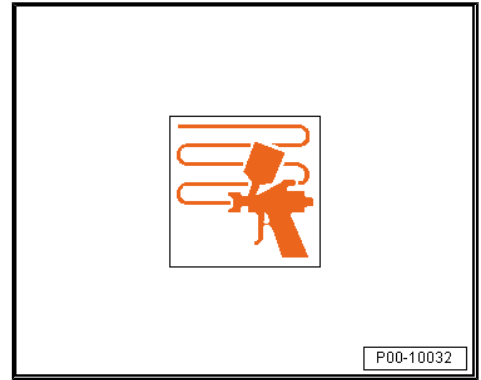


- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.8-2.0 bar input pressure.

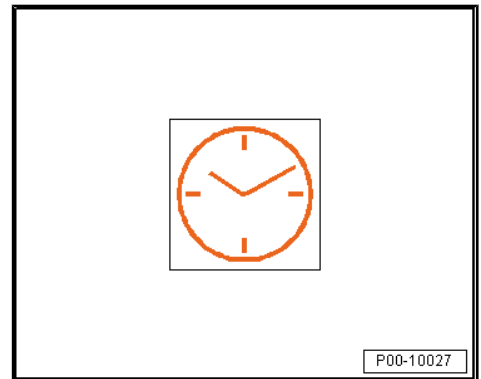




- Apply base colour (2-pack, hardened) in 1.5 to 2.0 spray passes.
- Apply effect colour in 1 + 0.5 spray passes.



Drying:

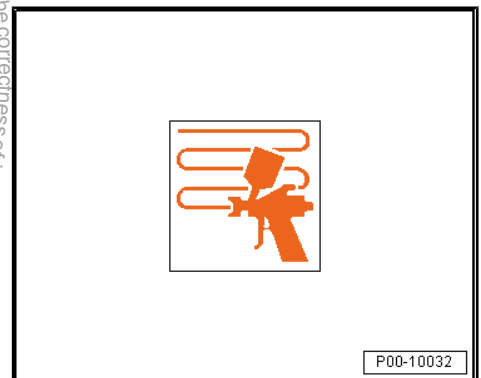


	Bake	Blowing	Ambient
20 °C	-	-	15 - 25 minutes
35 - 40 °C	-	8 - 12 minutes	-
60 - 65 °C	10 - 15 minutes	-	-

Special notes

- ◆ Isolate any bare metal surfaces using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .
- ◆ It is strongly recommended to spray a sample object.

Repair process, blending into adjacent surfaces (e.g. colour-matching between wing and door)



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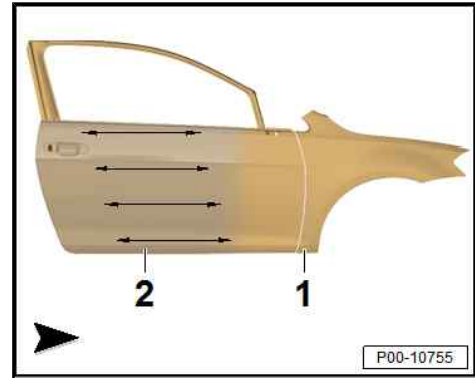


- In the blending area, apply one or two full coats of blending additive for Aqua Premium - LVM 035 100 / 110- -2- at normal spraying pressure onto the old paint/surfaced substrate -1-.

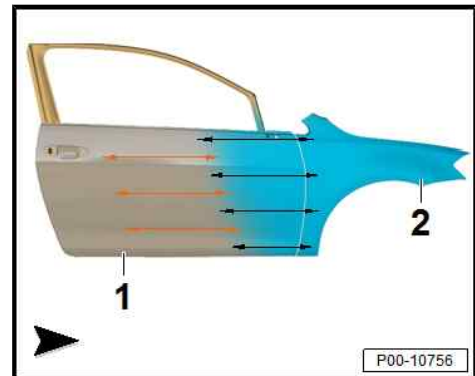


Note

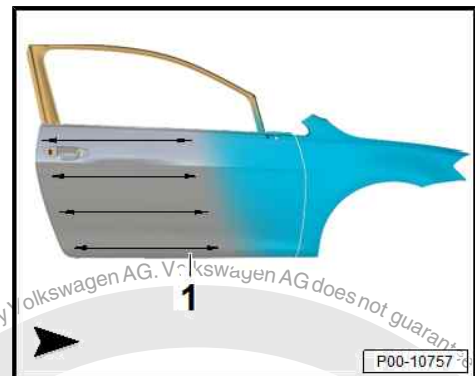
Ensure that the blending area is large enough.



- Apply base colour ⇒ [page 55](#) .
- Apply to the repair area and the adjoining surface -2- until opaque. The fade-out area should be located within the wet blending additive for Aqua-Premium - LVM 035 100 / 110- -1-.
- Allow to flash off and dry.

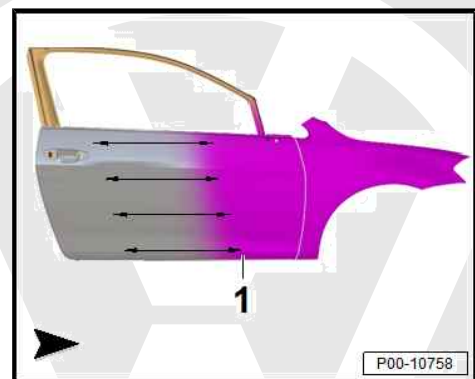


- When the entire surface is matt, apply one or two full coats of pure blending additive for Aqua Premium - LVM 035 100 / 110- -1- without hardener.



Step 1, blending in the effect colour (from the outside towards the inside)

- Apply the effect colour ⇒ [page 55](#) .
- The effect colour is applied from the fade-out area towards the new part -1-. In other words, it is applied from the outside in (wet in wet) into the blending additive for Aqua Premium - LVM 035 100 A3- .
- Then, if necessary, the next spray passes of the effect colour (wet in wet) are applied within the previous spray pass towards the new part.

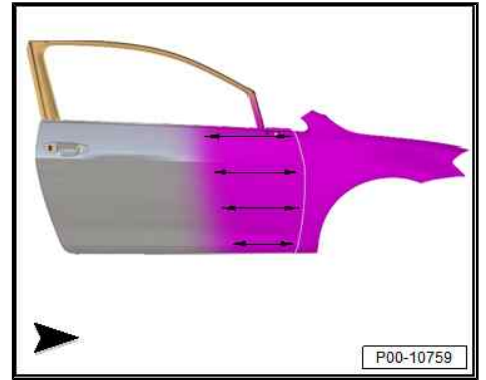


Note

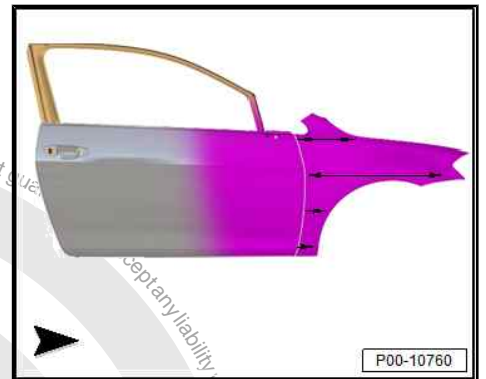
For some effect colours, 2 to 3 additional spray passes must be applied to visually match up the effect.



Step 2, blending in the effect colour (from the outside towards the inside)



Step 3, blending in the effect colour (from the outside towards the inside)





- After flashing-off, apply a coat of 2-pack HS clear coat -1- to the entire repair area.



Note

- ◆ *It is recommended that starting with the first spray pass, all subsequent spray passes are already matched to the repair area/base coat, starting from the furthest blending area. I. e., all subsequent spray passes remain within the previous spray pass to avoid visible edges or shadows.*
- ◆ *Keep the material flow trigger of the spray gun completely open while applying Aqua Premium water-based base coat.*
- ◆ *The spray pressure for the effect coat may be varied between 1.5 and 2.0 bar depending on the size of the object.*
- ◆ *For information on the drying times, refer to the technical data sheet for the relevant product.*

Notes for application on large surfaces:

- ◆ In general, the additive for Aqua Premium - LVM 035 200 / 301- should always be used when applying 3-stage colours.
- ◆ In the event of large surfaces, high temperatures and a low humidity it is recommended to add Aquaplus demineralised water - LVW 010 000- .
- ◆ The use of stationary air diffusers or force drying, e.g. low baking, for efficient flash-off and drying processes is recommended.

Product application

- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The Aqua Premium mixture paint can be used only as part of a colour formula.
- ◆ If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

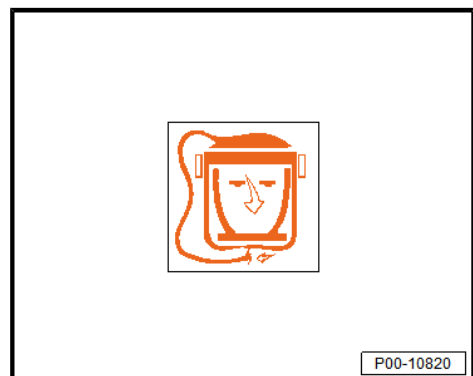
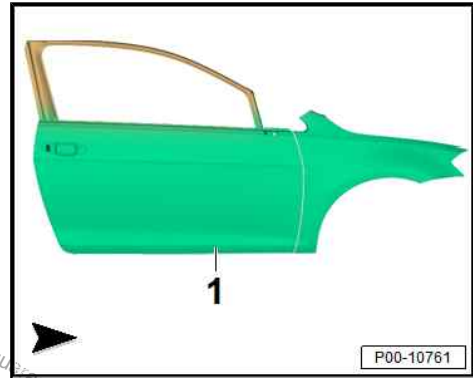
- ◆ Rinse with aqua plus demineralised water - LVW 010 000- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.





3.2.8 Aqua Premium system, product preparation for processing

Edition 02.18

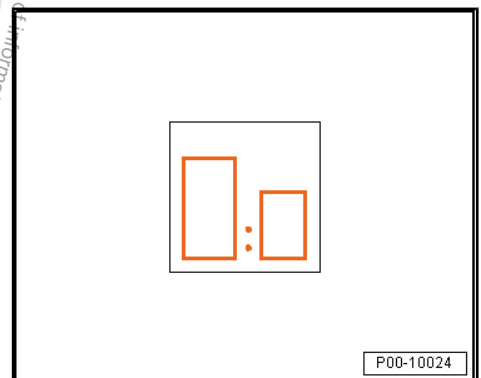
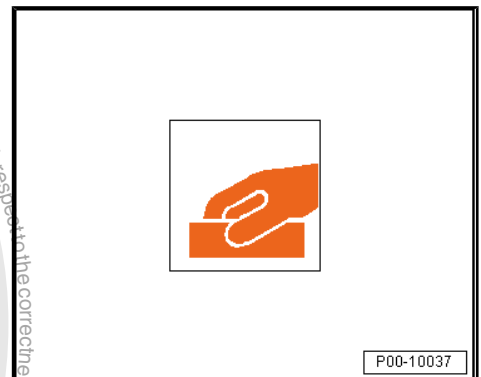
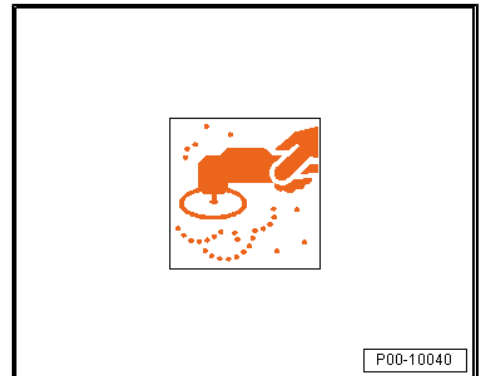
Product preparation for processing super effect silver colours containing -LVM 086 305- ⇒ [page 61](#)

Product preparation for processing with hardener for Aqua-Premium - LVM 045 000- ⇒ [page 63](#)

Product preparation for processing super effect silver colours containing -LVM 086 305-

Technical data sheet

- Dry-sand using orbital sander with P1000 to 1200-grit sandpaper and dust collector.



Or:

- Carefully dry-sand corners and edges with P3000-grit sandpaper by hand.

Application

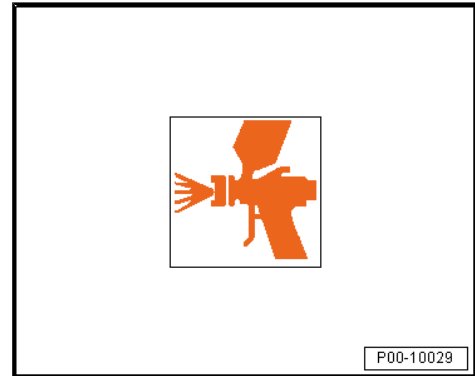
Mixing ratio:

		Base coat	Additive
		AquaPremium	-LVM 035 200 / 301-
Standard	Effect colours	100	50 %

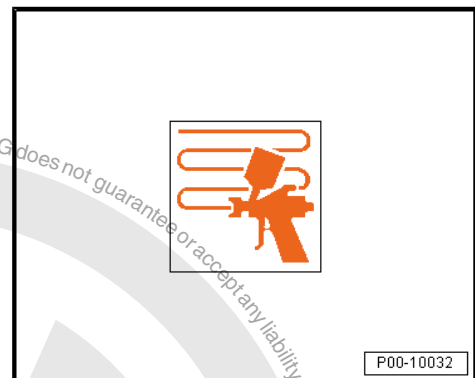


For optimum processing properties, apply the waterborne base coat immediately after adding additive for Aqua-Premium - LVM 035 200 / 301- .

- ◆ Use up any material on the same workday.
- ◆ Mixed colours should be stored without adding additive for Aqua-Premium - LVM 035 200 / 301-
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.8-2.0 bar input pressure.



- Apply effect colour in 1 + 0.5 spray passes.

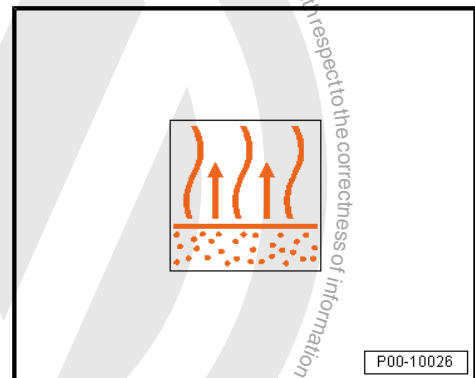


Drying

Continue the flash-off time until the entire surface is matt before applying clear coat.

Recoat with:

- ◆ 2-pack HS clear coat (see relevant data sheet)





Personal protective equipment

- ◆ Adhere to the safety data sheet.
- ◆ Process only in well ventilated rooms
- ◆ Wear personal protective equipment during application.

Product preparation for processing with hardener for Aqua-Premium - LVM 045 000-

Technical data sheet

Substrate

Suitable substrates:

- ◆ Factory paint or old paint sanded and cleaned
- ◆ 2-pack HS surfacer, sanded and cleaned
- ◆ 2-pack HS surfacer, not sanded with wet-on-wet processing

Pretreating the substrates

- Dry-sand using orbital sander with P500 to P600-grit sandpaper and dust collector.

Or:

- Dry sanded with P800 - 1000 grit sandpaper.

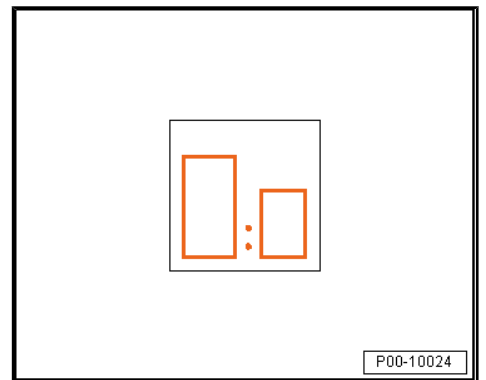
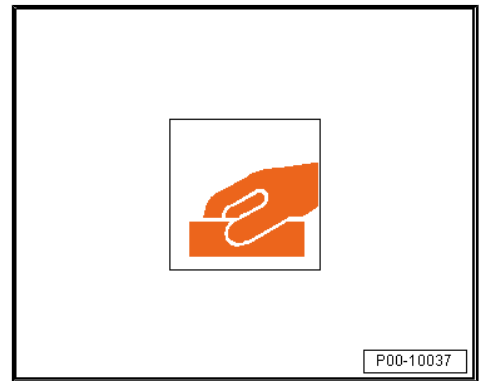
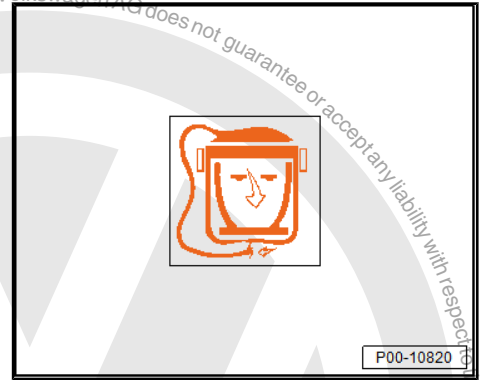


Note

Use an emery pad to sand swage lines, edges or door-handle recesses during preparation work.

Application

Mixing ratio:



	Base coat	Hardener	Additive
	Aqua-Premium	-LVM 045 000-	-LVM 035 200 / 301-



		Base coat	Hardener	Additive
Engine compartment/interior	Unicolours	100	10%	10%
Engine compartment/interior	Effect colours	100	10%	20%

For multi-colour paintwork, three-coat base colours, engine compartment and interior paintwork and for general processing, the waterborne base coat Aqua-Premium can be activated with hardener for Aqua-Premium - LVM 045 000- , where necessary.

A maximum of 10% demineralised water - LVM 010 000- may be added when processing at low humidity and in warmer conditions.

For optimum processing properties, process waterborne base coat Aqua-Premium immediately after adding hardener for Aqua-Premium - LVM 045 000- and additive for Aqua-Premium - LVM 035 200 / 301- .

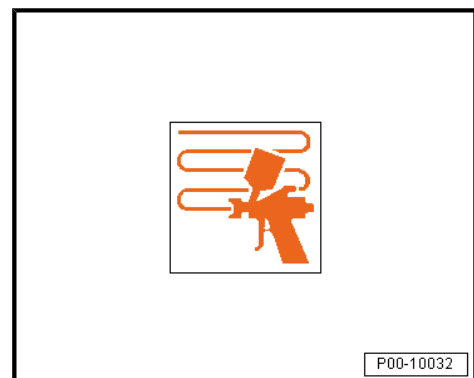
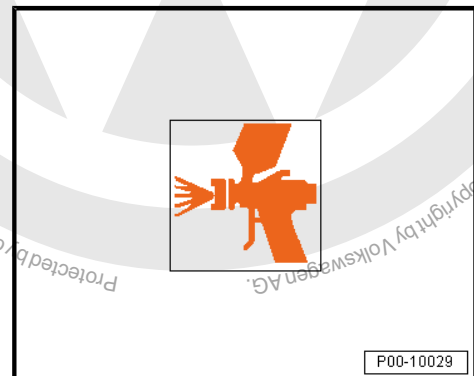
- ◆ Unicolours, 5%: 1.5 to 2.0 hours
- ◆ Unicolours, 10%: 45 minutes to 1 h
- ◆ Effect colours, 5%: 45 minutes to 1 h
- ◆ Effect colours, 10 %: 30 minutes to 1 h
- ◆ Blending additive, -5%: 1.0 to 1.5 hours
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.8-2.0 bar input pressure.

- Apply colour in 1 + 0.5 spray passes. This is immediately followed by an effect colour spray pass with an increased spray distance.



Note

No clear coat is required for interior paintwork.



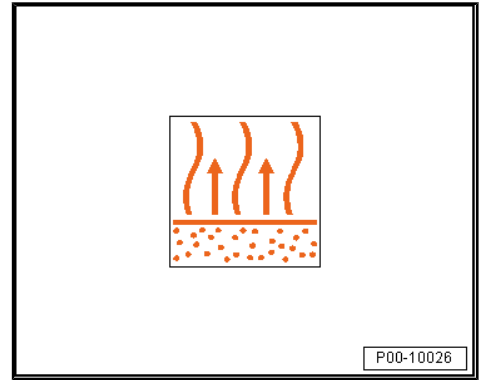


Flash-off time

Continue the flash-off time until the entire surface is matt before applying clear coat.

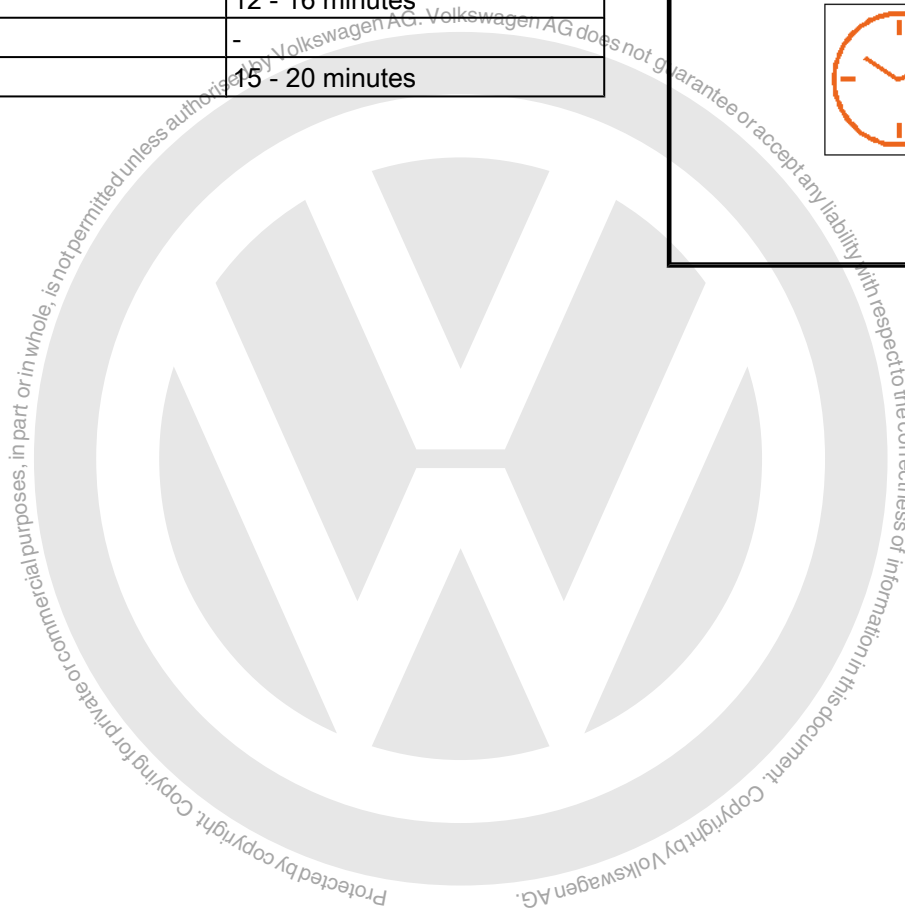
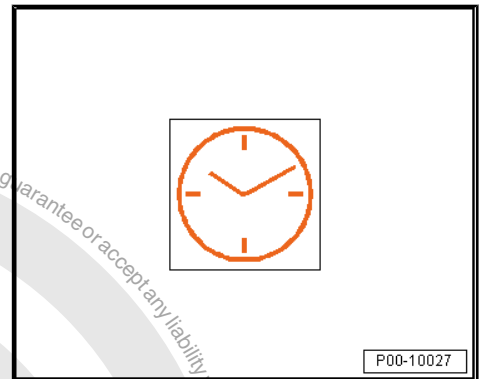
Recoat with:

- ◆ 2-pack HS clear coat (see relevant data sheet)



Drying:

	Interior, 10% hardener
20 °C	12 - 16 minutes
35 - 40 °C	-
60 - 65 °C	15 - 20 minutes



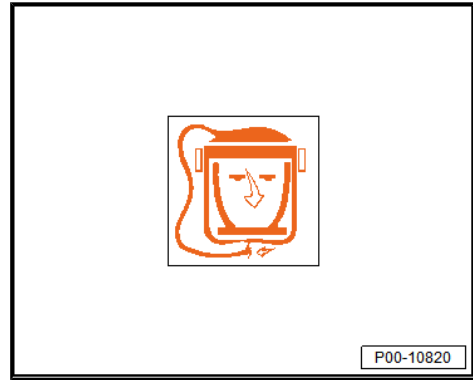


Personal protective equipment

- ◆ Adhere to the safety data sheet.
- ◆ Process only in well ventilated rooms
- ◆ Wear personal protective equipment during application.

Table for different climates

- ◆ Use of the table for different climates for selecting the correct Aqua-Premium additive
- ◆ Take the scope of repairs into account
- ◆ Major repairs may require longer adjustment
- ◆ Read booth temperature in painting mode
- ◆ Check relative humidity in booth using hygrometer



i Note

- ◆ Only for metallic paint and mother-of-pearl effect paint and for a relative humidity of 65% 30% of additive for Aqua-Premium - LVM 035 200- may be added.
- ◆ For smaller to medium sized repair scopes and a relative humidity between 30 to 70%, the standard additive for Aqua-Premium - LVM 035 200- must be used.
- ◆ For a low relative humidity below 30% and larger repair scopes, the extended additive for Aqua-Premium - LVM 035 301- must be used. It is also well suited for high temperatures in combination with medium to low humidity and helpful for large surfaces with low humidity, regardless of temperature.
- ◆ For low humidity combined with high temperatures, demineralised water may be added - LVW 010 000- .
- ◆ Demineralised water - LVW 010 000- is also helpful for large surfaces with low humidity, regardless of temperature.

°C in booth	Relative humidity in %	0 - 30%	31 - 42 %	31 - 64 %	43 - 64 %	65 - 90 %
10 - 15°C		-	-	-	-	-
15 - 30 °C		20% -LVM 035 301-	-	20% -LVM 035 200-	-	30 % -LVM 035 200-
30 - 55 °C		20% -LVM 035 301- / 10% -LVW 010 000-	20% -LVM 035 301-	-	20% -LVM 035 200-	30 % -LVM 035 200-

3.2.9 Aquaplus design and multi-colour painting

Issued 05.14

To be able to execute fault-free design and multi-colour paintwork with Aquaplus non-metallic, metallic and pearl effect base paint, a number of special features need to be considered, and some special aids deployed.

Preparations:

Where a design is marked out on the base surface (surfacr, paintwork), no marker pens containing water-soluble inks must be used, so as to prevent »bleed-through« into the water-based



base coat. If this is not possible, the markings must be removed thoroughly using silicone remover - LSW 019 000 A5- immediately after the design has been masked off.

Masking the substrate (2-pack HS top coat)

Commercially available contour/decór fine line tape and masking tape can be used for masking on 2-pack HS top coats.

Masking Aquaplus non-metallic, metallic, pearl effect base paint

Use commercially available contour/decór fine line tape and masking tape.

- ◆ Press contour and masking tapes carefully into place
- ◆ If masking wide areas, use masking film (to avoid marks).
- ◆ Never leave contour and masking tapes on the surface for longer than necessary.

Drying individual layers of water-based base paint

Oven drying is not advisable, as there is a risk of adhesive being transferred from the contour and masking tapes to the water-based base coat.

The individual layers of water-based base paint can be dried using air nozzles or at increased booth temperatures. These are also the most effective drying methods.

The thickness of the individual layers shall not exceed 40 µm. Otherwise the film may be detached when removing the masking tape, the coverage may be insufficient or issues may arise during drying.

Multi-colour paintwork with insulation layer

To prevent »bleed-through« and colour distortion in the individual colour layers of multi-colour paintwork systems, it is advisable to insulate the individual layers with 2-pack clear coat.

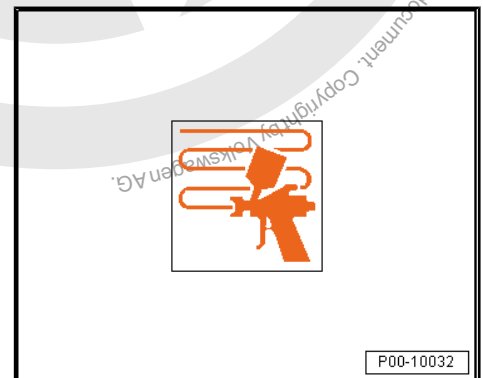
The 2-pack HS Vario clear coat - L2K 769 K01 A5- cross-linked with fast-drying 2-pack HS hardener - LHA 021 004 A3- may be used for this.

To attain acceptable drying and coverage, the use of slower-drying hardeners is not recommended.

The insulating layer must be applied only onto the Aquaplus water-based base coat.

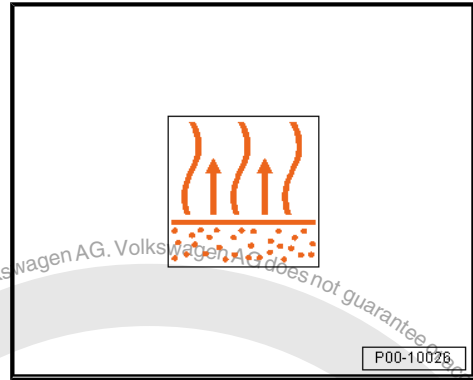
The steps required are set out below based on the example of a 3-colour multi-colour paintwork system.

- Apply first colour with Aquaplus water-based base coat.





- Dry base coat for at least 5 hours at +20°C.

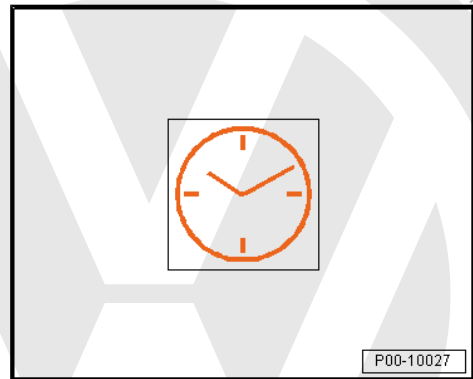


Forced drying:

20 minutes at +20°C and 30 minutes at +60°C

Allow to cool sufficiently after drying.

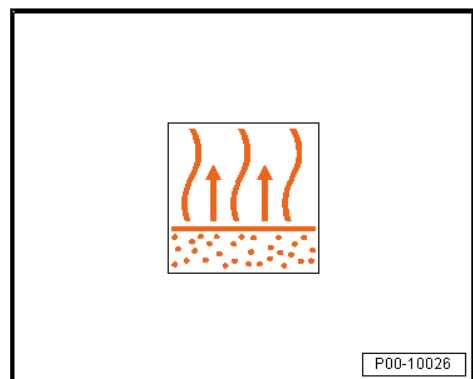
- Mask contours using commercially available tape or standard film.



- Apply a thin, full coat of blending additive for Aquaplus - LVM 030 000 A2- .

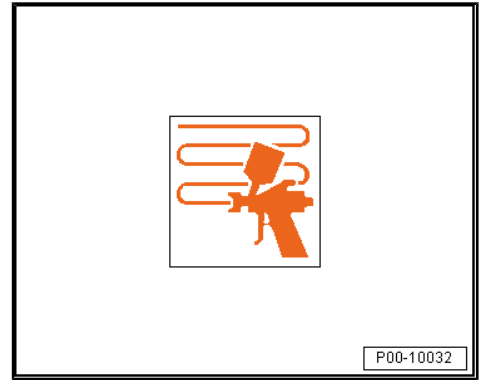


- Then allow flash-off period of at least 20 minutes at +20°C.

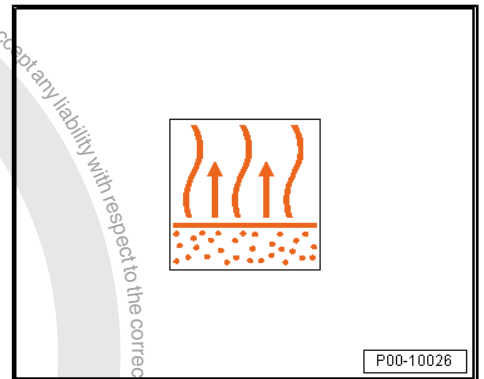




- Apply second colour with Aquaplus water-based base coat.



- Dry base coat for at least 5 hours at +20°C.

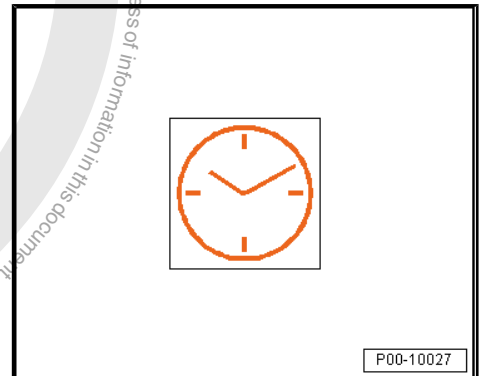


Forced drying:

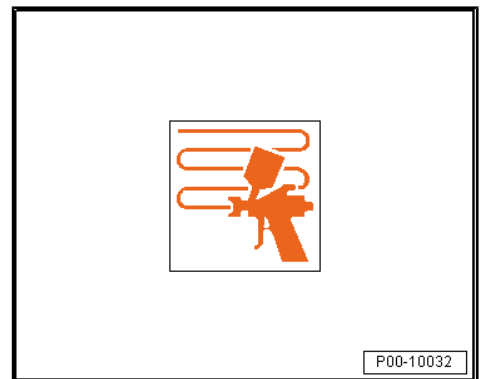
20 minutes at +20°C and 30 minutes at +60°C

Allow to cool sufficiently after drying.

- Mask contours using commercially available tape or film.



- Apply third colour with Aquaplus water-based base coat.





- Allow base coat to flash-off until it is matt.
- Remove masking tape.

- Apply top layer of 2-pack HS clear coat.

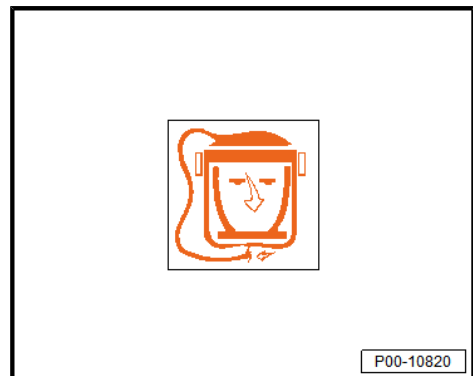
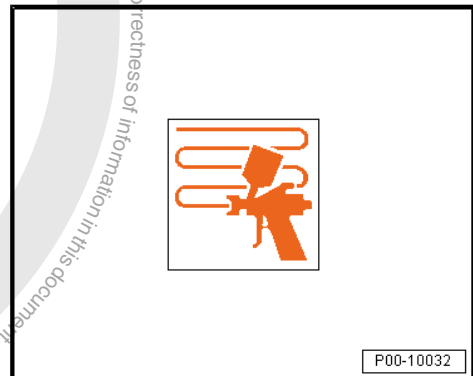
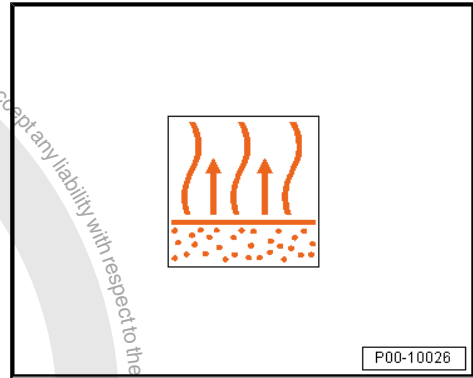


Note

- ◆ Plastic film should always be used for any necessary masking, so as to prevent attachment of the already applied paint layers.
- ◆ Marks created by masking are eliminated by the subsequent clear coat application.
- ◆ For all other parameters relevant to the application of the specific product refer to the technical data sheet.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



3.2.10 Processing instructions for paint with limited hiding power

If ⇒ www.vwcolor.info indicates a »limited hiding power«, the repair operation 51017980 must be carried out as well.

3.3 Filler

⇒ ["3.3.1 2-pack steel filler set", page 70](#)

⇒ ["3.3.2 2-pack fine filler", page 73](#)

⇒ ["3.3.3 2-pack fine filler, flexible", page 76](#)

⇒ ["3.3.4 2-pack spray filler", page 79](#)

⇒ ["3.3.5 2-pack IR premium filler", page 83](#)

⇒ ["3.3.6 2-pack epoxy resin filler", page 86](#)

3.3.1 2-pack steel filler set

Designation:

- ◆ 2-pack steel filler set - DA 787 300 A2-



Issue 09.2012

Product description

This filler is a polyester filler with a powdered metal mixture for the creation of accurately contoured surfaces of highly stressed body surfaces. This filler is an especially good substitute for lead filling solder.

This filler paste is easy to apply and to sand, is very strong and heat-resistant, and so is especially suitable for overpainting.



Note

If the temperature is above 30 °C or relative humidity is above 80%, hardener - LVM 004 211 A1- must be used.

Technical data sheet

Substrate

Suitable substrates:

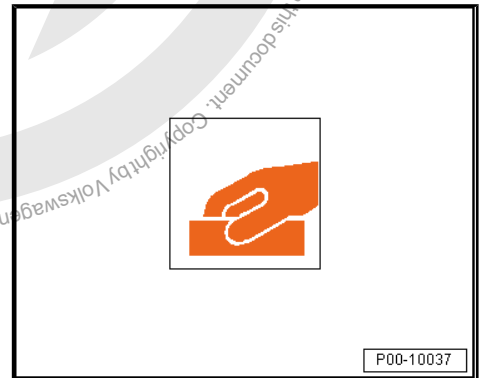
- ◆ Steel
- ◆ Metallic substrates in general
- ◆ Galvanised sheet steel

Substrate pre-treatment:

- Carefully remove any grease and sand surface. The substrates must be prepared using ["4.1.6 Pneumatic brush grinder set VAS 6446"](#), [page 372](#) . In addition, they must be sanded down to the bare metal using P40-grade sandpaper. If necessary, clean soiled surface again, and remove any residue from cleaning using brush grinder set.

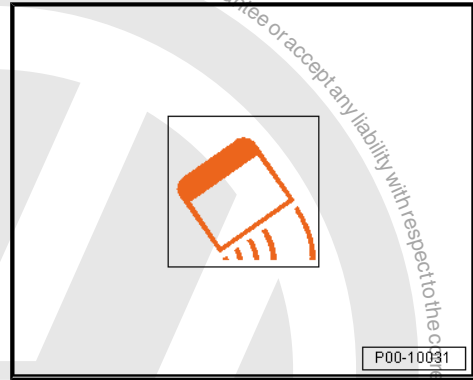
- Clean again with silicone remover before reworking.

Application





Method of application: filling



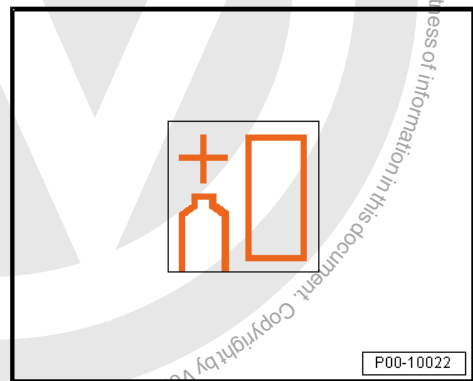
Mixing ratio:

- The two components are mixed in a ratio of 1 part liquid hardener to between 2.5 and 3 parts powder (or 10 grams of liquid hardener and 58 grams of powder) to a consistency which may be worked with a filling knife.



Note

Avoid adding excessive amounts of liquid hardener, as this will impair the final hardness and adhesion characteristics of the filler.



Pot life:

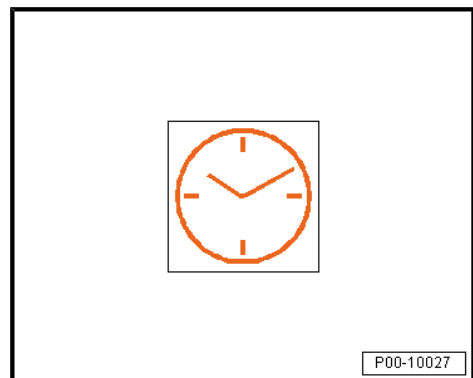
- The pot life is about 4 to 6 minutes at +20°C.

Reaction temperature:

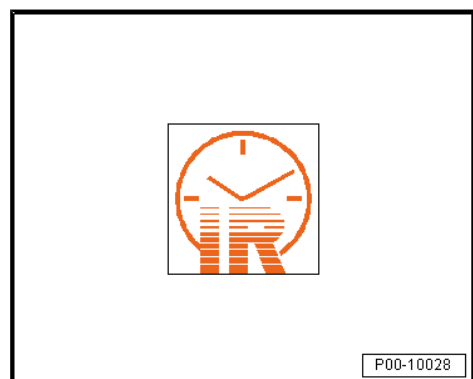
- Coolant temperature must be at least +5°C.

Drying

Air drying:



- Flash-off time about 10 minutes at +20°C
- Hardening process after flash-off time using short wave IRT radiator
- ◆ Initial curing: 10 minutes at approx. 50°C
- ◆ Curing 1st stage: 10 minutes at 75°C
- ◆ Curing 2nd stage: 10 minutes at 85°C





Sanding

- Obviously excess material can be removed even before the thermal curing process using, e.g. a body rasp.
- Then sand to contour using P80-grade dry sandpaper.

Processing:

No limitation

Data

Air drying:	Powder + liquid hardener	
Flash point:	Hardener	33°C
	Powder	Not applicable



Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

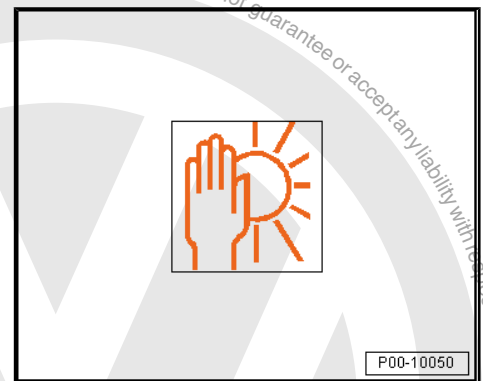
Storage conditions

- Store cool and dry. Storage temperature +20°C



Note

- ◆ Use only in well-ventilated rooms.
- ◆ It is recommended to wear safety gloves and a dust mask.
- ◆ It is recommended to use a dust collector.



3.3.2 2-pack fine filler

Designation:

- ◆ 2-pack fine filler - LSP 784 002 A2-

Issue 01.2017

Product description

The 2-pack fine filler is a very fine, thixotropic polyester filler.

This filler is suitable for repairing small defects.

Technical data sheet

Properties

- ◆ Fine and non-porous
- ◆ Easy to apply
- ◆ Easy to sand
- ◆ Very plasticity for repairing plastic substrates

Substrate

Suitable substrates:

- ◆ Steel
- ◆ Aluminium
- ◆ Fibreglass



- ◆ Old paint and factory paint
- ◆ Hardened 2-pack surfacers/2-pack primers
- ◆ Plastic parts transparently primed with 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2- or primer - ALO 822 000 10-
- ◆ Surfaces prepared with 2-pack polyester filler

⇒ **“2.3 Fundamental approach to dealing with areas sanded through to the substrate (bare metal surface)”, page 9**



Caution

This filler may not be applied to PVB (acid-curing) surfaces or 1-pack primer (e.g. synthetic resin).

It is also unsuitable for thermoplastic or viscoelastic paint. In these cases, apply filler only to the bare metal.

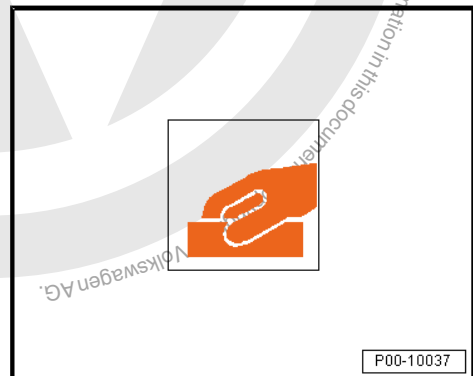
Substrate pre-treatment:

- Carefully remove any grease and sand surface.
 - For UP-GF (fibreglass) substrate parts, remove residual release agents and lightly sand surface.
-
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

Application:

Means of application:

- With filling knife





Mixing ratio:

- Addition of 2% by weight 2-pack hardener - LVM 018 000 A17 A2- .

Note

Avoid adding too much hardener, as this can lead to bleeding through, especially with dayglow paints and light metallic colours.

Pot life:

- At +20°C room temperature approx. 3-5 minutes

Reaction temperature:

- At least +5 °C

Drying

Air drying:

- At +20°C ambient temperature, approximately 15 to 30 minutes.

Infrared drying:

- ◆ Short-wave radiant heater, 2 to 3 minutes (at 50% power).

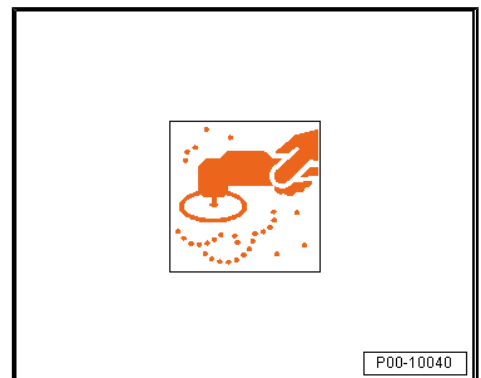
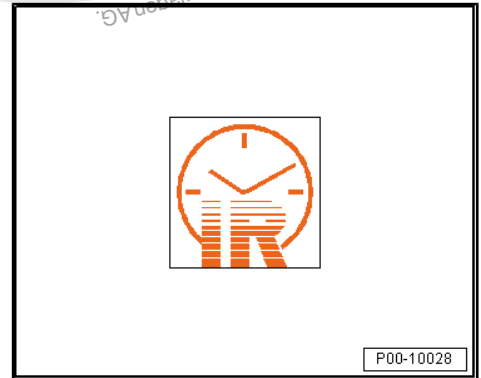
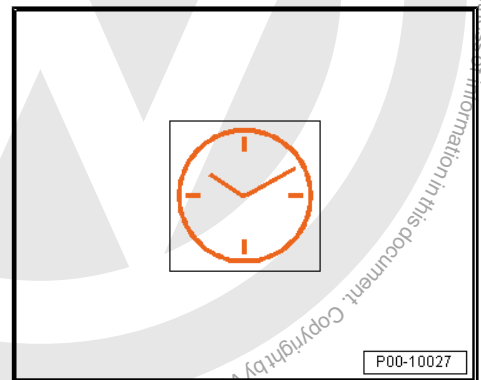
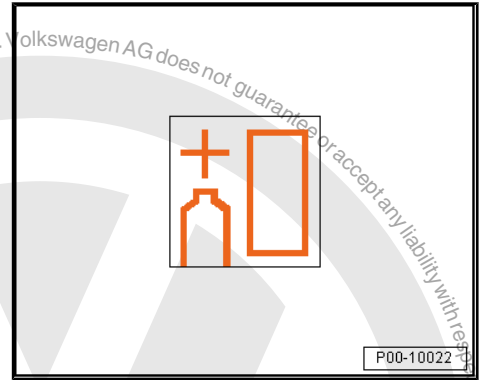
Sanding

After the drying times given above:

- Dry sanded with P180-240 grit sandpaper.

Note

Temperature resistance to +80°C.

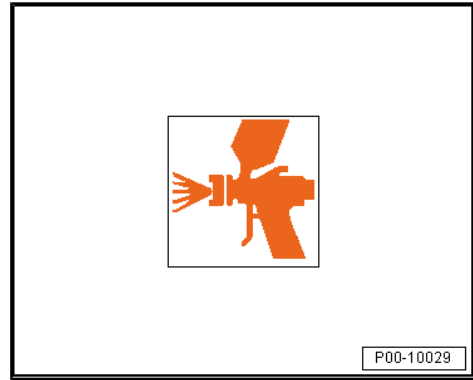




Recoating

Recommended structure:

- ◆ 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2-
 - ◆ 2-pack wash primer - LHV 043 000 A2- and 2-pack HS surfacer
 - ◆ 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
 - ◆ Transparent adhesion promoter - ALO 822 000 10- and plasticized 2-pack HS surfacer (for plastic parts)
- Then recoat with top coat.

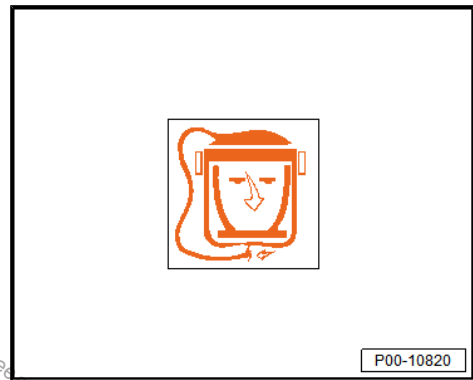


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Viscosity as supplied	Paste-like
Flash point:	Filler above 23 °C
VOC content: 2004/42/IIB (b) (250) 170	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 250 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 170 g/l.

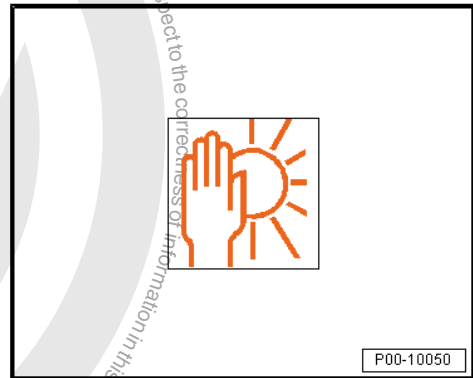


Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

Storage conditions

- Storage temperature +20 °C (do not exceed +30 °C)



3.3.3 2-pack fine filler, flexible

Designation:

- ◆ 2-pack fine filler, flexible - LSP 787 100 A1-

Issue 07.2010

Product description

2-pack fine filler, flexible - LSP 787 100 A1- is a two-pack filler with good filling characteristics.

The product does not shrink and offers excellent adhesion to numerous substrates.

This filler is especially suitable for plastics.



- ◆ For repairing plastic outer body skin parts following surface damage involving material removal (scratches, holes, cracks) although without penetration
- ◆ To fill cuprammonium-rayon plastic which has previously been repaired using plastic repair set - D 007 700-
- ◆ To fill over a repair to avoid marking

Technical data sheet

Properties

- ◆ Uniform, fine, creamy consistency
- ◆ Good filling characteristics – no shrinkage
- ◆ Fast-hardening
- ◆ Good sanding characteristics
- ◆ Adheres well to metal and plastic

Substrate

Suitable substrates:

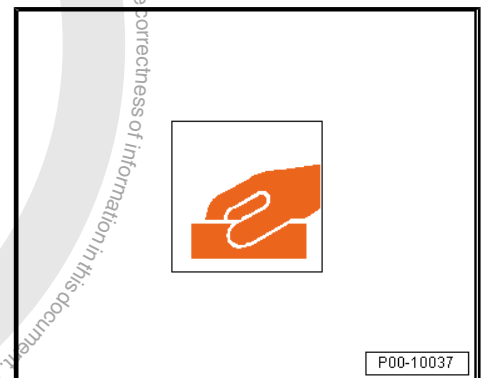
- ◆ Steel
- ◆ Galvanised sheet steel
- ◆ Aluminium
- ◆ All cleaned and sanded plastics in vehicles
- ◆ Glass-fibre reinforced plastics (UP-GF)
- ◆ Well-sanded old paint or factory paint
- ◆ Hardened 2-pack surfacers/2-pack primers

⇒ **“2.3 Fundamental approach to dealing with areas sanded through to the substrate (bare metal surface)”, page 9**

Substrate pre-treatment:

- Carefully remove any grease and sand surface.
- For UP-GF (fibreglass) substrate parts, remove residual release agents and lightly sand surface.

- Before recoating, clean again with slow-drying silicone remover - LVM 020 100 A5- or silicone remover - LVM 020 000 A5- .

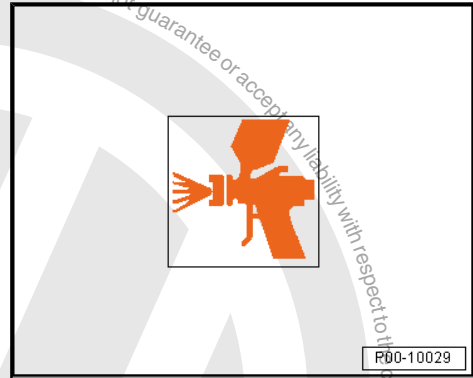




Recoating

Recommended structure:

- ◆ Apply fine filler alone.
- ◆ Coat fine filler with 2-pack fine filler - LSP 784 002 A2- or with 2-pack spray filler - ALN 788 007- (except on galvanised sheet metal).
- ◆ Prime any bare metal surfaces and filled surfaces using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .
- Then recoat with top coat.



Note

Before applying filler, the entire surface must be dry sanded with P280 to P400-grade sandpaper.

Application table

Mixing ratio	2-3% by weight		
Hardener	2-pack hardener - LVM 018 00 A1-		
Pot life	2-4 minutes at +20 °C		
Drying time (air drying at +20 °C room temperature)	20-30 minutes		
Infrared drying:			
	Short-wave	Approx. 3 minutes (at 50 % output)	
	Medium-wave	Approx. 5 minutes	
Sanding		First sanding	Second sanding
	Wet	As P180-grade fine filler	As P320-P360-grade fine filler
	Dry	As P80-grade and as P120-grade fine filler	As P120 to P240-grade filler and as P280-grade fine filler



Caution

This filler may not be applied to PVB (acid-curing) surfaces or 1-pack primer (e.g. synthetic resin).

It is also unsuitable for thermoplastic or viscoelastic paint. In these cases, apply filler only to the bare metal.



Note

- ◆ *Before applying filler, the entire surface must be dry sanded with P280 to P320-grade sandpaper.*
- ◆ *Avoid adding too much hardener, as this can lead to bleeding through, especially with dayglow paints and light metallic colours.*
- ◆ *Minimum reaction temperature at +5°C.*

3.3.4 2-pack spray filler

Designation:

- ◆ 2-pack spray filler - ALN 788 007-

Issue 01.2017

Product description

The 2-pack spray filler - ALN 788 007- is a two-pack spray filler used in vehicle repair. Application: for levelling rough uneven areas.

Further applications:

- ◆ Especially suitable for use on large surfaces
- ◆ Very good spraying properties
- ◆ Easy to apply and has good vertical stability
- ◆ Good levelling
- ◆ VOC value < 250 g/l

Technical data sheet

Substrate

Suitable substrates:

- ◆ Steel panels cleaned, sanded and primed with 2-pack wash primer - LHV 043 000 A2- and then isolated with 2-pack HS surfacer, electroplated or roller galvanized steel panels or aluminium
- ◆ Fully cured, solvent-resistant, well-preserved and lightly sanded old paint or original paint
- ◆ Surfaces smoothed with 2-pack polyester filler
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents



Caution

This filler may not be applied to PVB (acid-curing) surfaces or 1-pack primer (e.g. synthetic resin).

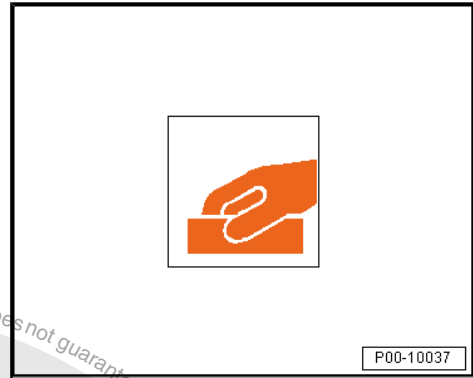
It is also unsuitable for thermoplastic or viscoelastic paint.

Generally, prime any areas sanded down to the substrate (bare metal surface) using 2-pack wash primer - LHV 043 000 A2-, and then apply 2-pack HS performance surfacer.



Substrate pre-treatment:

- Carefully remove any grease and sand surface.
- For UP-GF (fibreglass) substrate parts, remove residual release agents and lightly sand surface.



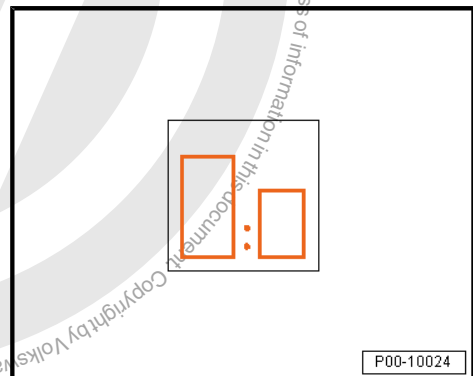
- Before recoating all substrates, use a suitable cleaning agent to ensure a clean surface free of residues.



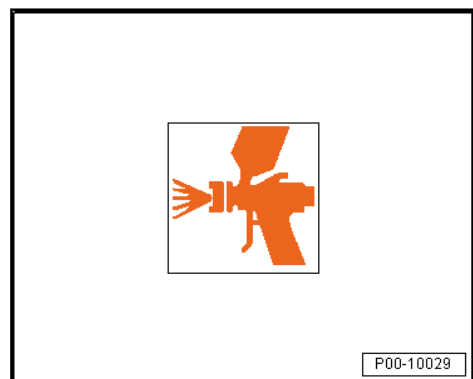
Application

Mixing ratio:

- Add 5% by volume 2-pack hardener - LHA 841 000 A2- .
- Pot life, 20-30 minutes at +20°C.
- The minimum reaction temperature is +15°C

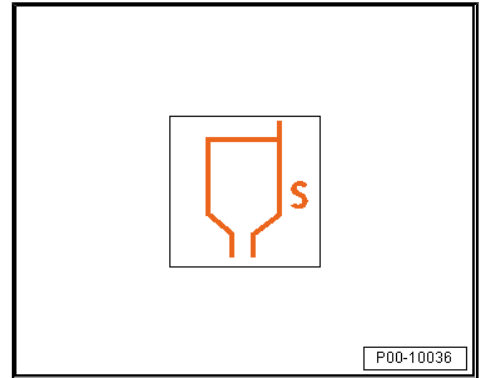


Application type "Compliant"





- Application viscosity for +20°C material temperature.
- Adjust spray nozzle to 2-2.5 mm (see manufacturer's instructions).
- Adjust spray pressure to 2-3 bar (see manufacturer's instructions).



- 5 spray applications result in 500 - 600 µm (layer thicknesses up to 1000 µm are possible)

Method of application: "brush"



Note

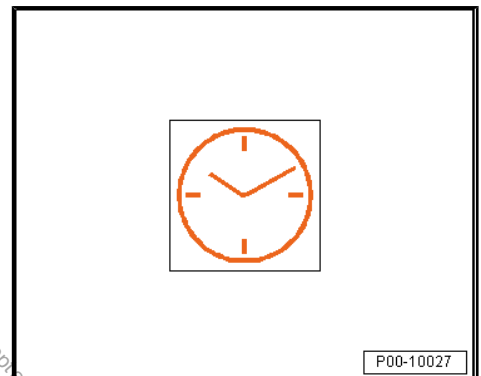
When "brushing", apply the material in one operation.



Drying

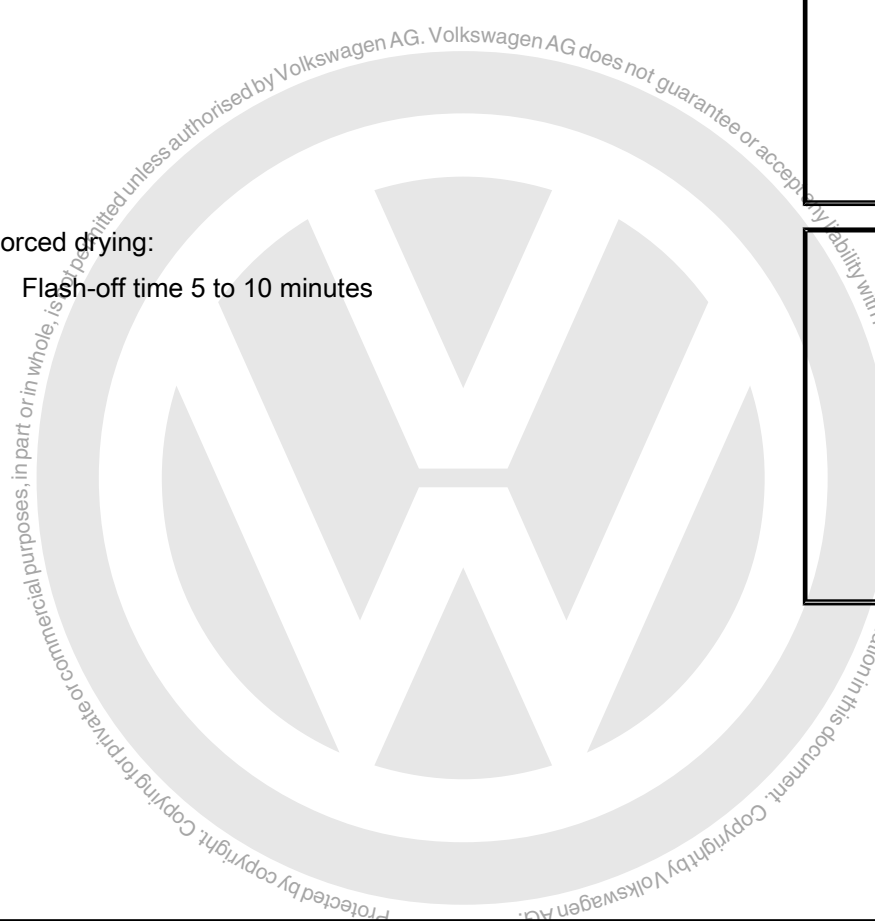
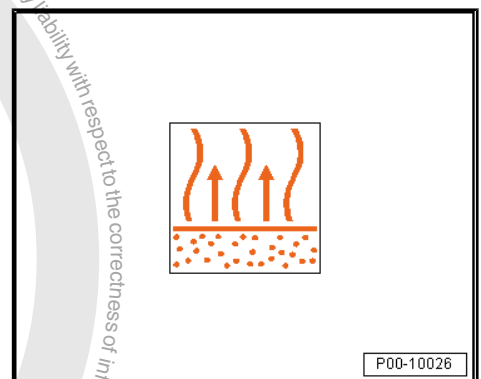
Air drying at +20 °C room temperature:

- Can be sanded after 2 hours



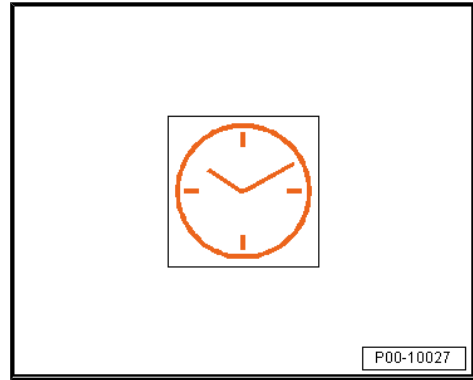
Forced drying:

- Flash-off time 5 to 10 minutes



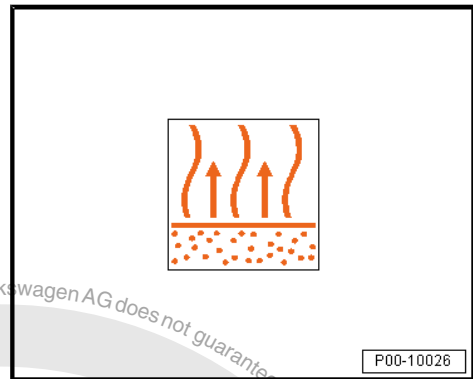


- Drying time 30 to 35 minutes at +60°C to 65°C material temperature



Infrared drying:

- Flash off time at least 5 minutes

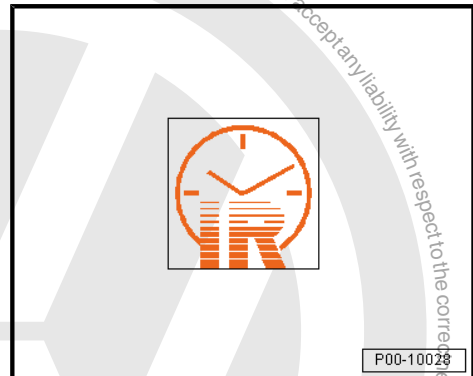


- Drying time 10-12 minutes, short-wave radiant heater at 50% power.



Note

Temperature resistance to +80°C.



Further steps

Dry sanding:

- First sanding dry with P120 to P220-grade sandpaper
- Second sanding dry with P240 to P360-grade sandpaper



Note

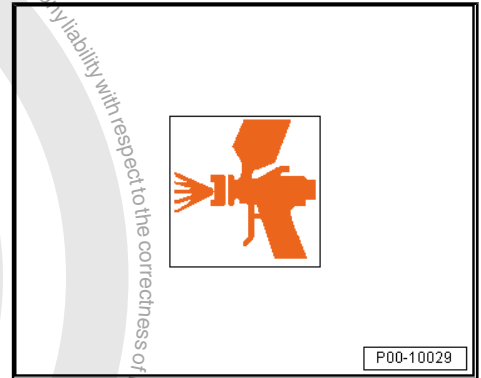
Dry sanding should be carried out with a suitable sander and a dust collector.





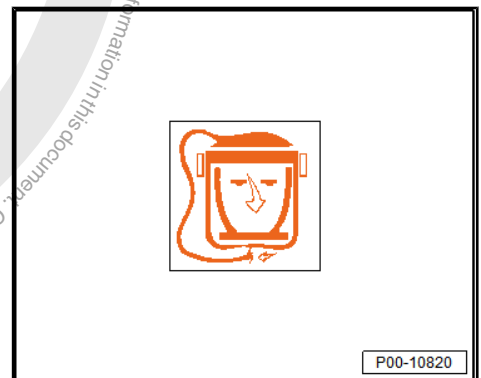
Recoating

- Rework with:
 - ◆ 2-pack wash primer - LHV 043 000 A2- (only where sanded to bare metal).
 - ◆ 2-pack HS surfacer
- Top coat as:
 - ◆ Water-based base coat and 2-pack HS clear coat and 2-pack HS top coat



Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



Data

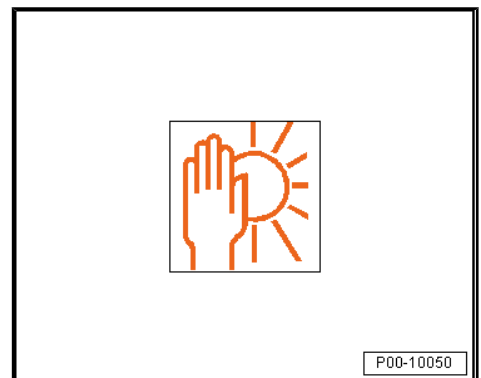
Viscosity as supplied	Thixotropic
Flash point:	above 23 °C
VOC content: 2004/42/IIIB (b) (250) 250	The EU limit for this product (product category II B.b) in ready-to-spray form is max. 250 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 250 g/l.

Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

Storage conditions

- Storage temperature +20 °C (do not exceed +30 °C)



3.3.5 2-pack IR premium filler

Designations:

- ◆ 2-pack IR premium filler - LSP 787 220 A1-
- ◆ 2-pack IR premium filler - LSP 787 220 A2-
- ◆ 2-pack IR premium filler - LSP 787 220 A3-

Issue 01.2017

Product description

2-pack IR premium filler - LSP 787 220 A1/A2/A3- is a high-grade polyester filler for passenger car refinishing.

- ◆ For all common metallic substrates
- ◆ Very good adhesion to galvanised substrates



- ◆ Good sanding properties
- ◆ Easy to apply and non-porous
- ◆ Especially suitable for IR drying

Technical data sheet

Substrate

Suitable substrates:

- ◆ Sheet steel
- ◆ Galvanised sheet steel
- ◆ Aluminium
- ◆ Well-sanded factory paint or old paint
- ◆ Fully cured, primed two-pack surfacers and two-pack primers
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents

⇒ **“2.3 Fundamental approach to dealing with areas sanded through to the substrate (bare metal surface)”, page 9**



Caution

This filler may not be applied to PVB (acid-curing) surfaces or 1-pack primer (e.g. synthetic resin).

It is also unsuitable for thermoplastic or viscoelastic paint.

Substrate pre-treatment:

- Carefully remove any grease and sand surface.
- For UP-GF (fibreglass) substrate parts, remove residual release agents and lightly sand surface.
- Before recoating all substrates, use a suitable cleaning agent to ensure a clean surface free of residues.

Application

Means of application:

- With filling knife



P00-10037



P00-10031



Mixing ratio:

- Addition of 2% by weight 2-pack hardener - LVM 018 000 A1/A2- .

i Note

Avoid adding too much hardener, as this can lead to bleeding through, especially with dayglow paints and light metallic colours.

Pot life:

- At +20°C ambient temperature, approximately 2 to 4 minutes.

Reaction temperature:

- At least +5 °C

Drying

Air drying:

- Drying time at +20°C room temperature approx. 15 to 30 minutes

Infrared drying:

Drying time:

- ◆ Short-wave radiant heater, 2 to 3 minutes (at 50% power).

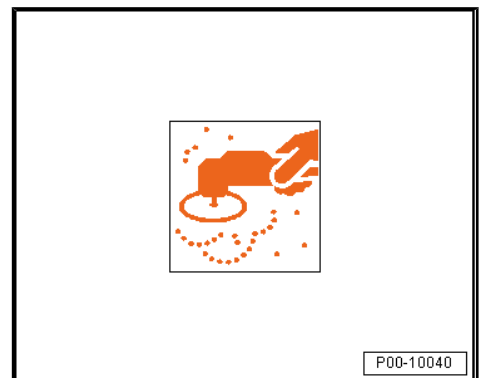
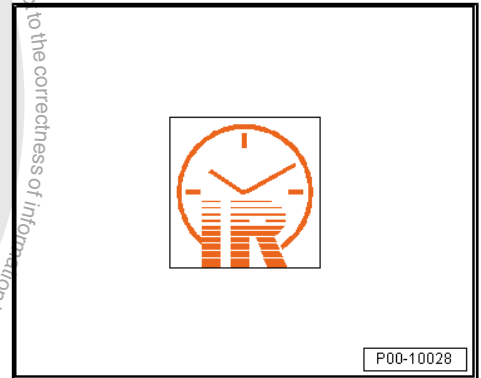
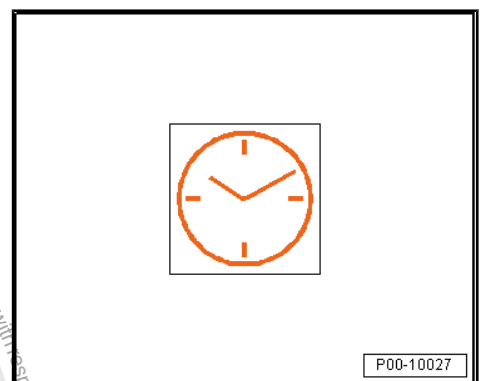
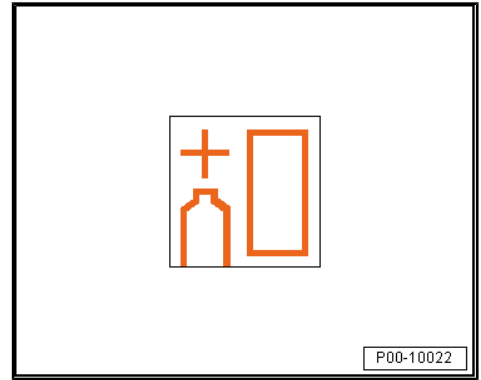
Sanding

After the drying times given above:

- Coarse sanding dry with P80 to P120 grade sandpaper.
- Fine sanding dry with P180 to P240 grade sandpaper.

i Note

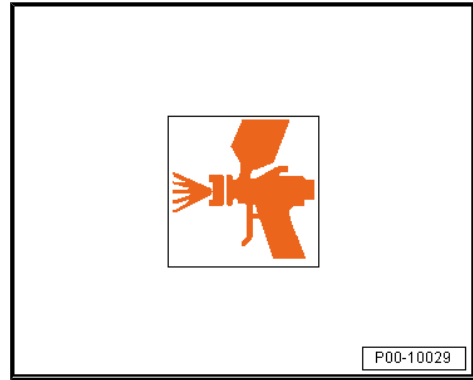
Temperature resistance to +80°C.





Recoating

- ◆ Apply fine filler alone.
- ◆ Coat fine filler with 2-pack fine filler - LSP 784 002 A2- or with 2-pack spray filler - ALN 788 007- (except on galvanised sheet metal).
- ◆ Prime sanded-down metal surfaces and filled surfaces again using 2-pack wash primer - LHV 043 000 A2- , and then apply 2-pack HS Performance surfacer .

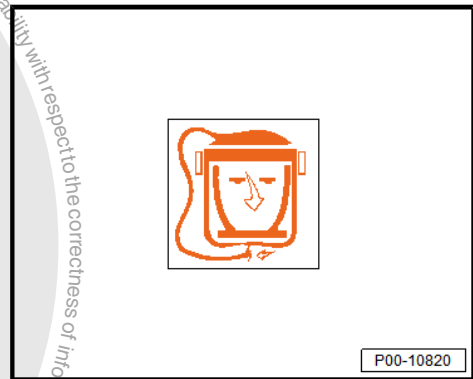


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Viscosity as supplied	Paste-like
Flash point:	Filler above 23 °C
VOC content: 2004/42/IIIB (b) (250) 150	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 250 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 150 g/l.

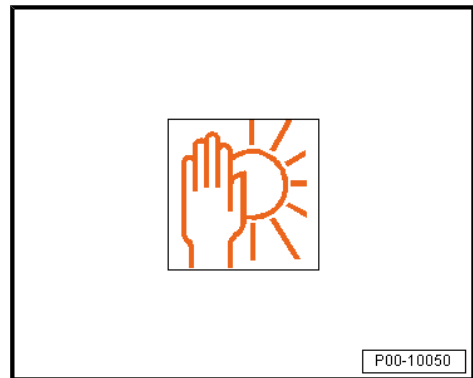


Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

Storage conditions

- Storage temperature +20 °C (do not exceed +30 °C)



3.3.6 2-pack epoxy resin filler

Designation:

- ◆ 2-pack epoxy resin filler - D 787 400 M2-

Issue 03.2017

Product description

2-pack epoxy resin filler is a fast curing epoxy resin filler for use on vehicle bodies.

The mineral-filled filler (no contact corrosion) is specially designed for use as a tin replacement and as a filler for joints and seams.

As it is fast curing and simple to process it is a cost-effective solution in the field of body repairs.



Areas of application

- ◆ Replacement for alluvial tin
- ◆ Filler for joints
- ◆ Bonding metal
- ◆ Carrier system for paint

Properties

- ◆ Good adhesion on steel, aluminium and zinc
- ◆ Easy to process
- ◆ Ideal carrier system for paint
- ◆ Easy to shape and outstanding sag resistance
- ◆ Fast curing
- ◆ Dies not sag or run

Technical data sheet

Substrate

Substrate pre-treatment:

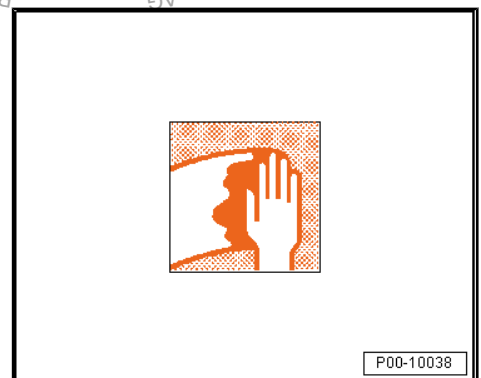
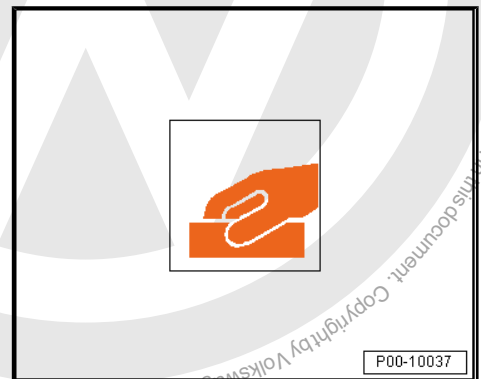
- Carefully degrease the substrate and sand down to bare metal with P60-grit sandpaper.

- Clean soiled surface again, and remove any residue from cleaning.

Application

Type of application

- With filling knife





Mixing ratio:

- 2-component epoxy filler is delivered in a closed 2-component cartridge and does not require manual mixing. Before attaching the mixer, press out some of the material until both components emerge evenly. After this, screw on the mixer. Press out material until a uniform grey colour is achieved. Do not use the first 5 cm of the extruded material as it may not have been mixed correctly.

Processing time

- ◆ Pot life at +20 °C room temperature approximately 30 minutes

Curing

- ◆ 4 hours

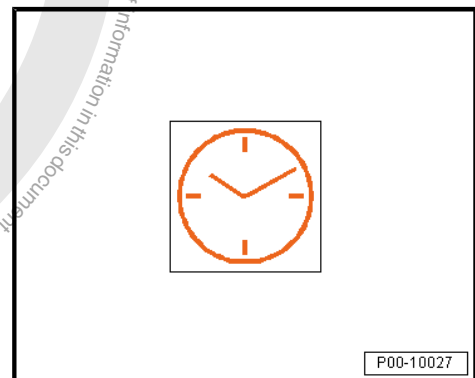
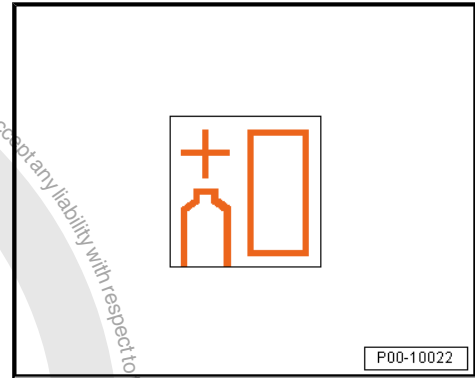
Top coat

- ◆ 1.5 - 2 hours

Drying

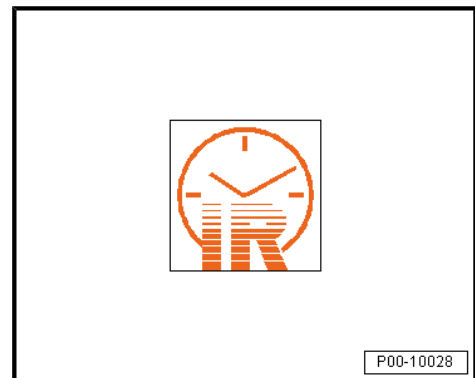
Air drying:

- ◆ 4 hours



Drying by means of short-wave infrared dryer:

- ◆ Curing 1st stage: 10 minutes at 45 °C
- ◆ Curing 2nd stage: 10 minutes at 85 °C
- ◆ Curing 3rd stage: allow to cool down to room temperature of 20 °C to 25 °C



Note

- ◆ *It is essential to ensure that the material does not overheat to temperatures above 100 °C during curing.*
- ◆ *When hardening at corners and curvatures, care must be taken to ensure that a consistent hardening temperature is maintained. The devices may have to be moved.*

Sanding

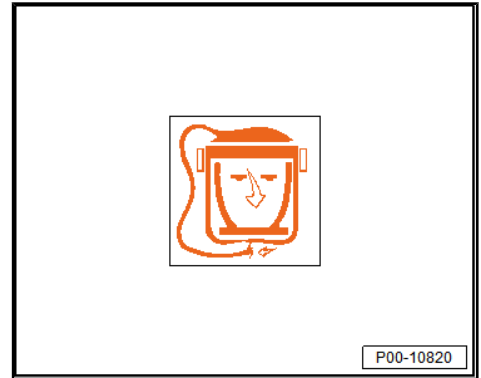
The cured and cooled material can be ground with a body file or dry sandpaper (P80).





Personal protective equipment

- ◆ Adhere to the safety data sheet.
- ◆ Process only in well ventilated rooms
- ◆ Wear personal protective equipment during application.
- ◆ It is recommended to use a dust collector.



Technical data

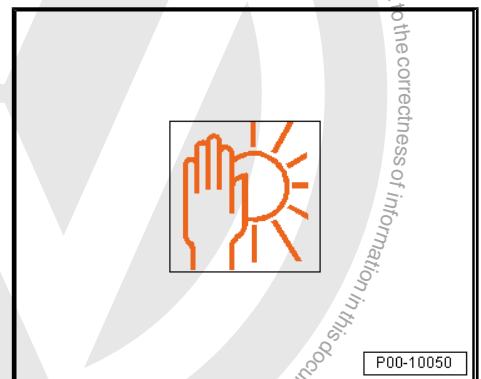
Density	approx. 1.55 g/cm ³
Shore D hardness at 20 °C	84
Working temperature	+10 °C to +50 °C
Temperature resistance	-40 °C to +110 °C
Optimum layer thickness	Up to 10 mm

Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

Storage conditions

- ◆ Store cool and dry
- ◆ Preferred storage temperature +10 °C to +30 °C.
- ◆ No direct sunlight



3.4 Priming metal

⇒ ["3.4.1 1-pack anti-corrosion wash primer", page 89](#)

⇒ ["3.4.2 1-pack wash primer", page 93](#)

⇒ ["3.4.3 2-pack wash primer", page 97](#)

3.4.1 1-pack anti-corrosion wash primer

Designation:

- ◆ 1-pack anti-corrosion wash primer - ALN 002 003 10-

Issue 06.2011

Product description

1-pack anti-corrosion primer is a zinc chromate-free one-pack product based on polyvinyl butyral for passenger car refinishing.

The special combination of pigments and binders provides good corrosion protection and adhesion and is also certified suitable for application on welded joints. However, because this product is non-conductive, it is not suitable for use with spot-weld work.

It is recommended to apply a coat of 2-pack HS surfacer over the 1-pack anti-corrosion wash primer - ALN 002 003 10- at remaining



rust spots on corners and edges, as well as areas which have been sanded bare.

Technical data sheet

Substrate

Suitable substrates:

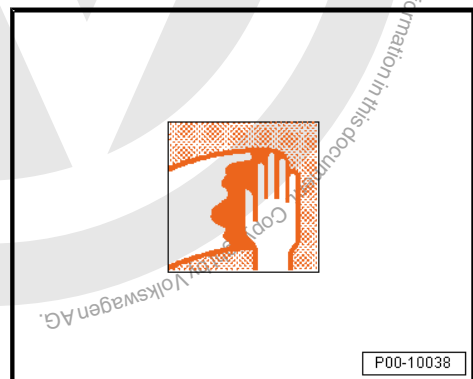
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Lightly sanded factory primer
- ◆ Fully cured, solvent-resistant, well-preserved and sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

- Dry sand using orbital sander with P400 to P500-grit sandpaper and dust collector.

- Wet sand with P800 to P1000-grit sandpaper. Completely remove any rust spots and sand feather edges to old paint.





Application

Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

Add 40% thinner at a material temperature of +20°C.

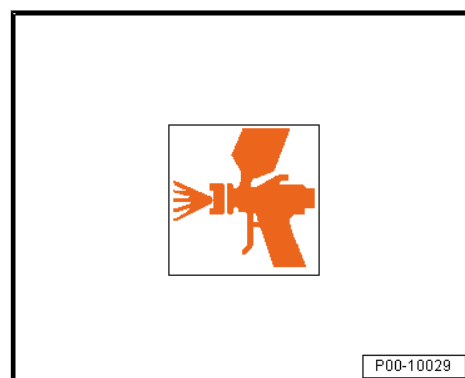
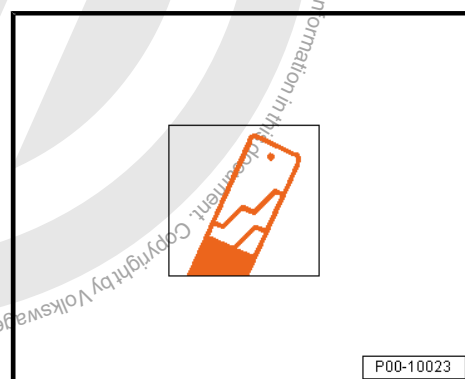
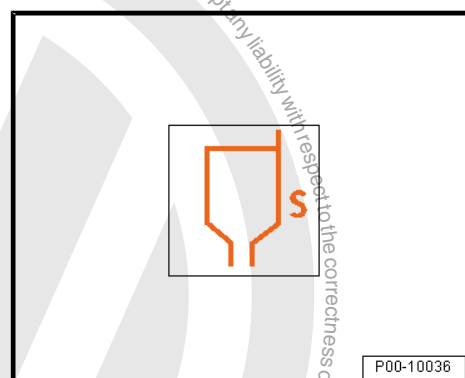
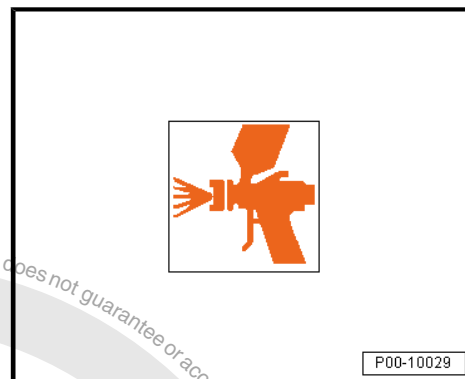
- If thinner is added, use measuring stick to mix.

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 18-20 seconds.

ISO 4 mm: 44-53 seconds.

- Adjust spray nozzle following manufacturer's instructions to 1.3-1.4 mm for "Compliant" and "HVLP".
- Adjust spray pressure following manufacturer's instructions to 1.5-3.0 bar, "Compliant".





- Apply in two coats.
- Prescribed dry film thickness is 15-20 µm.

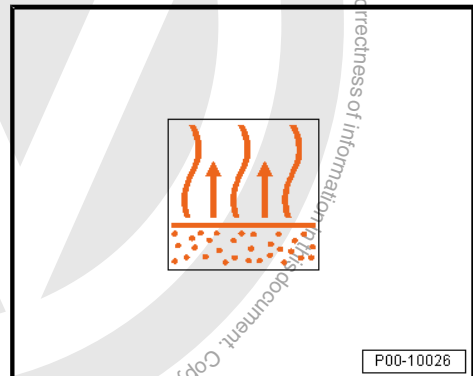
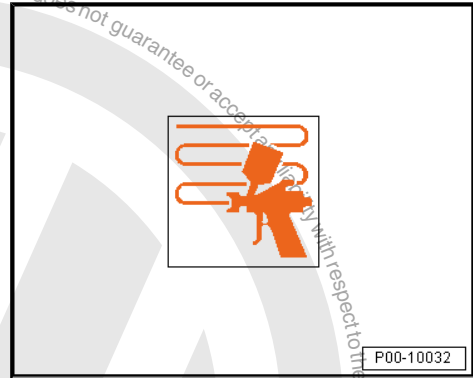
Method of application: "brush"



Note

- ◆ When "brushing", apply the material in one or two operations.
- ◆ Viscosity as supplied is identical to application viscosity.

Flash-off time is 15-25 minutes and +20°C ambient temperature



Recoating

Recommended structure:

- ◆ Apply 2-pack HS surfacer ⇒ [page 104](#)



Caution

Do not recoat with polyester products.

Do not recoat with epoxy products.

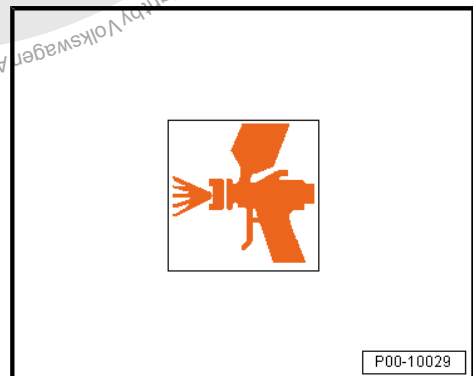
Do not overpaint directly with water-based base coat.

Do not use on thermoplastic paint.

The following three-stage structure is recommended:

- ◆ Prime with 1-pack anti-corrosion wash primer - ALN 002 003 10-
- ◆ Isolate with 2-pack HS surfacer
- ◆ Top coat

The three-stage structure must be used for galvanised substrates.



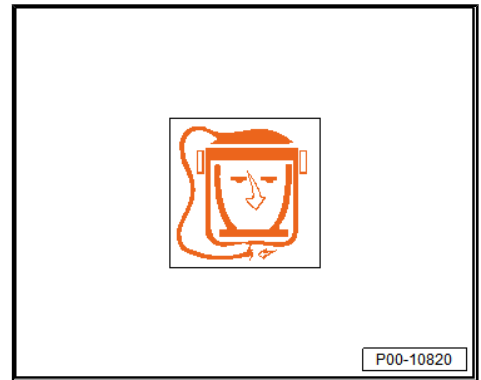


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

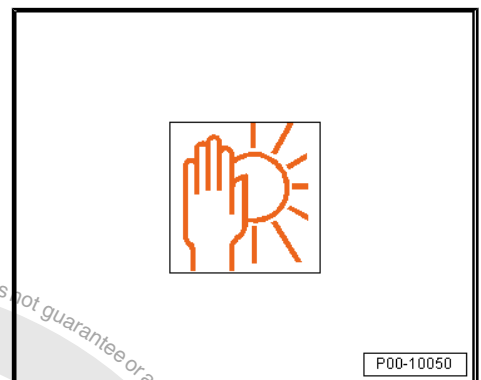
Data

Viscosity as supplied	90-100 seconds
Flash point:	above +23 °C
VOC content: 2004/42/II B (c) (780) 780	The EU limit for this product (product category II B.c) in ready-to-spray form is max. 780 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 780 g/l.



Storage

The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.4.2 1-pack wash primer

Designation:

- ◆ 1-pack wash primer - LVM 044 007 A2- , light grey
- ◆ 1-pack wash primer - LVM 044 171 A2- , dark grey

Issue 08.2013

Product description

The 1-pack wash primer is a zinc chromate-free single-pack product suitable for all commonly found metallic substrates.

- ◆ Suitable for all common metallic substrates
- ◆ VOC compliant with good corrosion protection
- ◆ Easy-to-use (1-pack material)
- ◆ Has welding certificate.
- ◆ Available in light grey and dark grey

Technical data sheet

Substrate

Suitable substrates:

- ◆ Steel
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Lightly sanded factory primer (not for large surfaces of lightly sanded electrophoretic primer of new parts)
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)



- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

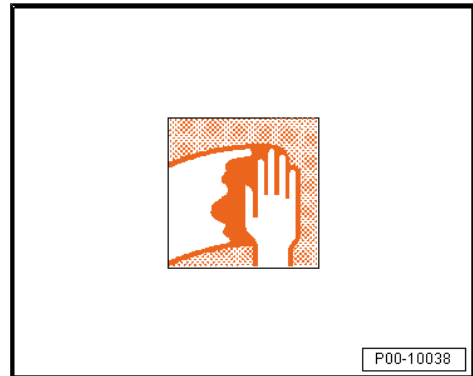


Note

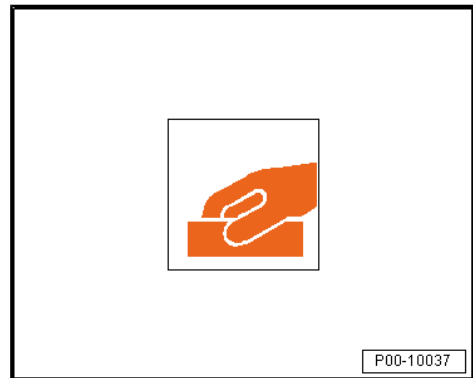
Owing to the wide variety of metal alloys and manufacturing processes, it is essential to carry out a preliminary test on the respective substrate to ensure that the pretreatment is sufficient to guarantee perfect adhesion.

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Clean and lightly sand factory paint or old paint, completely remove any rust spots and sand feather edges to the old paint.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.





Application

Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-
- ◆ 2-pack thinner, slow-drying - LVM 009 300 A2- (for large objects and high temperatures)

Method of application: "spray".

- Application viscosity 4 mm, at +20°C, DIN 53211 is the mixing viscosity.

Add 50 % thinner at a material temperature of +20°C.

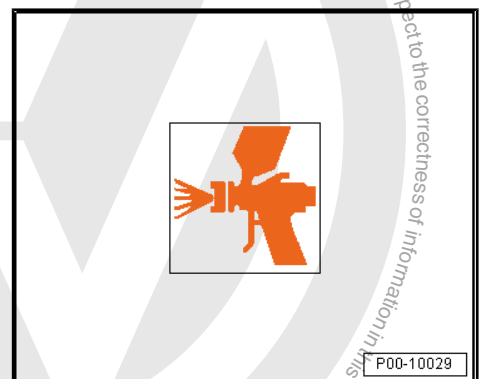
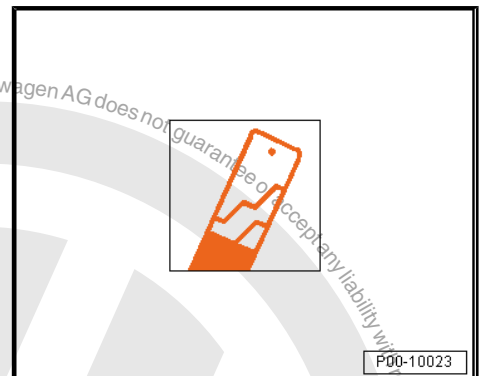
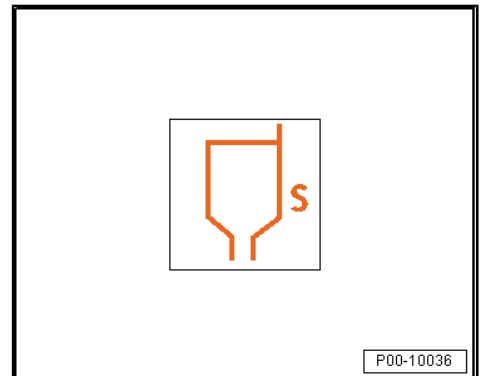
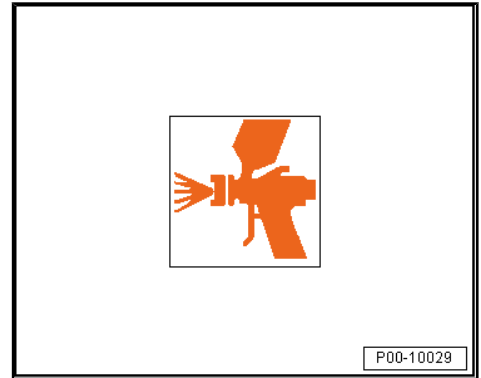
- If thinner is added, use measuring stick to mix.

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 18-20 seconds

ISO 4 mm: 36-45 seconds

- Adjust spray nozzle following manufacturer's instructions to 1.3-1.5 mm for "Compliant" and "HVLP".
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".





- When using as wash primer, apply one spray coat.
- Prescribed dry film thickness is 10-15 µm.



Note

Small bare-metal spots may be isolated using water-based base coat or 2-pack HS top coat only with wet-on-wet application or with intermediate sanding on top of 1-pack wash primer - LVM 044 007 A2- / -LVM 044 171 A2- if the bare-metal spot is not greater than 5.0 cm in diameter.

Flash-off time at +20 °C ambient temperature, recoat after:

- ◆ 10-15 minutes with 2-pack HS surfacer
- ◆ 20-30 minutes with water-based base coat (only for small bare-metal spots)
- ◆ 10-15 minutes with 2-pack HS top coat (only for small bare-metal spots)
- ◆ Dry for sanding in 45-60 minutes

Recoating

Application	Recoat with
As wash primer	2-pack HS surfacer
as wash primer with intermediate sanding	Wet sanding with sandpaper grit P 800-1000

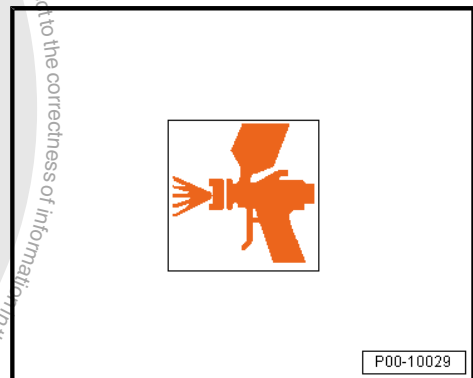
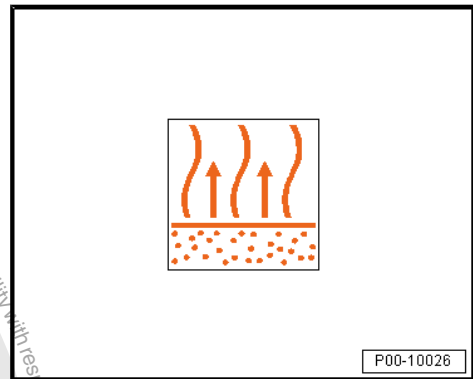
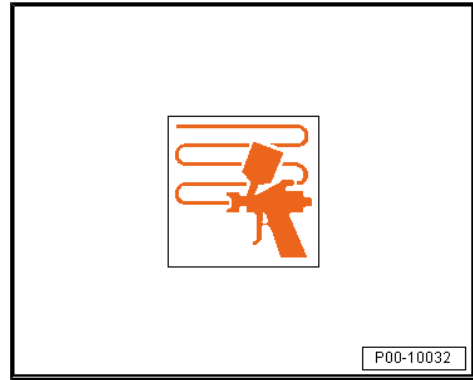
Recoat with:

- ◆ Water-based base coat and 2-pack HS clear coat (only for small bare-metal spots).
- ◆ 2-pack HS top coat (only for small bare-metal spots).



Caution

- Do not recoat with polyester products.***
- Do not use on thermoplastic paint.***
- Do not recoat with epoxy products.***
- Do not recoat with water-based products.***
- Cannot be dry sanded.***





Personal protective equipment:

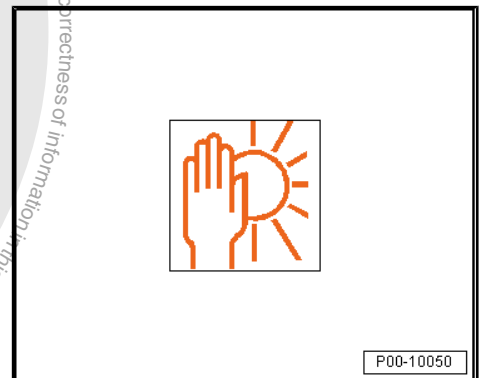
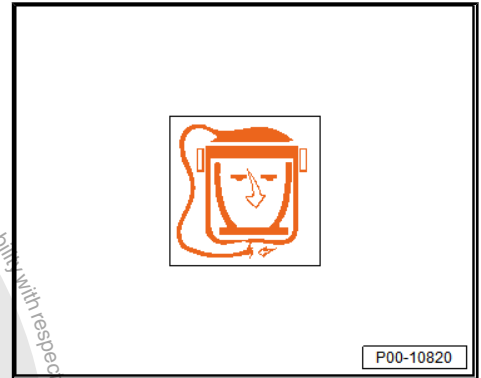
- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Viscosity as supplied	Minimum 60 seconds
Flash point:	above +23 °C
VOC content: 2004/42/II B (c) (780) 760	The EU limit for this product (product category IIB.c) in ready-to-spray form is max. 780 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 760 g/l.

Storage

The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.4.3 2-pack wash primer

Designation:

- ◆ 2-pack wash primer - LHV 043 000 A2-

Issue 10.2010

Product description

The 2-pack wash primer is a zinc chromate-free, phenol-free, acid-curing two-pack wash primer from our PVB system.

- ◆ Passivation qualities provide excellent corrosion protection
- ◆ For all metal substrates, in particular for aluminium and galvanised steel panels
- ◆ Easy to apply
- ◆ Colour: olive grey

Technical data sheet

Substrate

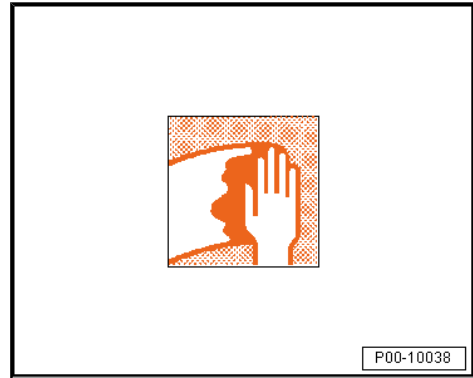
Suitable substrates:

- ◆ Bare sheet steel, cleaned and sanded
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Lightly sanded factory primer
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded



Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Clean and lightly sand factory paint or old paint, completely remove any rust spots and sand feather edges to the old paint.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

Mixing ratio:

- 1:1 by volume with 2-pack additive solution - LHA 004 000 A2-

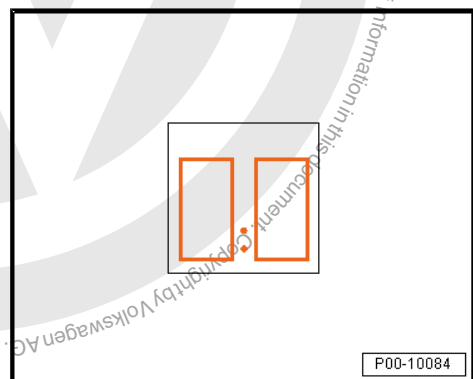
Pot life:

- Mixed for spraying, 8 to 10 hours at +20 °C



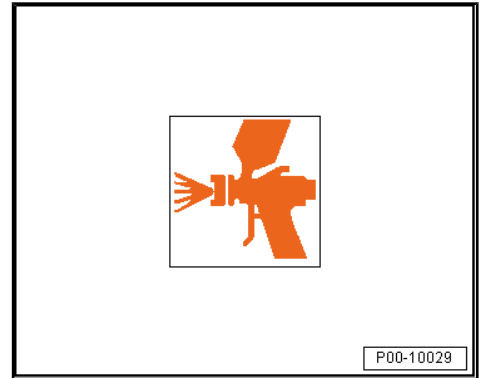
Note

Mixed material must be used the same day.





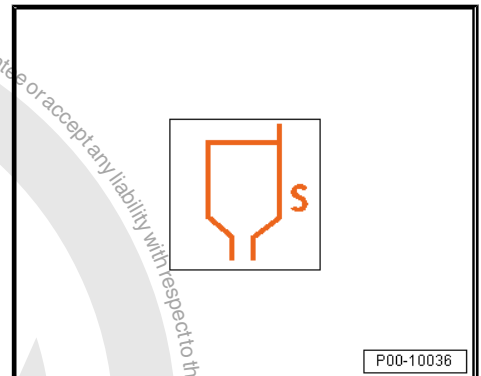
Method of application: "spray".



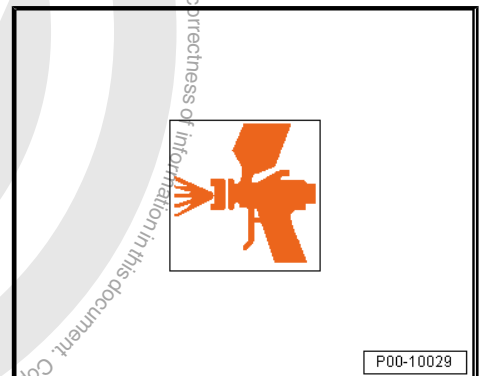
- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

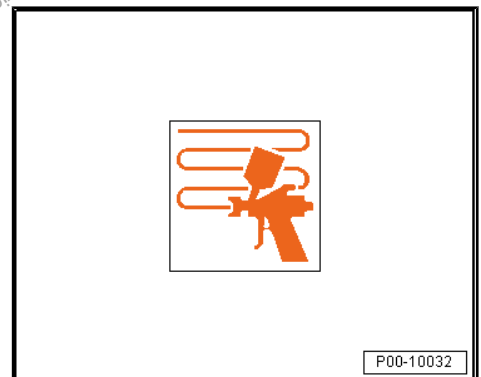
DIN 4 mm: 16-18 seconds



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



- Prescribed dry film thickness is 8-12 µm.





Drying

Air drying at +20°C ambient temperature, may be resprayed after 30 minutes.



WARNING

Force drying and infrared drying are not possible because they can cause intermediate adhesion problems.



P00-10027

Recoating

After the flash-off time at +20°C, can be sprayed over with 2-pack HS surfacer

It can then be painted over with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat



Caution

Do not recoat with polyester products, epoxy products or water-based products.

Do not use on thermoplastic paint.

Do not directly overpaint with water-based base coat or 2-pack HS top coat.



P00-10029

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Viscosity as supplied	Minimum 60 seconds
Flash point:	above +23 °C
VOC content: 2004/42/IIIB (c) (780) 780	The EU limit for this product (product category IIB.c) in ready-to-spray form is max. 780 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 780 g/l.



P00-10820



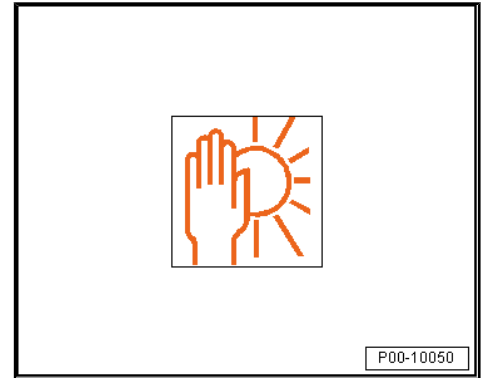
Note

Coverage was calculated on the basis of the recommended coat thickness and the percentage by volume of non-volatile material (without added thinner). The respective loss during application was not taken into account.



Storage

Guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.5 Priming plastic materials

⇒ **"3.5.1 Adhesion promoter (transparent)", page 101**

3.5.1 Adhesion promoter (transparent)

Designation:

- ◆ Adhesion promoter - ALO 822 000 10- (transparent)

Issue 06.2011

Product description

This transparent adhesion promoter is a versatile single-pack adhesion promoter for all plastic parts commonly found on vehicle exteriors.

This adhesion promoter is characterised by its excellent adhesion, high plasticity and easy application.

Technical data sheet

Substrate

Suitable substrates:

All plastic parts commonly found on vehicle exteriors.

- ◆ PP, EPDM, ABS, PC, PPO, PA, R-TPU, PBTP, PVC.
- ◆ PUR, PUR flexible foam.
- ◆ UP-GF

Substrate pre-treatment:

The substrate must be free of release agents.

Before cleaning plastic part, temper for 60 minutes at +60°C to "sweat out" the separating agents.

- Clean with anti-static plastic cleaner - LVM 001 001 A2- or with the milder slow-drying silicone remover - LVM 020 100 A5- .



Note

- ◆ *The extent of the cleaning required will vary according to the type and quantity of separator used. We recommend using a sanding pad to help cleaning.*
- ◆ *Allow the thinner to evaporate well (e.g. air-dry overnight at room temperature or 30-40 minutes at +60°C).*





- Before priming, clean lightly once more with anti-static plastic cleaner - LVM 001 001 A2- or slow-drying silicone remover - LVM 020 100 A5- (with anti-static effect).

Application

Thinner:

- Do not add any thinner!

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211



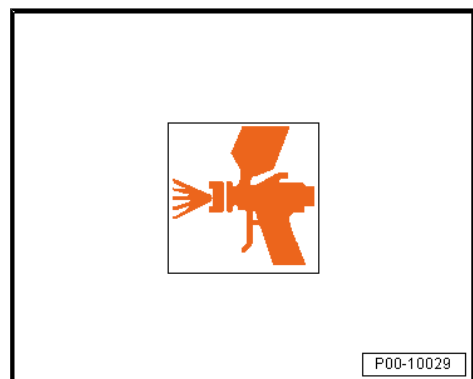
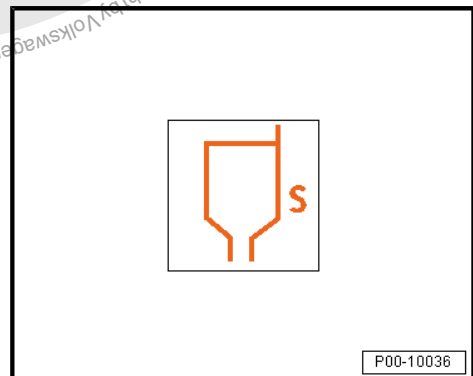
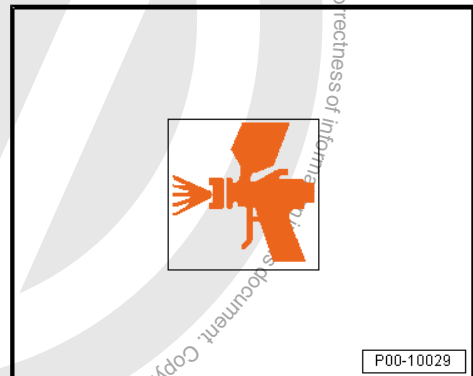
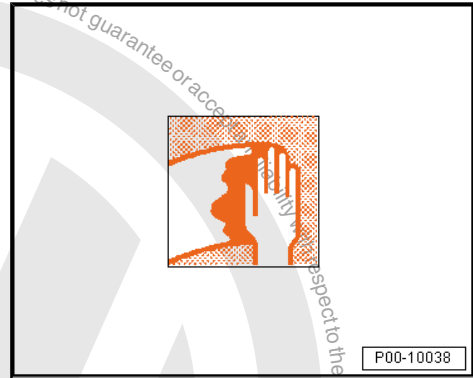
Note

Do not add any thinner! The viscosity as supplied is identical to the application viscosity.

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 11 seconds

- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



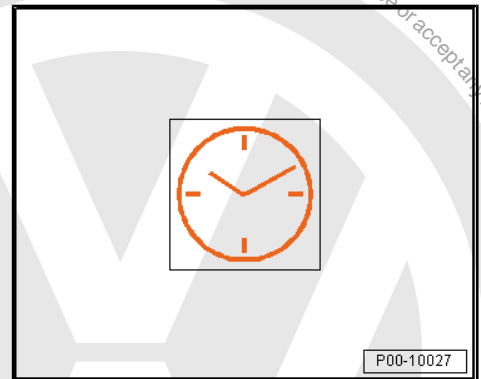


- One full coat is 1-2 µm.

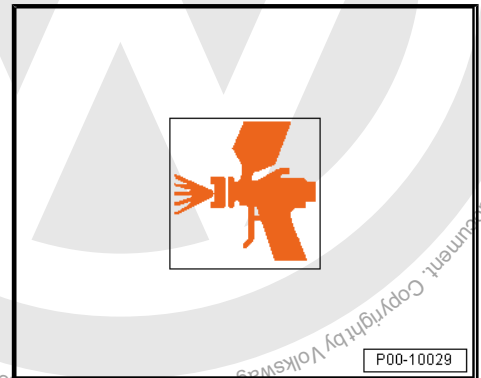


Drying

Air drying at +20°C ambient temperature, may be resprayed after 15 minutes.



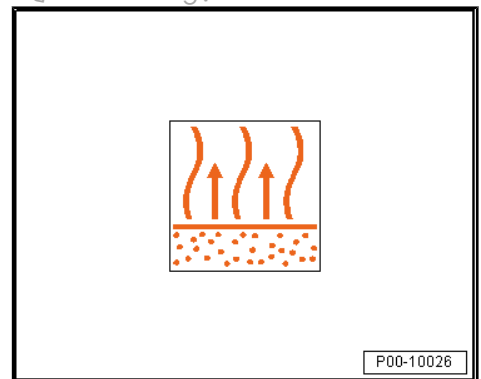
Recoating



After flash-off period at +20°C, may be resprayed with 2-pack HS surfacer plasticized with 2-pack plasticizer additive - ALZ 011 001- .

It can then be painted over with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat



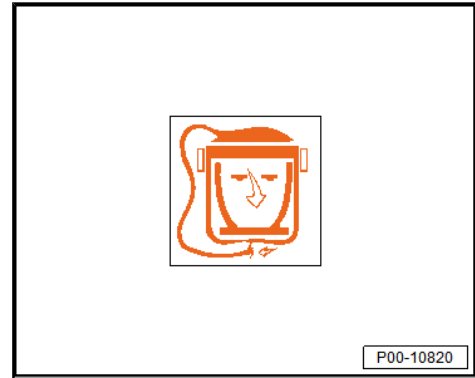


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

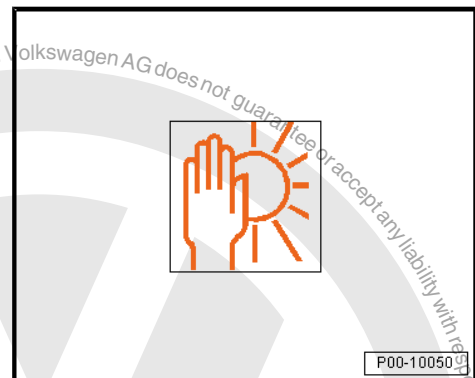
Data

Viscosity as supplied	11 seconds
Flash point:	above +23 °C



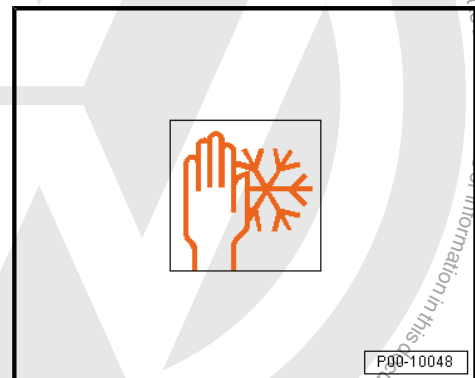
Storage

The guaranteed shelf life is 24 months from date of production.
 Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



Storage conditions

The prescribed storage temperature is +20 °C. (Do not store at temperatures below +5 °C.)



3.6 Surfacers

- ⇒ [“3.6.1 2-pack HS Vario surfacer”, page 104](#)
- ⇒ [“3.6.2 2-pack HS premium surfacer”, page 113](#)
- ⇒ [“3.6.3 2-pack HS Performance surfacer”, page 119](#)
- ⇒ [“3.6.4 2-pack primer surfacer for plastics”, page 126](#)
- ⇒ [“3.6.5 2-pack HS wet-on-wet surfacer”, page 130](#)
- ⇒ [“3.6.6 2-pack base filler, professional”, page 137](#)

3.6.1 2-pack HS Vario surfacer

Designation:

- ◆ 2-pack HS Vario surfacer - LGF 786 004 A4- , grey

Issue 02.2018

Product description

2-pack HS Vario surfacer is a high-grade, versatile, VOC-compliant 2-pack HS surfacer based on acrylic resins.



Properties:

- ◆ Can be applied wet-on-wet or as sanding surfacer
- ◆ Can be mixed with HS and VHS hardeners
- ◆ Good insulating properties even on old thermoplastic paint
- ◆ Very good top coat flow

Technical data sheet

Substrate

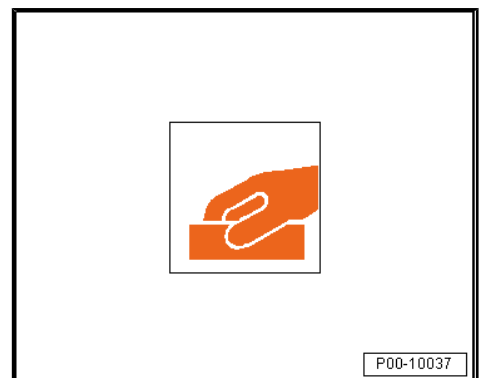
Suitable substrates:

- ◆ Sheet steel, electroplated or roller galvanized sheet steel or soft aluminium, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007/171 A2- (only small sand-through areas).
- ◆ Finely sanded or unsanded, thoroughly cleaned, original factory primer
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Lightly sanded factory paint or old paint (including thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents

Substrate pre-treatment:

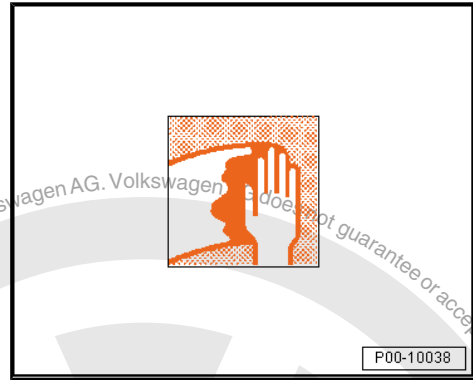
- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

- Then lightly sand.





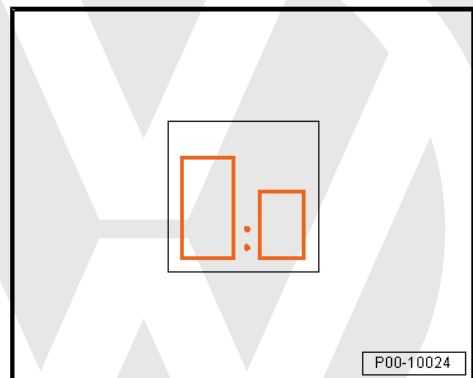
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application with intermediate sanding

Mixing ratio: 5:1 by volume with

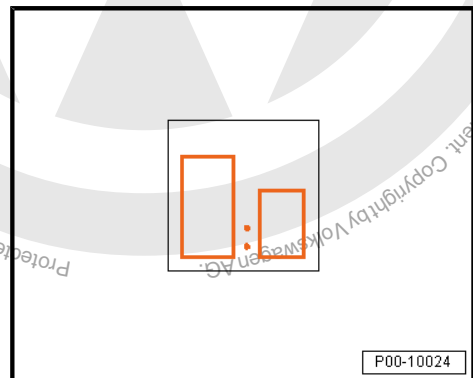
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-



Mixing ratio: 3:1 by volume with

- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

For plasticizing, see ⇒ [page 112](#)

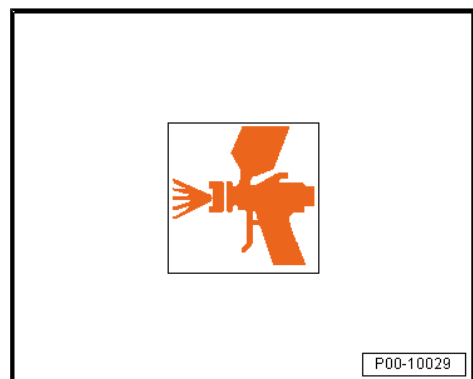


Application time/pot life:

- Ready to spray preparation 30-60 minutes at +20°C (depending on the hardener used)

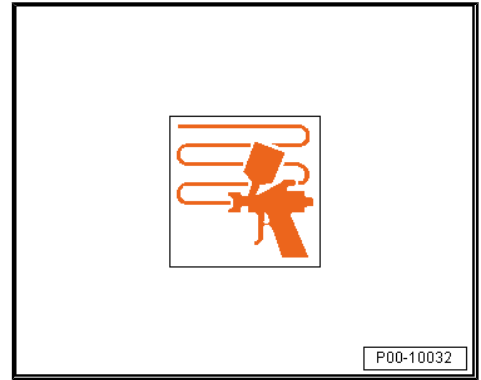
Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-





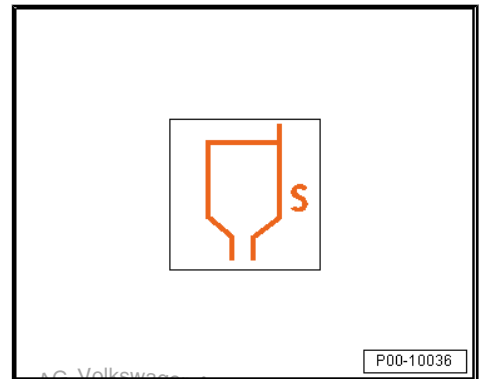
Method of application: "spray".



- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 20-25 seconds

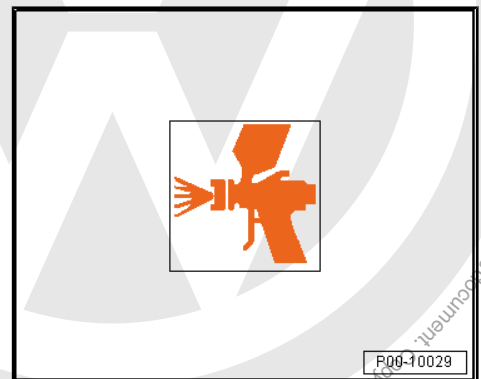


Add 10-15% HS hardener or 10-20% VHS hardener at material temperature +20°C.

- If hardener is added, use measuring stick to mix.



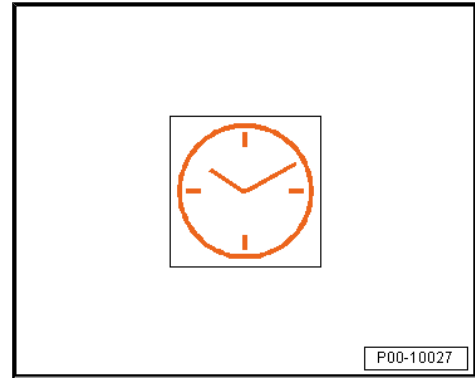
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.4-1.8 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.7 to 1.9 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.5 to 2.0 bar.
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- 2 spray coats are necessary to achieve a dry-film thickness of 50-80 µm.
- 3 spray coats are necessary to achieve a dry-film thickness of 100-120 µm.
- Recommended dry film thickness is 50-120 µm.



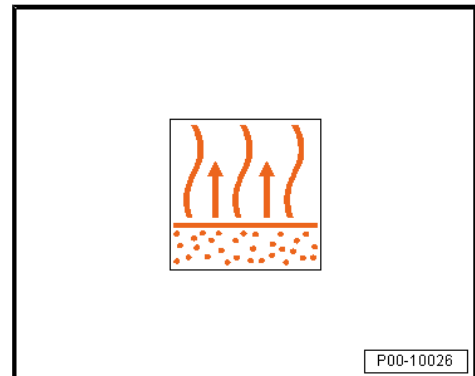


Drying with intermediate sanding

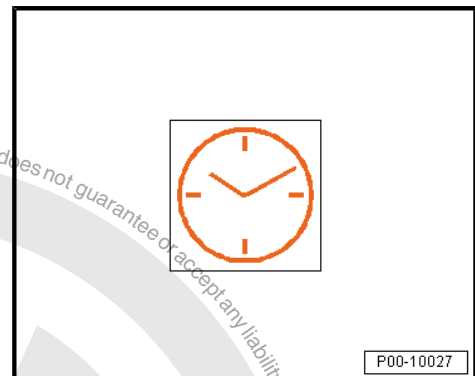
Air dry at +20 °C ambient temperature; must dry overnight before sanding.



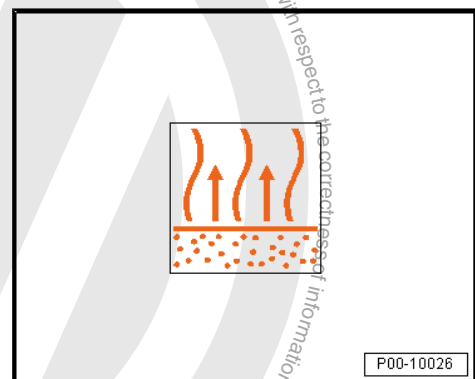
Final flash-off time with force drying is at least 5-10 minutes.



Force drying at +60 to 65°C material temperature in 25 to 40 minutes.



Final flash-off time with infrared drying is at least 5-10 minutes.



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Infrared drying (depending on layer thickness) short-wave radiant heater:

- ◆ 2 minutes (at 50 % output)
- ◆ 8 minutes (at 100 % output)

Further steps

- Dry sand using orbital sander with P400 to P600-grit sandpaper and dust collector.

Recoating with intermediate sanding

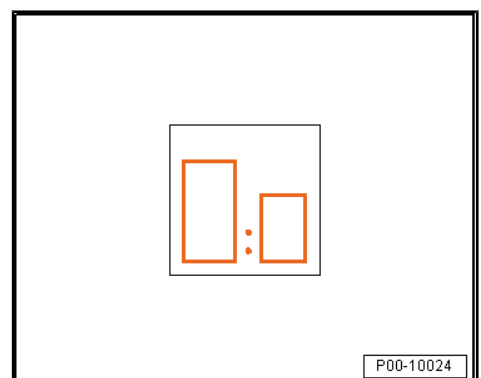
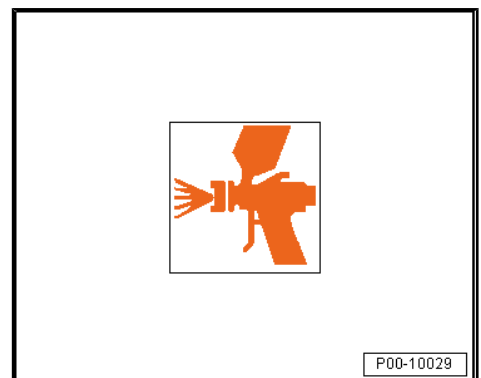
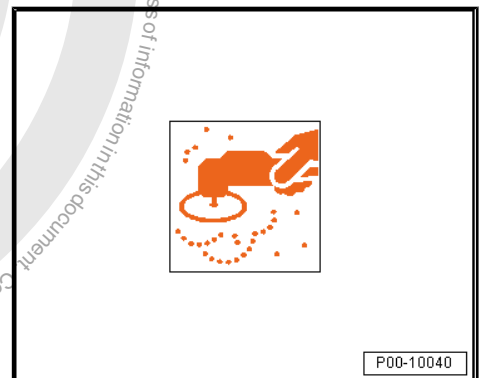
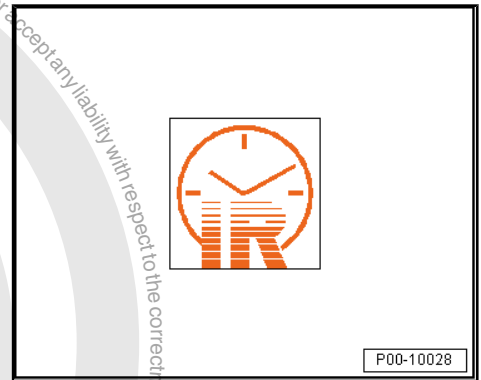
Recoat with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat

Application as "wet-on-wet" surfacer

Mixing ratio: 5:1 by volume with

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-





Mixing ratio: 3:1 by volume with

- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

Application time/pot life:

- Ready to spray preparation 30-60 minutes at +20°C (depending on the hardener used)

Thinner:

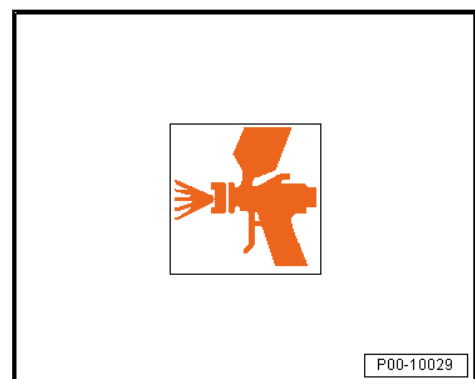
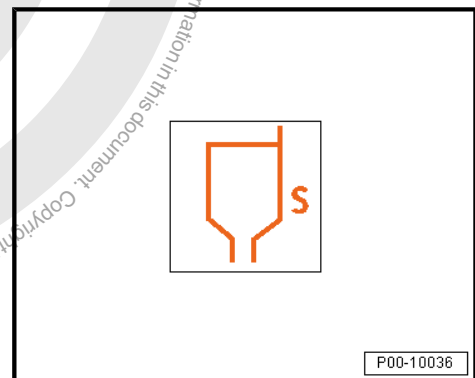
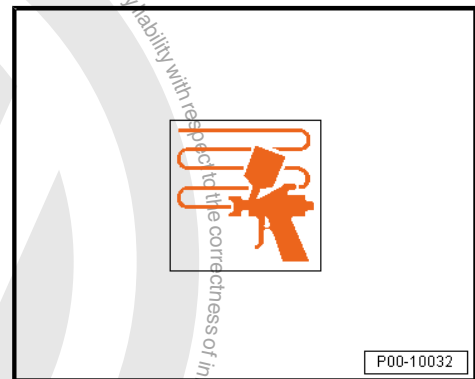
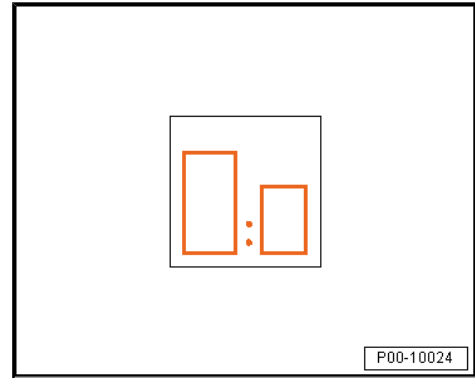
- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

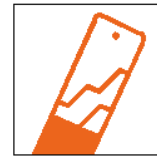
DIN 4 mm: 16-18 seconds





Add 20-25% HS hardener or 30% VHS hardener at material temperature +20 °C.

- If hardener is added, use measuring stick to mix.



P00-10023

- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3 to 1.4 mm.

Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3 to 1.4 mm.

Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.5 to 2.0 bar.

Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.

- Recommended dry film thickness is 25-30 µm. One or two spray coats are necessary to achieve this.

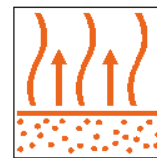


P00-10032

"Wet-on-wet" application

Flash-off time before top coat application at +20°C room temperature

- ◆ 15-20 minutes up to max. 90 minutes with 2-pack HS top coat
- ◆ 25-30 minutes up to max. 90 minutes with water-based base coat
- ◆ 30-35 minutes up to max. 90 minutes with Aqua Premium base coat.



P00-10026



Recoat as wet-on-wet surfacer

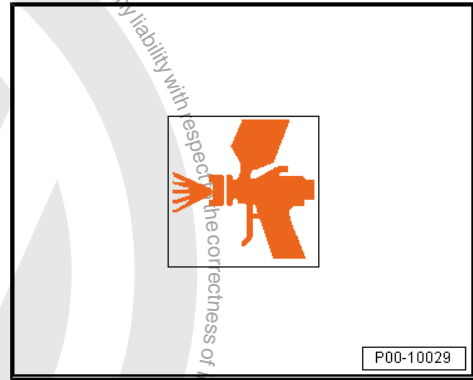
Recoat with:


- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat

Special notes

Plasticizing for rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- . Mixing ratio 3:1 with VHS hardeners and 20% thinner, 2:1 with HS hardeners and 20% thinner.
- ◆ The flash-off times before application of the water-based base coat/ 2-pack top coat are increased to 30 - 45 minutes.
- ◆ Any defects in the substrate can be treated using 2-pack polyester filler. After drying and intermediate sanding, isolate the filler patches with 2-pack HS Vario surfacer.
- ◆ To achieve an optimal finish on passenger cars, it is recommended to let the surfacer dry overnight before sanding it.
- ◆ Do not apply wet-on-wet on top of thermoplastic factory finish, and if possible let the surfacer dry overnight before sanding it.
- ◆ A minimum temperature of +15°C is recommended for air drying.



 **Caution**

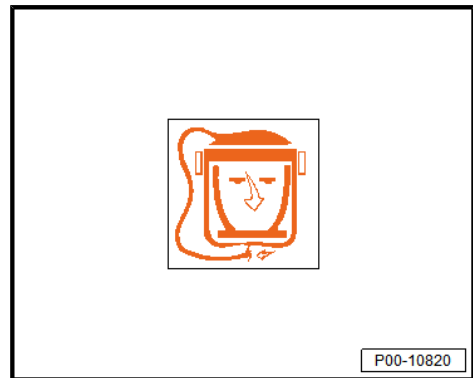
The flash-off times before application of the base coat/2-pack top coat series extend to 30 - 40 minutes.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

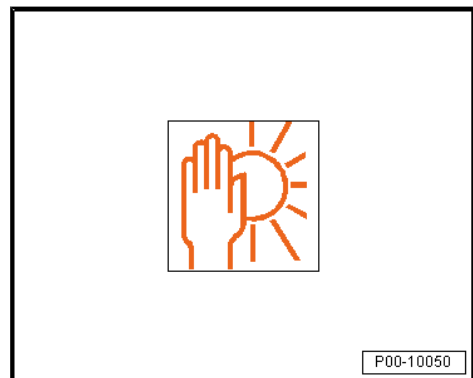
Data

Viscosity as supplied	Thixotropic
Flash point:	above 23 °C
VOC content: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 540 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 540 g/l.



Storage

The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





3.6.2 2-pack HS premium surfacer

Designation:

- ◆ 2-pack HS premium surfacer - LVM 013 171 A4- , dark grey
- ◆ 2-pack HS premium surfacer - LVM 013 173 A4- , medium grey
- ◆ 2-pack HS premium surfacer - LGF 013 007 A4- , light grey
- ◆ 2-pack HS premium surfacer - LGF 013 100 A4- , white
- ◆ 2-pack HS premium surfacer - LGF 013 190 A4- , anthracite

Issue 02.2018

Product description

2-pack HS premium surfacer is a very high-grade two-pack HS sanding surfacer based on acrylic resins.

Properties:

- ◆ Very long application time
- ◆ Optimal, reliable application properties
- ◆ Excellent sanding properties
- ◆ Excellent vertical stability
- ◆ Very high coverage
- ◆ Excellent filling power
- ◆ Outstanding top coat flow

Technical data sheet

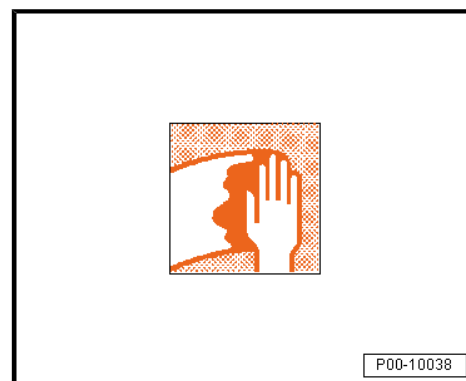
Substrate

Suitable substrates:

- ◆ Sheet steel, electroplated or roller galvanized sheet steel or soft aluminium, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007/171 A2- (only small sand-through areas).
- ◆ Finely sanded or unsanded, thoroughly cleaned, original factory primer
- ◆ Lightly sanded factory paint or old paint (including thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents

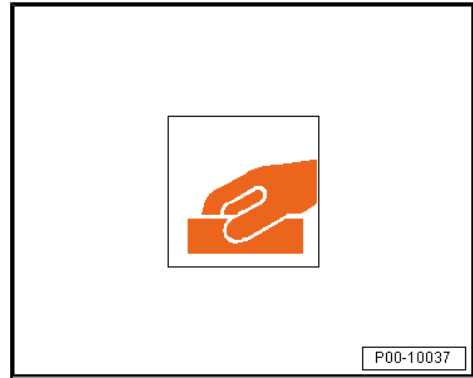
Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .





- Then lightly sand.



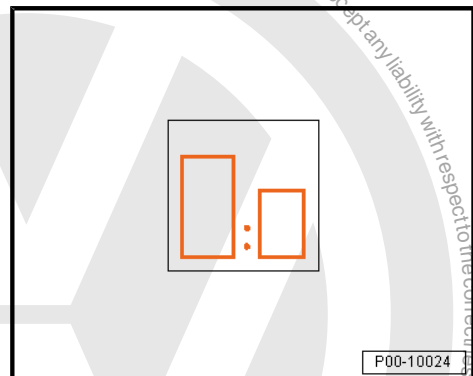
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

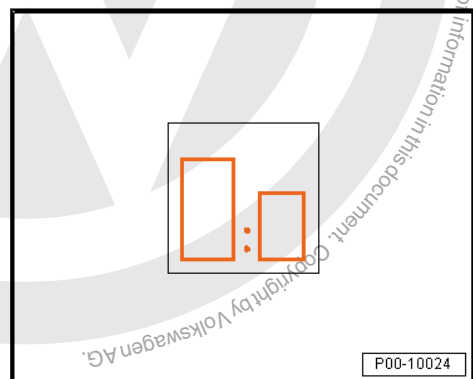
Mixing ratio: 4:1 by volume with

- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener, extra fast-drying - LHA 009 046 A2-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-



Mixing ratio: 7:1 by volume with

- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ 2-pack VHS performance hardener - LVM 009 038 A2-
- ◆ 2-pack VHS performance hardener, slow-drying - LVM 009 039 A2-



For plasticizing, see ⇒ [page 118](#)



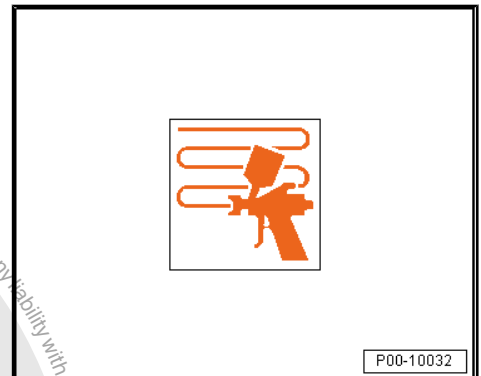
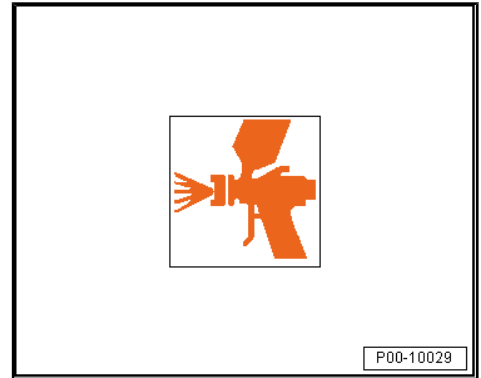
Application time/pot life:

- Ready to spray preparation 90-120 minutes at +20°C (depending on the hardener used)

Thinner:

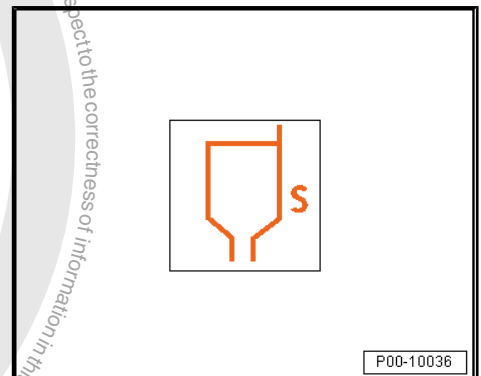
- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-

Method of application: "spray".



- Application viscosity 4 mm, +20°C, DIN 53211

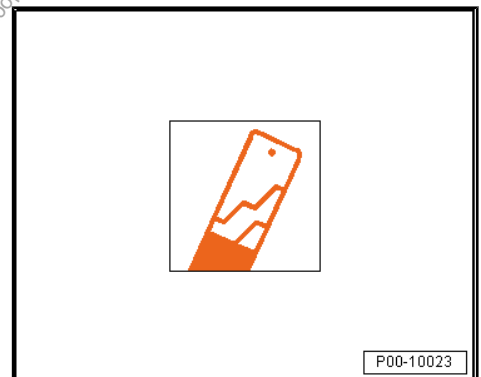
Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP".



Add 10% VHS hardener at material temperature +20°C.

HS hardener is not necessary, but up to 10% may be added.

- If hardener is added, use measuring stick to mix.





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.4-1.7 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.4-1.7 mm.
- Adjust spray pressure following manufacturer's instructions to 1.8-2.2 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.

- 3 spray coats are necessary to achieve a dry-film thickness of 80-300 µm.

The maximum dry-film thickness for air drying is 300 µm.

The maximum dry-film thickness for force drying is 250 µm.

The maximum dry-film thickness for IR drying (white or light grey) is 200 µm.

The maximum dry-film thickness IR drying (black) is 180 µm.

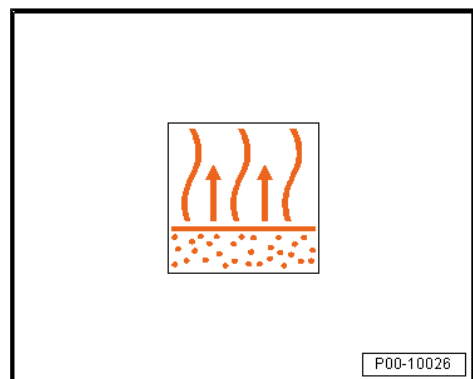
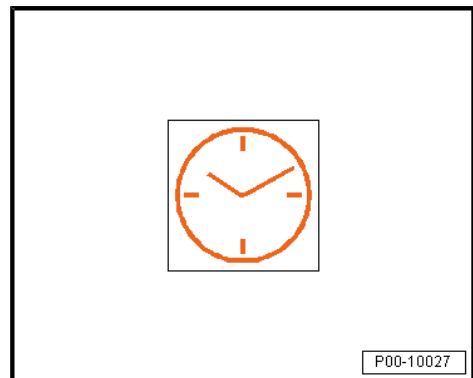
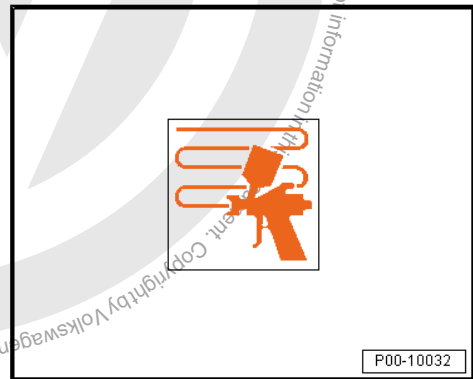
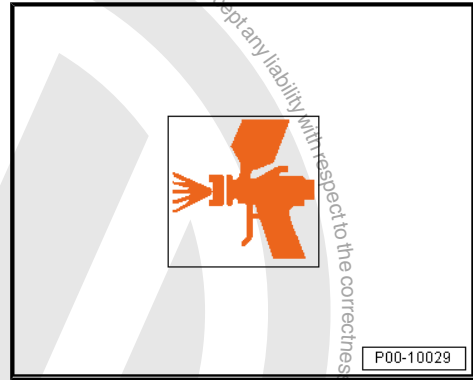
Recommended dry film thickness is 80-200 µm.

Drying

The material can be sanded after 3-4 hours (film thickness of 80-150 µm and air drying at +20 °C ambient temperature).

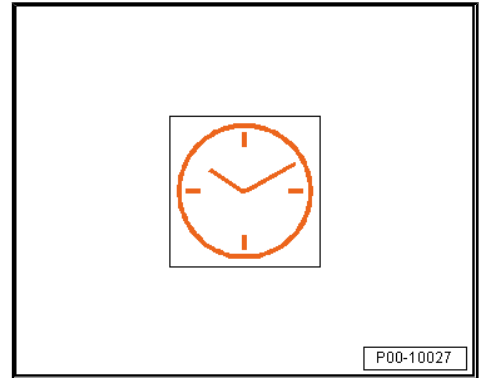
If a film thickness of 150-300 µm was applied, allow the material to dry overnight before sanding.

Final flash-off time with forced drying is reached once the surface has a matt finish.

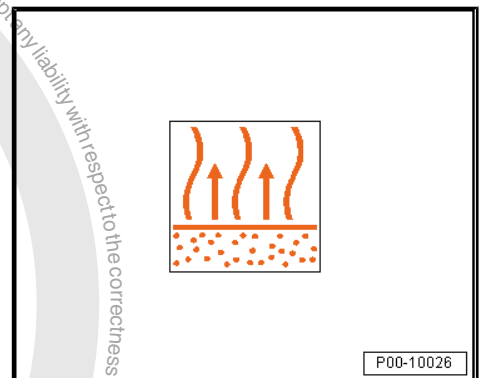




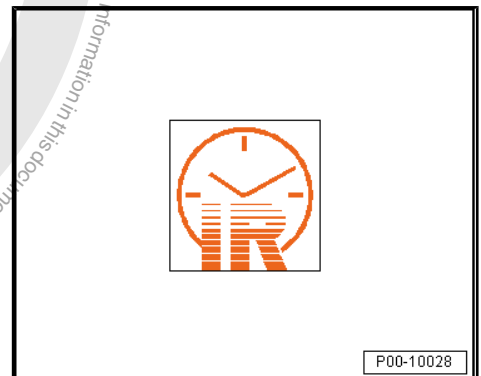
Forced drying at +60-65°C material temperature up to 80-150 µm,
30-40 minutes and 150-250 µm, 40 minutes



Final flash-off time with infrared drying is reached once the surface has a matt finish.



Infrared drying (depending on film thickness): short-wave radiant heater: 5 minutes at 50% power and 15 minutes at 100% power.



Further steps

- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.





- Wet sand with P800 to P1000-grit sandpaper.



Recoating

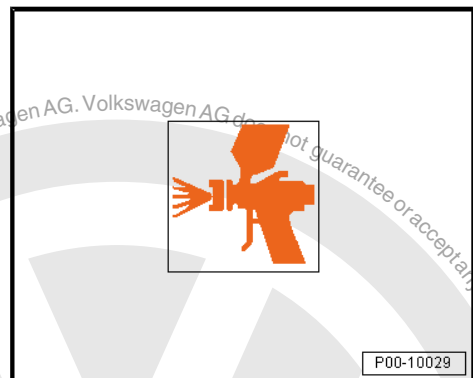
Recoat with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat

Special notes

Plasticizing for rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- . Mixing ratio 3:1 with HS hardeners and no thinner, 4:1 with VHS hardeners and 5% thinner.
- ◆ Any defects in the substrate can be treated using 2-pack polyester filler. After drying and intermediate sanding, isolate the filler patches with 2-pack HS premium filler.
- ◆ When isolating certain spots - even on problem substrates - the best results are achieved with a medium film thickness of 80-120 µm in 2 coats, after either air drying overnight, force drying or infrared drying. With problem substrates, careful pre-treatment is imperative, and the surfacer must be applied to the entire surface.

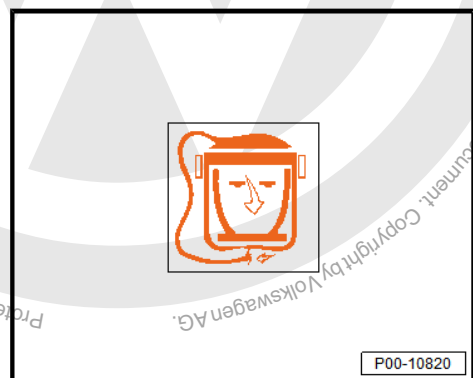


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

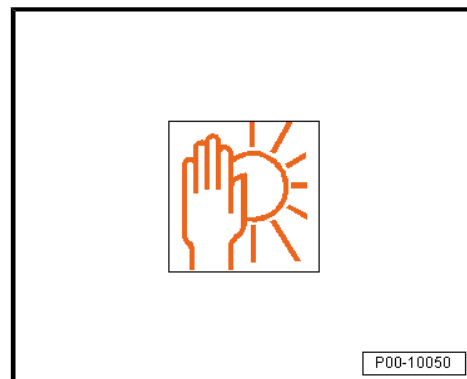
Viscosity as supplied	Thixotropic
Flash point:	above 23 °C
VOC content: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 540 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 540 g/l.





Storage

The guaranteed shelf life is 24 months from date of production.
Can be processed on or before date indicated on label if stored
in unopened, original containers at +20 °C.



3.6.3 2-pack HS Performance surfacer

Designation:

- ◆ 2-pack HS Performance surfacer - LVM 014 100 A4- , white
- ◆ 2-pack HS Performance surfacer - LVM 014 173 A4- , dark grey
- ◆ 2-pack HS Performance surfacer - LVM 014 190 A4- , anthracite

Issue 02.2018

Product description

2-pack HS Performance surfacer is a very high-grade two-pack HS sanding surfacer based on acrylic resins.

Properties:

- ◆ Fast-drying
- ◆ Very good spraying properties
- ◆ Excellent vertical stability
- ◆ Very easy to sand
- ◆ High non-volatile content results in very good coverage

Technical data sheet

Substrate

Suitable substrates:

- ◆ Sheet steel, electroplated or roller galvanized sheet steel or soft aluminium, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 ... A2- (only small sand-through areas).
- ◆ Finely sanded or unsanded, thoroughly cleaned, original factory primer
- ◆ Lightly sanded factory paint or old paint (except thermoplastic acrylics)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents



Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Then lightly sand.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Note

It is recommended to mix 2-pack HS Performance surfacer - LVM 014 ...- in a mixing machine.



Application

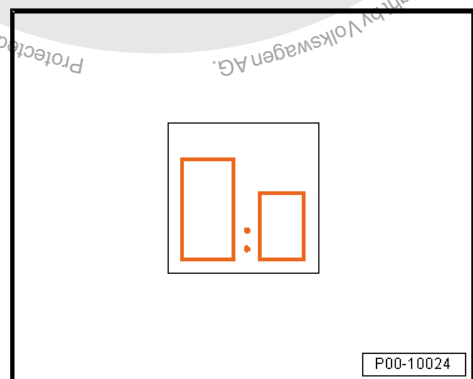
Mixing ratio: 5:1 by volume with

- ◆ 2-pack VHS performance hardener - LVM 009 038 A2-
- ◆ 2-pack VHS performance hardener, slow-drying - LVM 009 039 A2-
- ◆ (For very high technical durability)



Note

- ◆ *Mixing by weight is possible with the help of Wizard Plus.*
- ◆ *Observe national explosion prevention guidelines.*



For plasticizing, see ⇒ [page 125](#)



Application time/pot life:

- Ready for spraying, 45-75 minutes at +20°C (depending on the hardener used)

Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 ...-

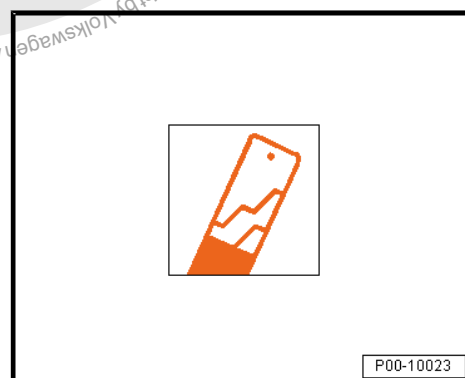
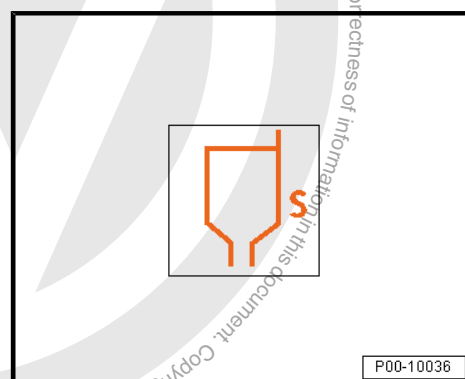
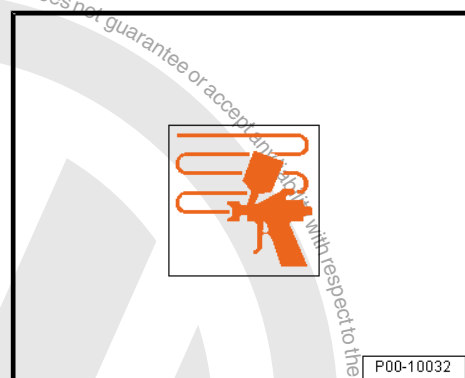
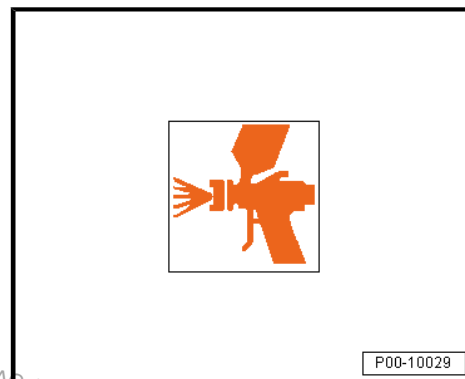
Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP".

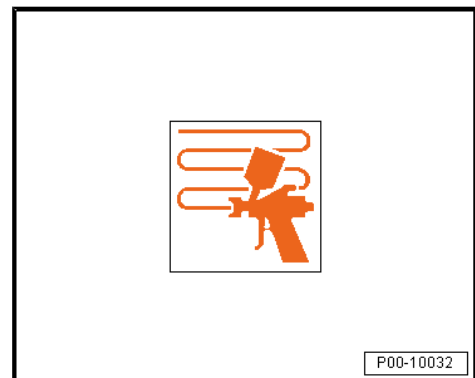
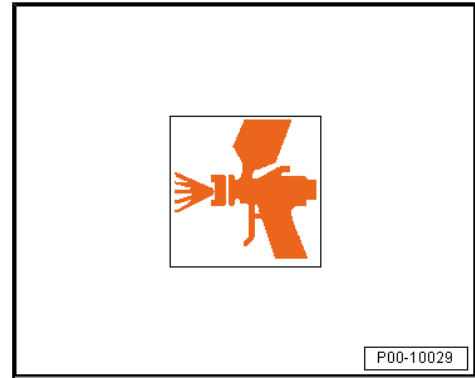
10-15% thinner added at material temperature of +20°C

- If thinner is added, use measuring stick to mix.





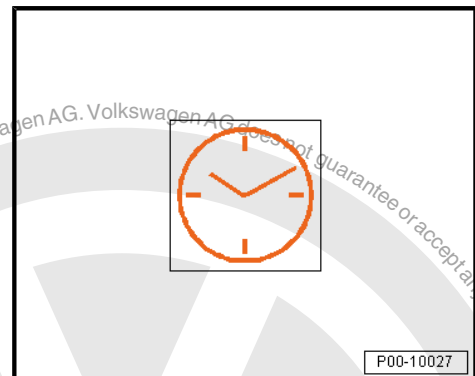
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.6-1.8 mm.
 - Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.7-1.9 mm.
 - Adjust spray pressure following manufacturer's instructions to 1.5-2.0 bar, "Compliant".
 - Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
-
- One to three spray coats (with intermediate flash-off time) are necessary to attain the recommended dry-film thickness of 60-250 µm.



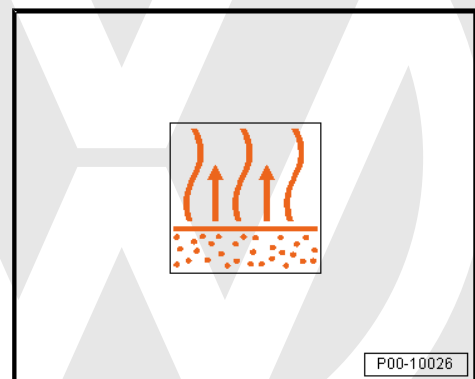
Air drying:

The material can be sanded after 2-3 hours (film thickness of 60-150 µm and air drying at +20 °C ambient temperature).

If a film thickness of 150-250 µm was applied, allow the material to dry overnight before sanding.



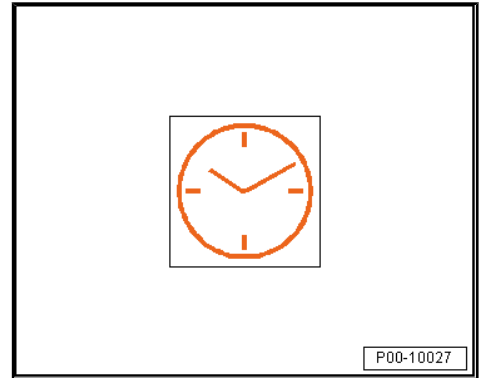
Final flash-off time with force drying is at least 5-15 minutes.





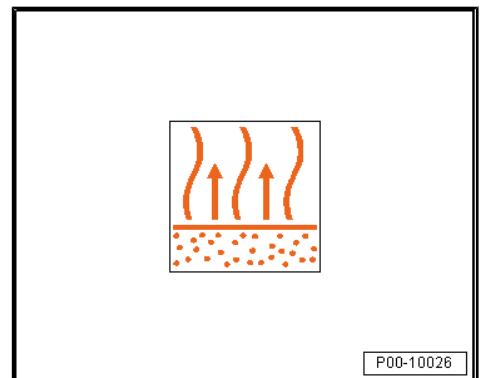
Forced drying:

Drying time at +60-65°C material temperature up to 60-150 µm,
15-20 minutes, and 150-250 µm 25 minutes

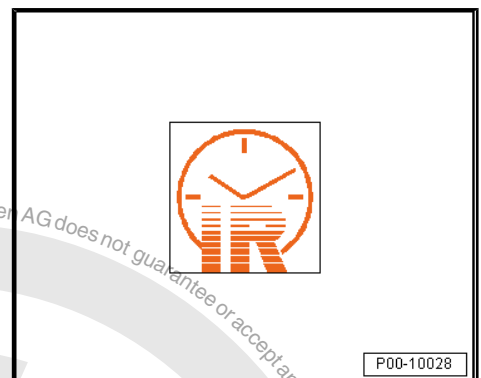


Infrared drying:

Final flash-off time with infrared drying is at least 5-10 minutes.



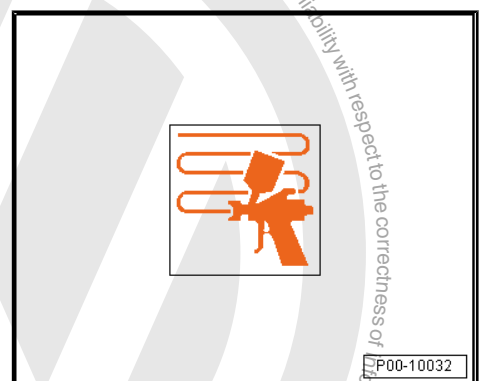
Drying time at 60-250 µm with short wave radiator 10 minutes (of
which dry at 70°C for 2 minutes and at max. 90°C for 8 minutes).



Use of 2-pack HS performance surfacer under filler

Method of application: "spray".

- 1-2 spray coats (with intermediate flash-off time) are necessary to attain the recommended dry-film thickness of max. 120 µm.

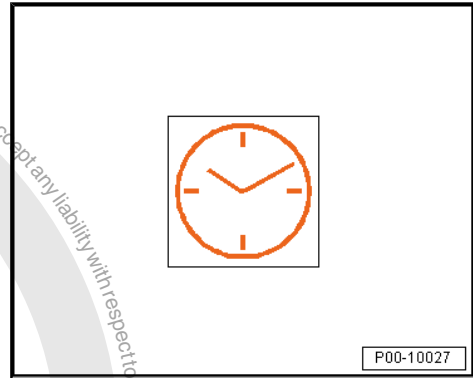


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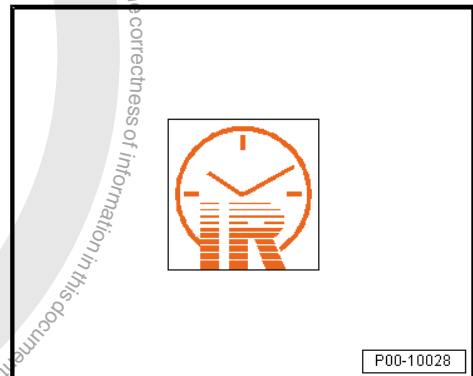
Forced drying:

Drying time at an object temperature of +60°C max. 120 µm 45 minutes



Infrared drying:

Drying time at max. 120 µm with short wave radiator 17 minutes (of which dry at 70°C for 2 minutes and at max. 90°C for 15 minutes).



Surfacer sanding:

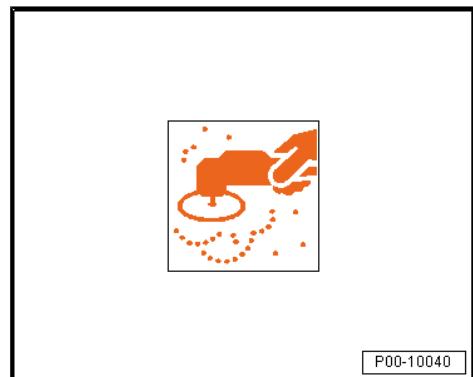
After the drying times given above:

- Dry surface sand by hand with sandpaper, P180-220 grade



Further steps

- Dry sand using orbital sander with P400 to P600-grit sandpaper and dust collector.





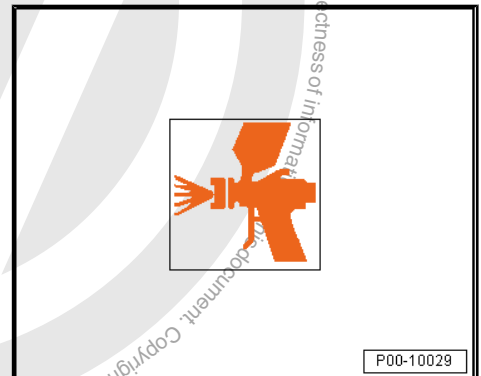
- Wet sand with P800 to P1000-grit sandpaper.



Recoating

Recoat with:

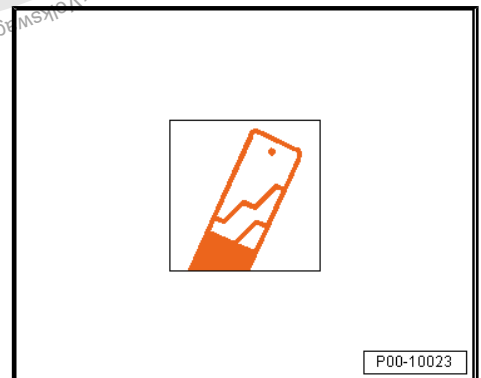
- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat



Special notes

Plasticizing for rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001-. Mixing ratio 4:1 with VHS performance hardeners and 10% thinner.
- ◆ Any defects in the substrate can be treated using 2-pack polyester filler. After drying and intermediate sanding, isolate the filler patches with 2-pack HS Performance surfacer.
- ◆ When isolating certain spots - even on problem substrates - the best results are achieved with a medium film thickness of 80-120 µm in 2 coats, after either air drying overnight, force drying or infrared drying. With problem substrates, careful pre-treatment is imperative, and the surfacer must be applied to the entire surface.
- ◆ A minimum temperature of +15°C is recommended for air drying.

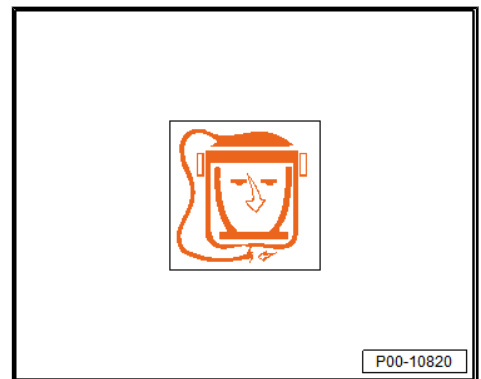


Personal protective equipment

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Viscosity as supplied	Thixotropic
Flash point:	above 23 °C
VOC content: 2004/42/IIIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 540 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 540 g/l.



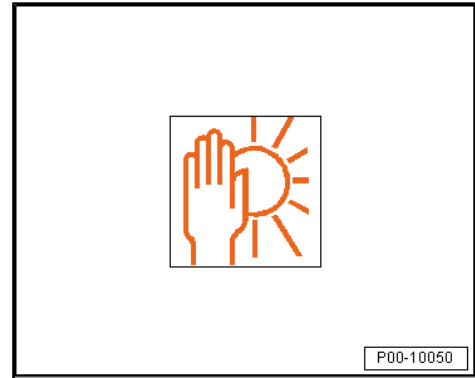


Storage

Guaranteed shelf life:

- ◆ 2-pack HS Performance surfacer - LVM 014 ...- , 24 months from production date.
- ◆ 2-pack VHS Performance hardener - LVM 009 038 A2- , 12 months from production date.
- ◆ 2-pack VHS Performance hardener, slow-drying - LVM 009 039 A2- , 36 months from production date.

Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.6.4 2-pack primer surfacer for plastics

Designation:

- ◆ 2-pack primer surfacer for plastics - LKF 696 009 A2- , white
- ◆ 2-pack primer surfacer for plastics - LKF 696 040 A2- , black

Issue 08.2013

Product description

This product is a high-grade 2-pack primer surfacer for plastic parts.

Properties:

- ◆ Good adhesion on all plastics commonly used for passenger cars
- ◆ Wet-on-wet application
- ◆ Efficient paint system
- ◆ Easy to use
- ◆ Very long application time

Technical data sheet

Substrate

Suitable substrates:

- ◆ All common exterior plastic car parts
- ◆ PP, PE/EPDM, ABS, SAN, PC, PA, PUR-RIM, R-TPU, TPO, PBTP, PVC
- ◆ PUR, PUR flexible foam.
- ◆ UP-GF



Substrate pre-treatment:

The substrate must be free of release agents.

Before cleaning plastic part, temper for 60 minutes at +60°C to "sweat out" the separating agents.

- Clean with anti-static plastic cleaner - LVM 001 001 A2- or with the milder slow-drying silicone remover - LVM 020 100 A5- .



Note

- ◆ *The extent of the cleaning required will vary according to the type and quantity of separator used. We recommend using a sanding pad to help cleaning.*
- ◆ *Allow the thinner to evaporate well (e.g. air-dry overnight at room temperature or 30-40 minutes at +60°C).*
- Before applying the surfacer, clean lightly once more with anti-static plastic cleaner - LVM 001 001 A2- or slow-drying silicone remover - LVM 020 100 A5- (with anti-static effect).



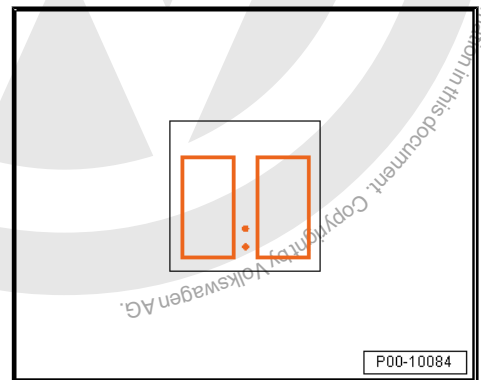
Application

Thinner:

- Do not add any thinner!

Mixing ratio:

- 1:1 by volume with hardener for 2-pack primer surfacer - LHA 005 000 A2- .



Application time/pot life:

- Ready-to-spray preparation approx. 7-9 hours at +20°C.



Note

Do not add any thinner! The material is ready to spray after hardener has been added.





Method of application: "spray".

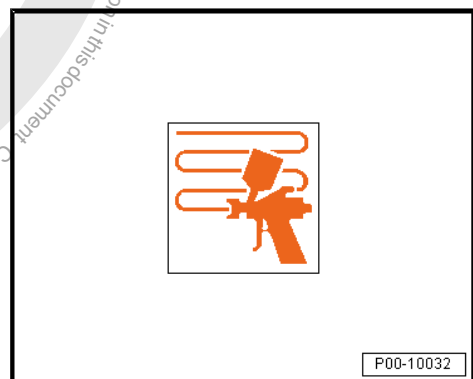
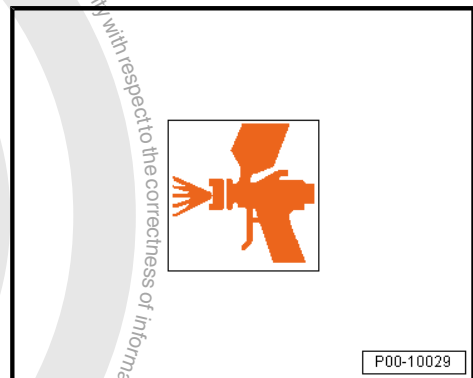
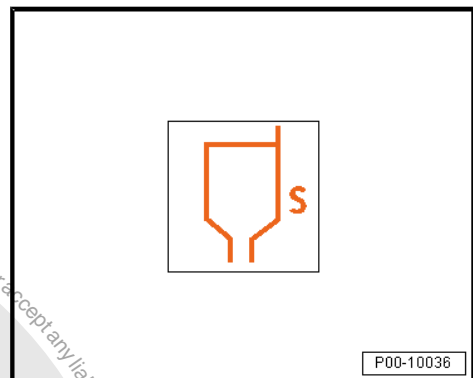
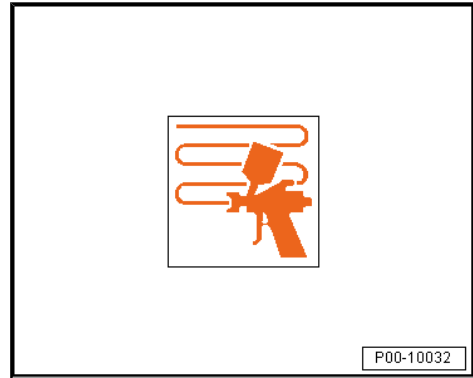
- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 16-18 seconds

ISO 4 mm: 37-45 seconds

- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.4-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- Apply in one spray operation (apply a tack coat followed by a full coat)
- Recommended dry film thickness is 25-30 µm.





Drying

Air drying at +20°C ambient temperature, may be resprayed after 15 to 20 minutes



P00-10027

Recoating

May be resprayed wet-on-wet with a suitable top coat after a flash-off time of 15-20 minutes (up to 24 hours maximum) at +20 °C.



Note

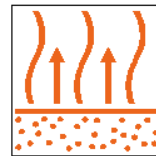
- ◆ If required, 2-pack primer surfacer for plastics can be sanded lightly with P800 to P1000-grade wet sandpaper after low baking for 30 minutes at +60 °C material temperature or air drying for 2 hours at +20 °C ambient temperature.
- ◆ Any defects in the substrate can be treated with 2-pack fine filler - LSP 784 002 A2- after the 2-pack primer surfacer for plastics has dried.
- ◆ Filler spots must be isolated with 2-pack primer surfacer for plastics before the top coat is applied.

It can then be painted over with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat



P00-10029



P00-10026



WARNING

Painted plastic parts must not be cleaned with a high-pressure cleaner during the first 6 weeks. Even then the minimum distance between the nozzle and the object is 30 cm.

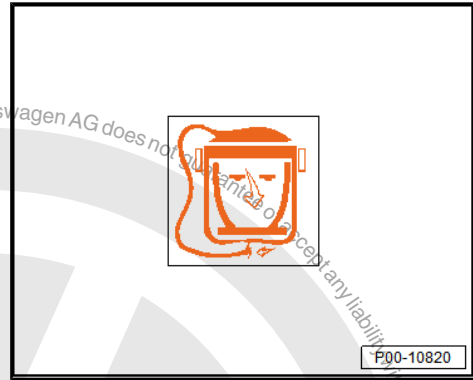


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

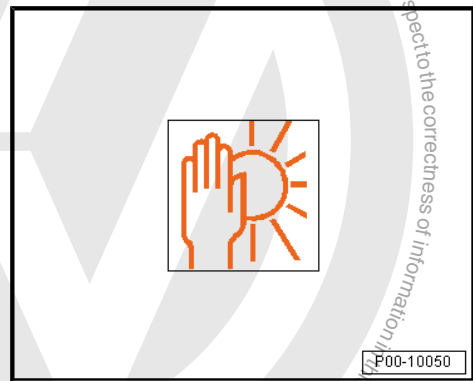
Data

Viscosity as supplied	Hardener for 2-pack primer surfacer	11 seconds
	2-pack primer surfacer for plastics	100 seconds
Flash point:	above +23 °C	



Storage

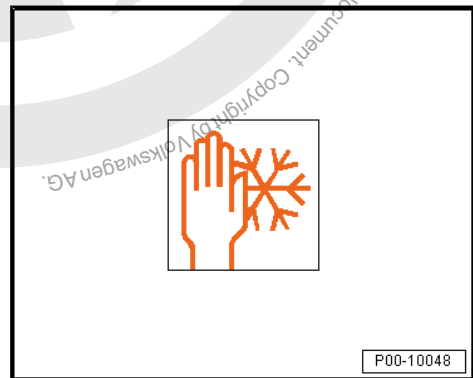
The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



Storage conditions

The prescribed storage temperature for the 2-pack primer surfacer for plastics is +20 °C.

The prescribed storage temperature for the hardener for 2-pack primer surfacer is +20 °C. (Do not store at temperatures below +5 °C.) If it has been exposed to freezing temperatures, the hardener must first be heated up to +20 °C. Then it is ready for use.



3.6.5 2-pack HS wet-on-wet surfacer

Designation:

- ◆ 2-pack HS wet-on-wet surfacer - LVM 013 008 A4- , light grey
- ◆ 2-pack HS wet-on-wet surfacer - LVM 013 905 A4- , black

Issue 02.2018

Product description

Light grey 2-pack HS wet-on-wet surfacer is a VOC-compliant high-grade product based on acrylic resins.

- ◆ Suitable for all common plastic substrates on passenger vehicles
- ◆ Surface ready to be painted on quickly with universal water-based paints (wet-on-wet)
- ◆ Very good coverage
- ◆ Available colours: light grey and black



Technical data sheet

Substrate

Suitable substrates:

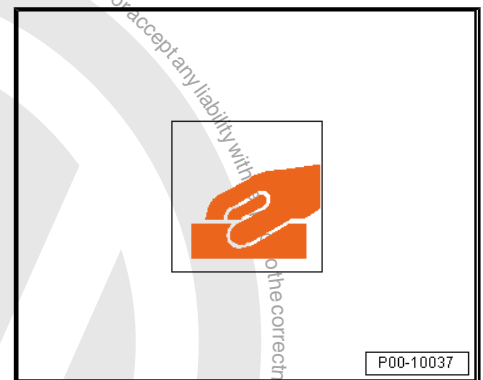
- ◆ Sheet steel, galvanised/electrolytically galvanized sheet steel or soft aluminium plasticised, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2-
- ◆ Finely sanded or unsanded, thoroughly cleaned, original factory primer
- ◆ Well-sanded factory paint or old paint
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded
- ◆ in combination with plastic additive - LVM 035 120 A2- for all plastic parts commonly found on vehicle exteriors (PP, PP/EPDM, ABS, SAN, PC, PA, PUR-RIM, R-TPU, TPO. PBTP, PVC, PUR, PUR flexible foam, UP-GF)

Substrate pre-treatment:

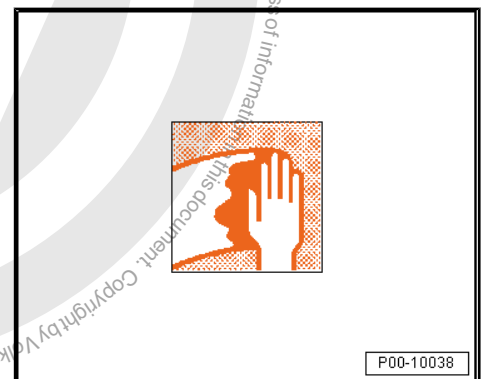
- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Then lightly sand.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.





Pretreatment of substrates on plastic parts:

Plastic parts from the factory that are not primed must first be treated with translucent primer - ALO 822 000 10- .

The substrate must be free of release agents. Before cleaning plastic part, temper for 60 minutes at +60°C to sweat out the separating agents.

- Clean with anti-static plastic cleaner - LVM 001 001- or slow-drying silicone remover - LVM 020 100- .

The extent of the cleaning required will vary according to the type and quantity of separator used.

To assist cleaning, a sanding pad - 3M 7448- or a sanding pad from a similar manufacturer is used.

Allow the thinner to evaporate well, e.g. air dry overnight or 30 to 40 minutes at +60°C.

- Before applying the wet-on-wet surfacer, clean lightly once more with anti-static plastic cleaner - LVM 001 001- or slow-drying silicone remover - LVM 020 100- (with anti-static effect).



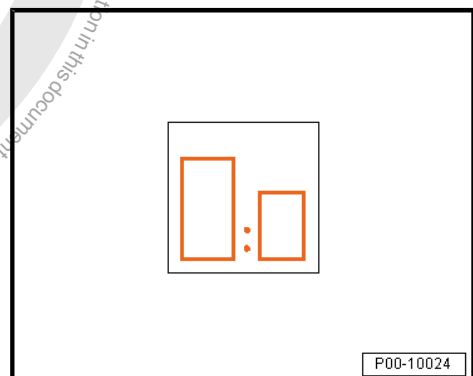
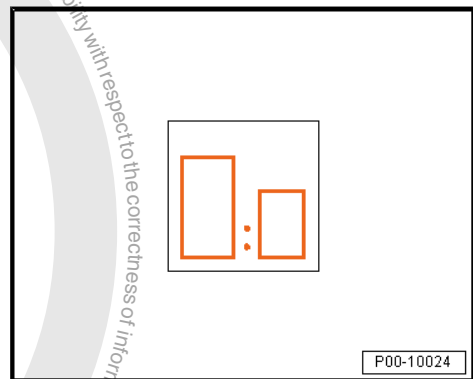
1) Wet-in-wet surfacer application

Mixing ratio: 5:1 by volume with

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack slow-drying VHS hardener - LHA 009 052...-
- ◆ 2-pack extra slow-drying VHS hardener - LHA 009 053 A2-
- ◆ 2-pack VHS performance hardener - LVM 009 038 A2-
- ◆ 2-pack VHS performance hardener, long - LVM 009 039 A2-

Mixing ratio: 3:1 by volume with

- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-





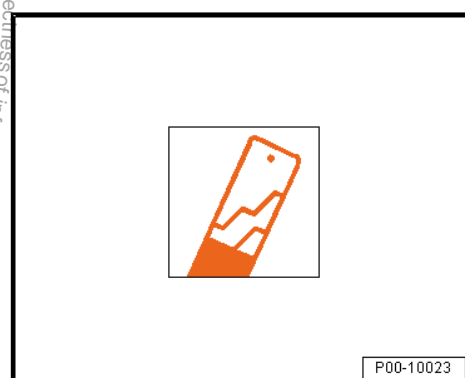
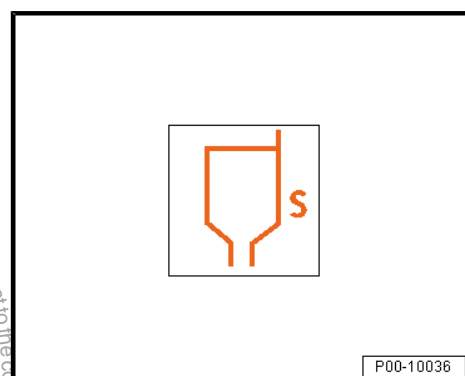
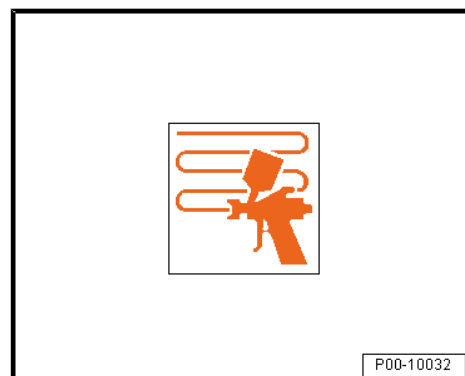
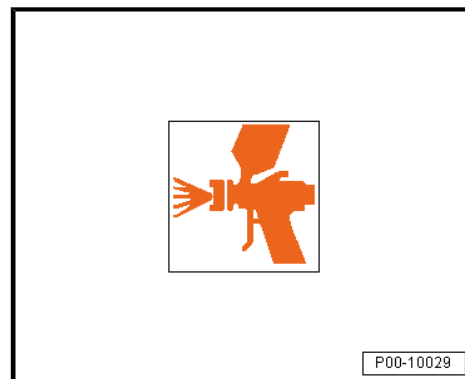
Application time/pot life:

- Ready for spraying, 45-90 minutes at +20°C (depending on the hardener and thinner used).

Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack thinner, special - LVM 009 200 ...-

Method of application: "spray".



- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP": 16-18 seconds.

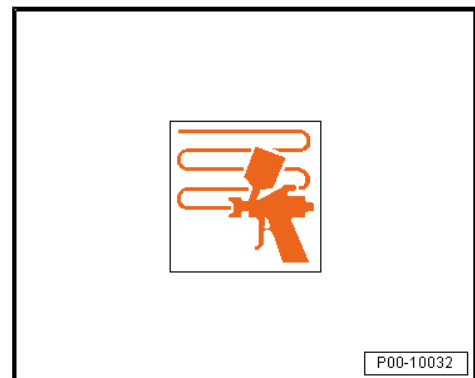
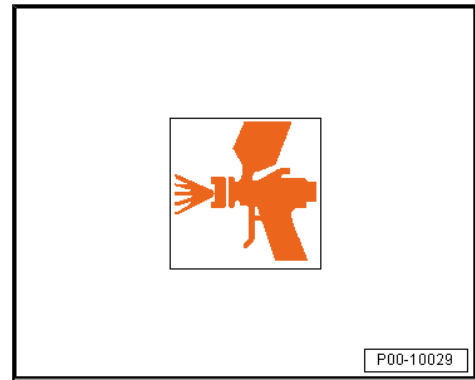
Add thinner at +20°C material temperature:

- ◆ 30% if VHS hardeners are used
- ◆ 20% if HS hardeners are used

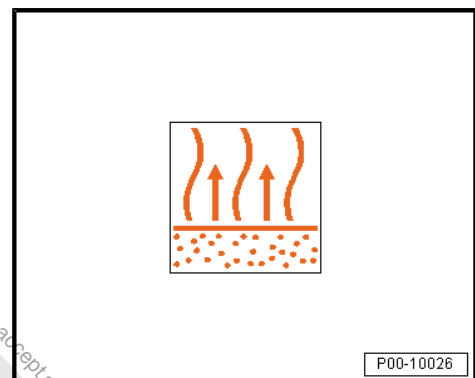
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- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
 - Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
 - Adjust spray pressure following manufacturer's instructions to 1.5-2.0 bar, "Compliant".
 - Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".
-
- One to two spray coats are necessary to achieve the recommended dry-film thickness of 30-50 µm.



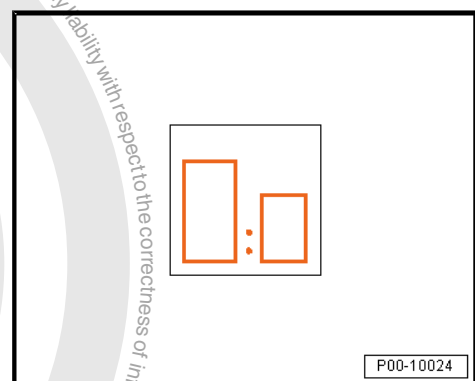
Before recoating, observe the flash-off time of 15 minutes at an ambient temperature of +20°C (max. 8 hours before applying top coat).



2) Wet-in-wet surfacer for plastic parts

Mixing ratio: 5:1 by volume with

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack slow-drying VHS hardener - LHA 009 052 ...-
- ◆ 2-pack extra slow-drying VHS hardener - LHA 009 053 A2-
- ◆ 2-pack VHS performance hardener - LVM 009 038 A2-
- ◆ 2-pack VHS performance hardener, long - LVM 009 039 A2-





Mixing ratio: 3:1 by volume with

- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

Application time/pot life:

- Ready for spraying, 45-90 minutes at +20°C (depending on the hardener and thinner used).

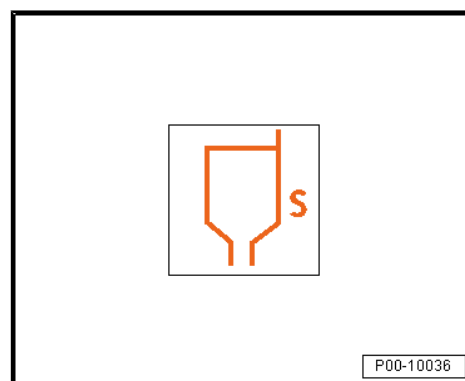
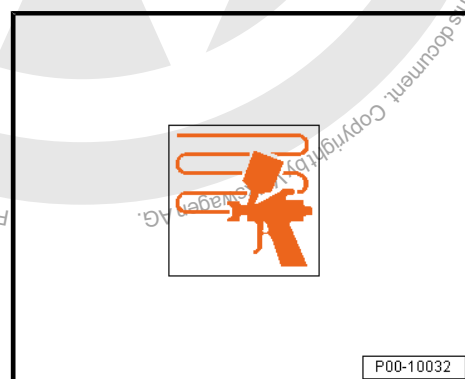
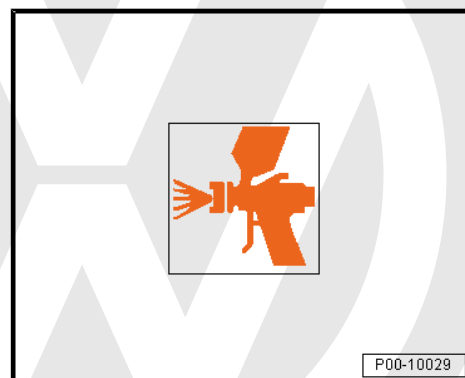
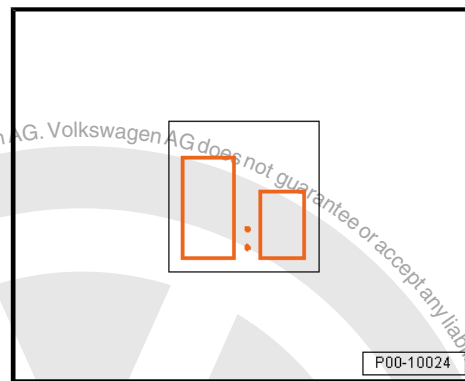
Additive

- ◆ Plastic additive - LVM 035 120 A2-

Method of application: "spray".

- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP": 18-20 seconds.





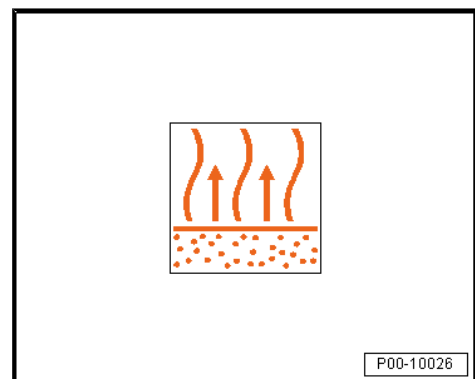
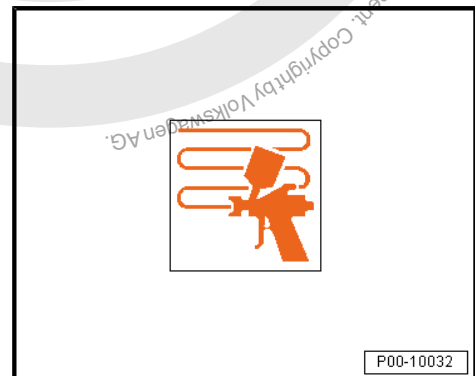
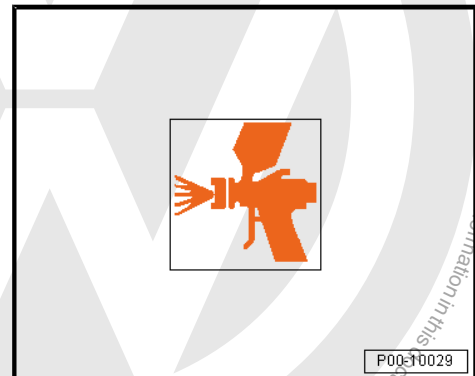
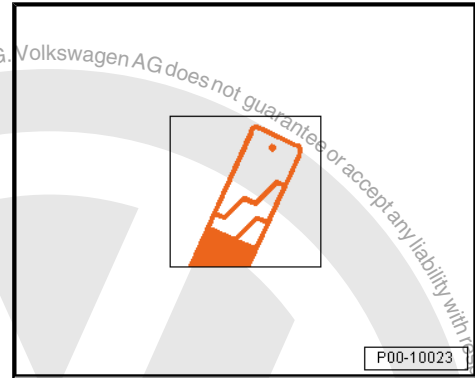
Additive at +20 °C material temperature:

- ◆ 40 % if VHS hardeners are used
- ◆ 30 % if HS hardeners are used
- ◆ If necessary, add 5-10% 2-pack special thinner - LVM 009 200- .

- Adjust spray nozzle following manufacturer's instructions to 1.3-1.4 mm for "Compliant" and "HVLP".
- Adjust spray pressure following manufacturer's instructions to 1.5-2.0 bar, "Compliant".
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".

- One to two spray coats are necessary to achieve the recommended dry-film thickness of 30-50 µm.

Before recoating, observe the flash-off time of 15 minutes at an ambient temperature of +20°C (max. 8 hours before applying top coat).





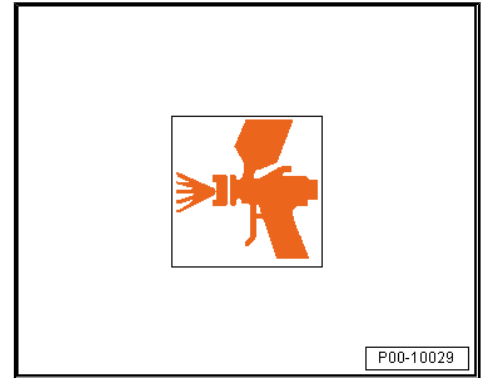
Recoating

Recoat with:

- ◆ Waterborne base coat and plasticised 2-pack HS clear coat
- ◆ Plasticised 2-pack HS top coat

Special notes

- ◆ The material should be at room temperature before use (18 to 25°C).
- ◆ Allow for additional time to bring up to temperature.
- ◆ An IR radiant heater is not permitted with the use of wash primers.
- ◆ The 2-pack HS wet-on-wet filler can also be used in the setting as a plastic wet-on-wet surfacer on adjacent substrates that are not made of plastic.
- ◆ A minimum temperature of +15°C is recommended for air drying.
- ◆ Excess material that is ready for application should not be returned to the original container.
- ◆ In terms of plasticizing properties, the use of 2-pack plasticizer additive - ALZ 011 001- is not required.

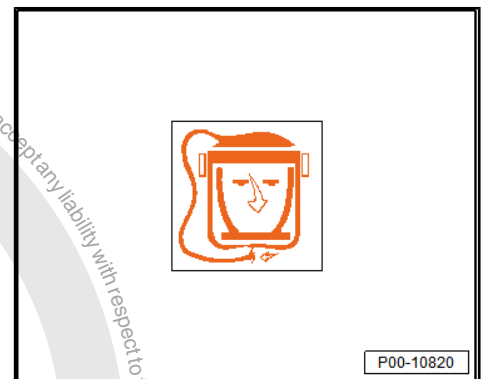


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 540 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 540 g/l.

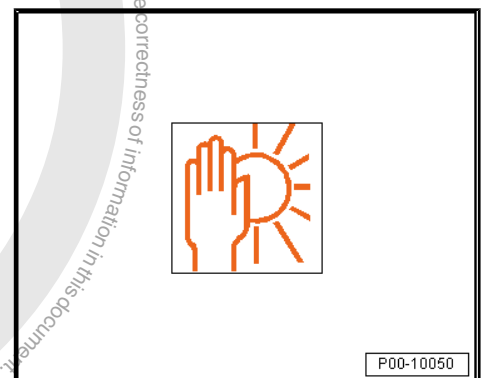


Storage

Guaranteed shelf life:

- ◆ 2-pack HS wet-on-wet surfacer - LVM 013 008 A4- , 24 months from production date.
- ◆ 2-pack HS wet-on-wet surfacer - LVM 013 905 A4- , 24 months from production date.

Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.6.6 2-pack base filler, professional

Designation:

- ◆ 2-pack base filler, professional - LVM 037 500 B2- , grey

Issue 03.2017

Product description

The 2-pack base filler, professional - LVM 037 500 B2- is used as a base filler, primer and wet-on-wet surfacer.



- ◆ Suitable with three layer application for steel, galvanised metal, aluminium, old paintwork and GRP / SMC
- ◆ High level of corrosion protection
- ◆ Good weather resistance
- ◆ Good coverage

Technical data sheet

Substrate

Suitable substrates:

- ◆ No grinding of new cathodic dip-coated parts necessary
- ◆ Parts coated with 2-pack base filler, professional - LVM 037 500 B2- can be painted over up to 5 days after application without intermediate sanding
- ◆ If air drying, maintain a minimum temperature of +15°C

Substrate pre-treatment:

- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

- Then lightly sand.

The extent of the cleaning required will vary according to the type and quantity of separator used.

To assist cleaning, a sanding pad - 3M 7448- or a sanding pad from a similar manufacturer is used.

Allow the thinner to evaporate well, e.g. air dry overnight or 30 to 40 minutes at +60°C.

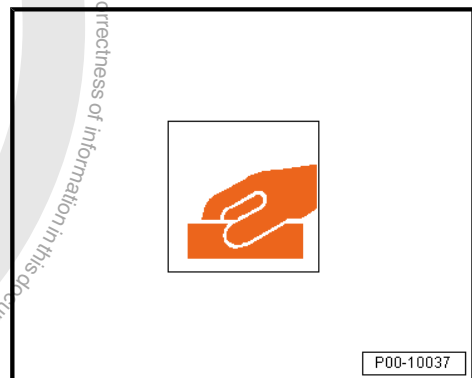
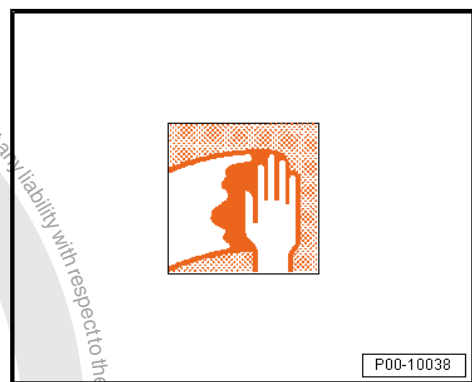
Areas of application:

Base filler ⇒ [page 139](#)

Base filler, high build ⇒ [page 142](#)

Primer ⇒ [page 145](#)

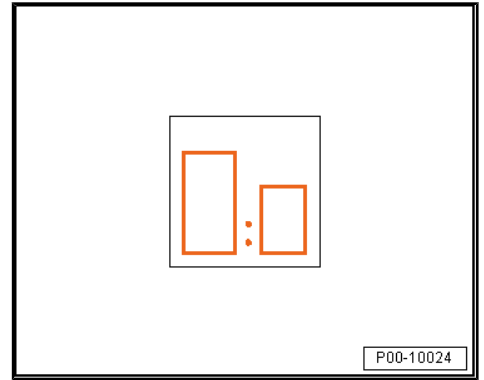
Wet-on-wet filler processing for metal and plastic ⇒ [page 148](#)



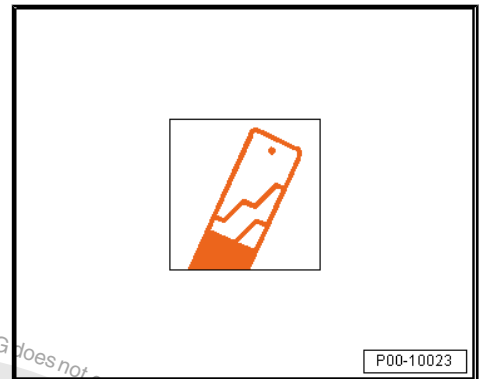


Base filler

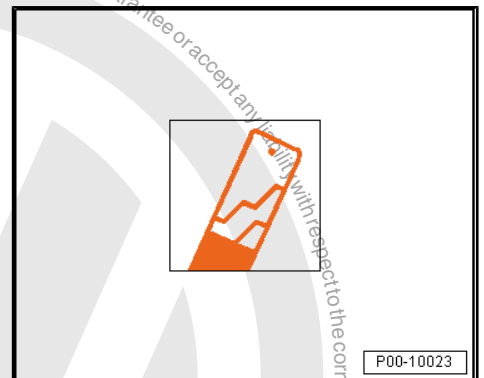
Mixing ratio: 5:1 by volume with



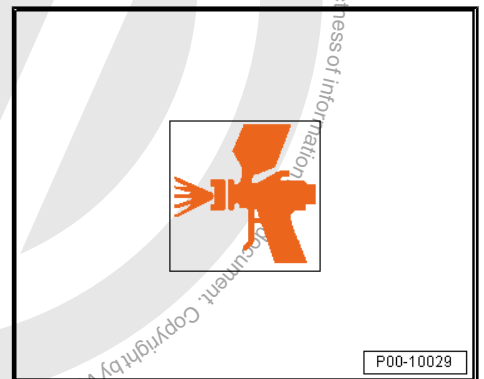
- ◆ hardener additive at +20°C material temperature:
- ◆ 20% filler hardener, professional - LVM 009 402 B1-



- ◆ Add thinner at +20°C material temperature:
- ◆ 20 % thinner - LVM 005 000 B2-



Application time/pot life:
90 minutes at +20 °C





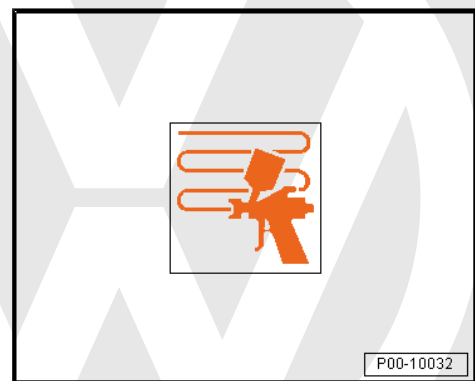
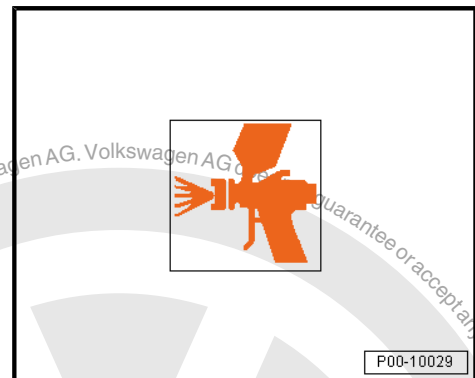
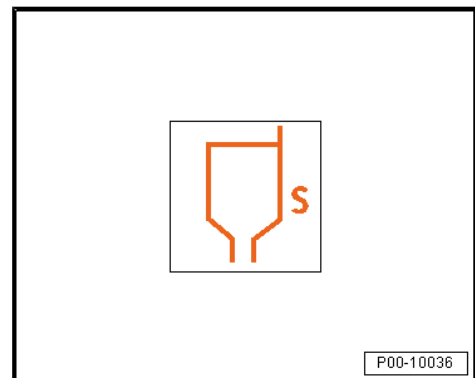
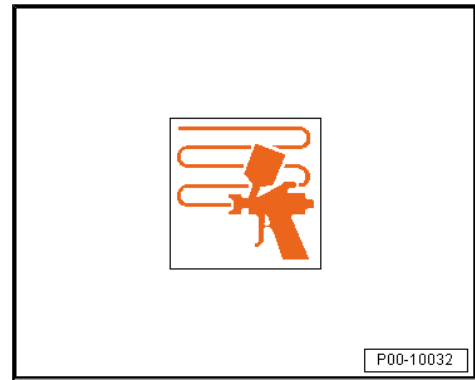
Spray applications:

- 1/2 + 1
- Layer thickness is approx. 50-70 µm

- Spray viscosity at +20°C, DIN 4

Spray viscosity, gravity-feed spray gun "Compliant" and "HVLP":
18-20 seconds.

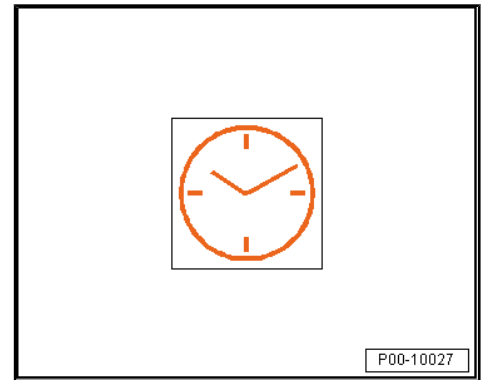
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.6-1.8 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.7-1.9 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.0 bar.
- Adjust spray pressure (see manufacturer's instructions): "HVLP" 2.0 - 3.0 bar.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".
- One to two spray coats are necessary to achieve the recommended dry-film thickness of 50-70 µm.



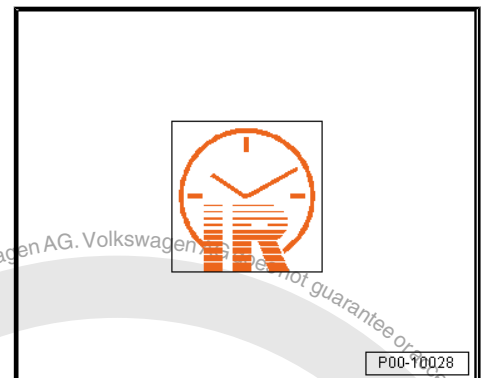


Drying:

- ◆ At temperature of 20°C: 16 hours
- ◆ At temperature of 60°C: 35 hours

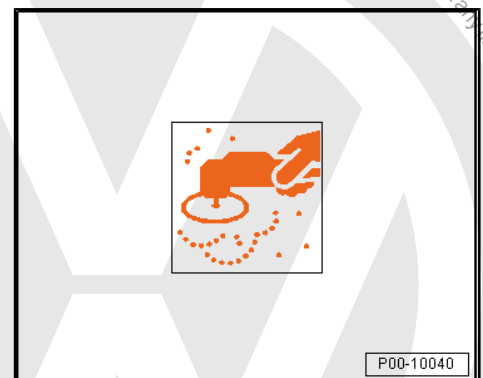


Infrared drying with short-wave radiator 9 minutes (4 minutes 60°C, 5 minutes 80°C)



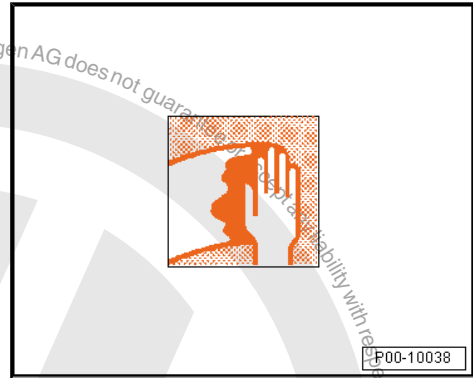
Filled substrate pre-treatment:

- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.
- Or sand "wet" using P800-grit sandpaper.



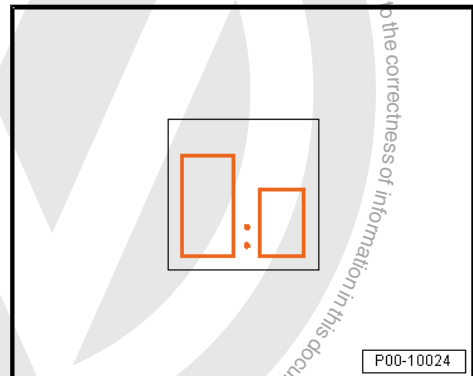


- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess cleaning agent with a lint-free cloth, leaving no streaks.

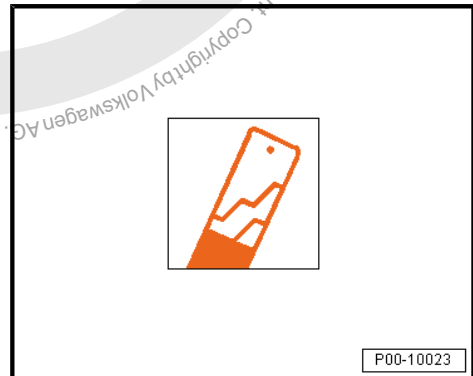


Base filler, high build

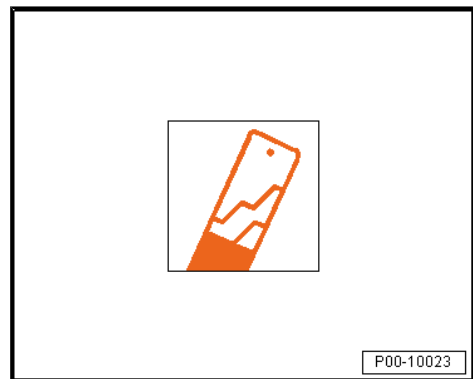
Mixing ratio: 5:1 by volume with



- ◆ hardener additive at +20°C material temperature:
- ◆ 20% filler hardener, professional - LVM 009 402 B1-



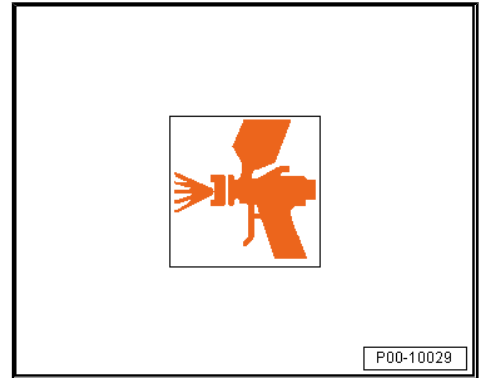
- ◆ Add thinner at +20°C material temperature:
- ◆ 20 % thinner - LVM 005 000 B2-





Application time/pot life:

90 minutes at +20 °C



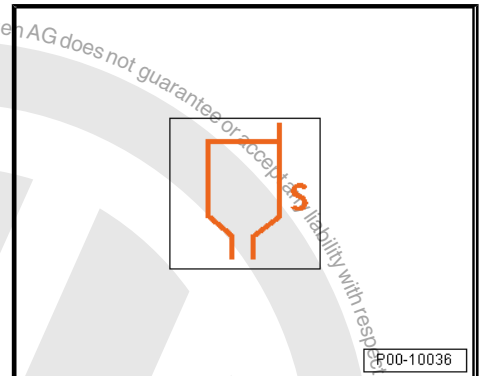
Spray applications:

- 1/2 + 2
- Layer thickness is approx. 80-120 µm

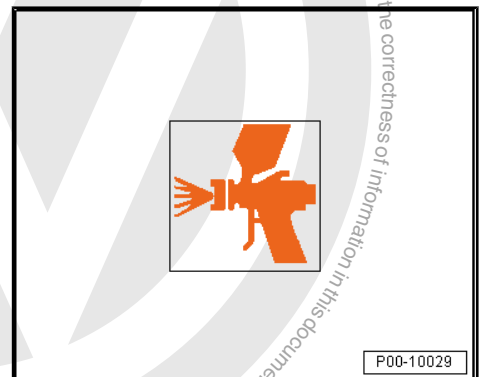


- Spray viscosity at +20°C, DIN 4

Spray viscosity, gravity-feed spray gun "Compliant" and "HVLP":
18-20 seconds.

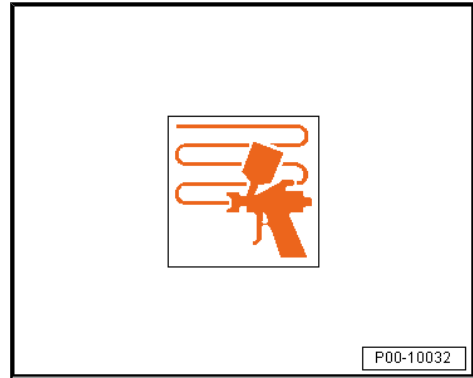


- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.6-1.8 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.7-1.9 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.0 bar.
- Adjust spray pressure (see manufacturer's instructions): "HVLP" 2.0 - 3.0 bar.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".



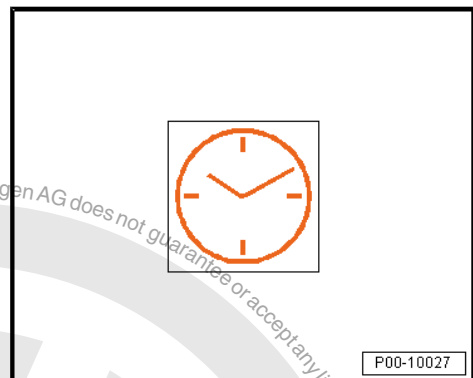


- One to two spray coats are necessary to achieve the recommended dry-film thickness of 80-120 µm.

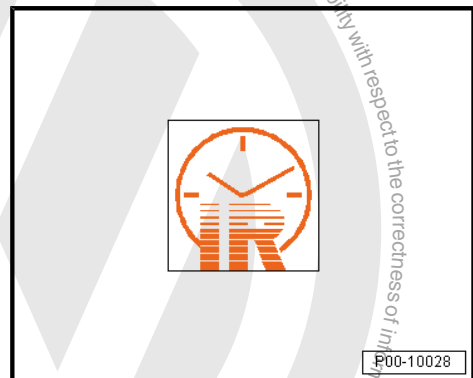


Drying:

- ◆ At temperature of 20°C: 16 hours
- ◆ At temperature of 60°C: 45 hours

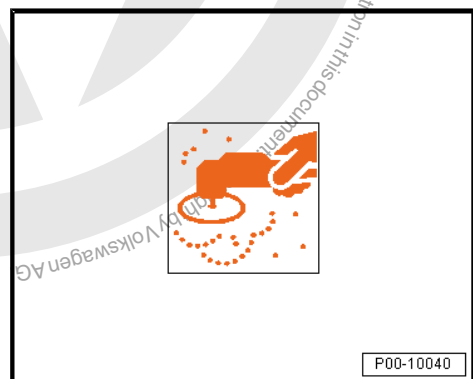


Infrared drying with short-wave radiator 15 minutes (4 minutes 60°C, 11 minutes 80°C)



Filled substrate pre-treatment:

- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.





- Or sand "wet" using P800-grit sandpaper.

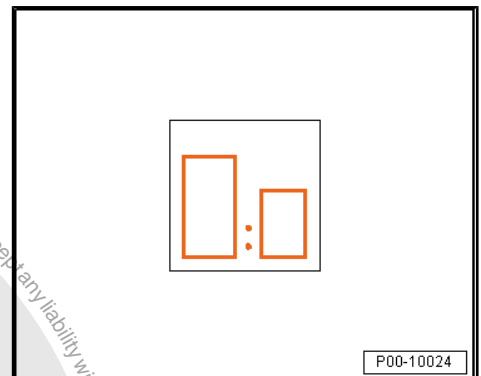


- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess cleaning agent with a lint-free cloth, leaving no streaks.

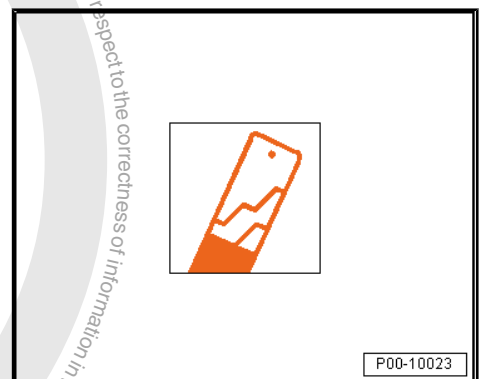


Primer

Mixing ratio: 5:1 by volume with



- ◆ hardener additive at +20°C material temperature:
- ◆ 20% filler hardener, professional - LVM 009 402 B1-



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- ◆ Add thinner at +20°C material temperature:
- ◆ 20 % thinner - LVM 005 000 B2-

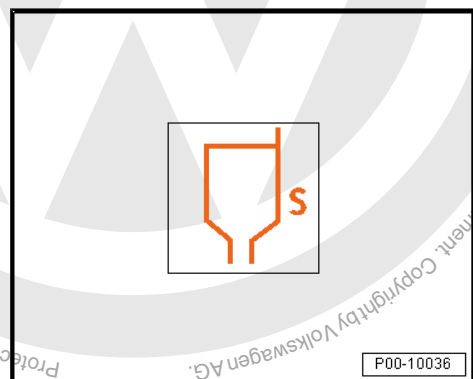
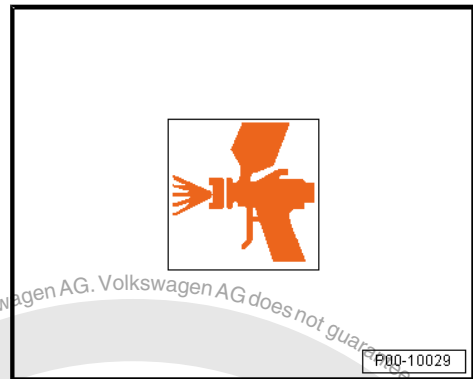
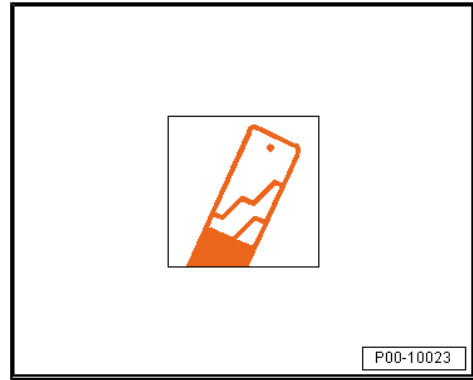
Application time/pot life:
90 minutes at +20 °C

Spray applications:

- 1 thin spray application (full coverage)
- Layer thickness is approx. 10-20 µm

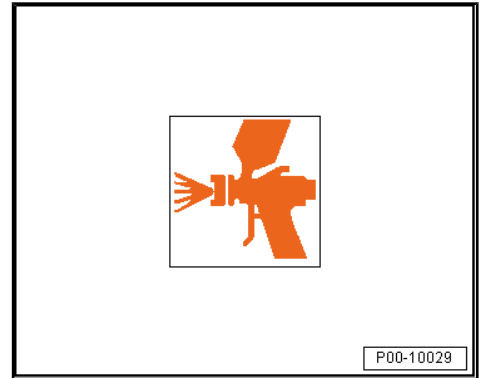
- Spray viscosity at +20°C, DIN 4

Spray viscosity, gravity-feed spray gun "Compliant" and "HVL P":
18-20 seconds.

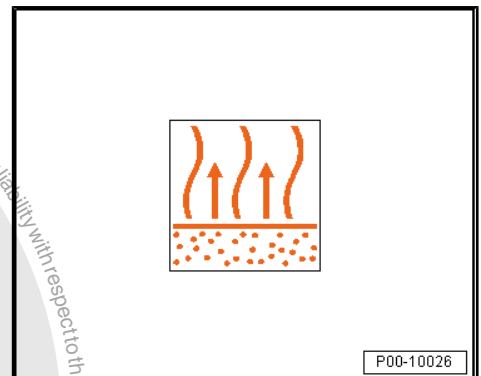




- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.7 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.7 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.0 bar.
- Adjust spray pressure (see manufacturer's instructions): "HVLP" 2.0 - 3.0 bar.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".
- One to two spray coats are necessary to achieve the recommended dry-film thickness of 50-70 µm.



Before recoating, observe flash-off time of 10 to 15 minutes at an ambient temperature of +20°C.



Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

Wipe off any excess cleaning agent with a lint-free cloth, leaving no streaks.





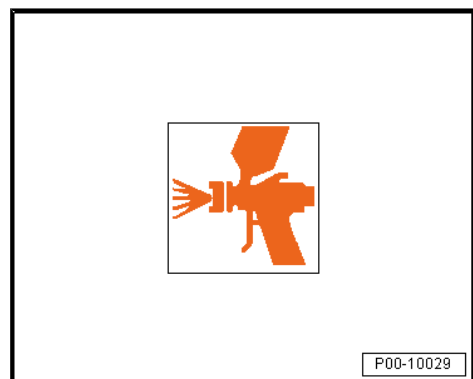
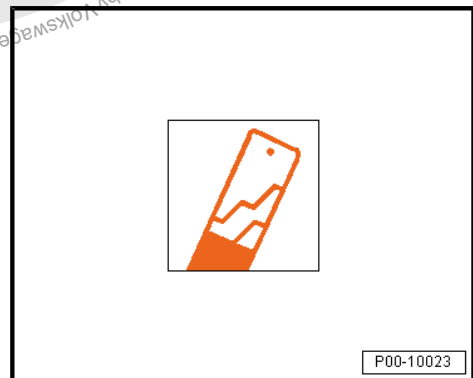
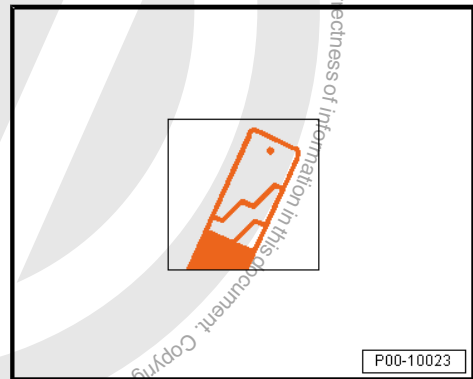
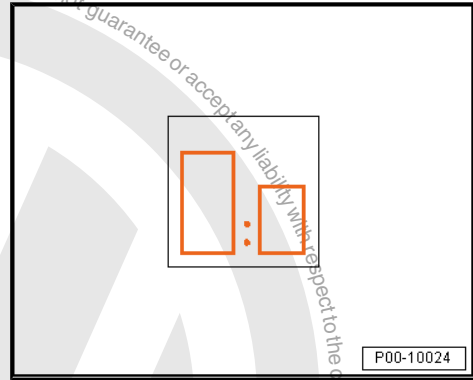
Wet-on-wet filler processing for metal and plastic

Mixing ratio: 4:1 by volume with

- ◆ hardener additive at +20°C material temperature:
- ◆ 25 % filler hardener, professional - LVM 009 402 B1-

- ◆ Add thinner at +20°C material temperature;
- ◆ 25 % thinner - LVM 005 000 B2-

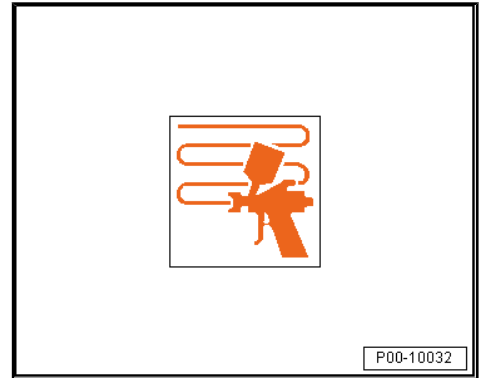
Application time/pot life:
90 minutes at +20 °C





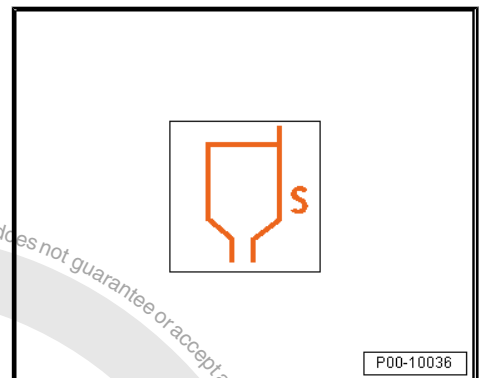
Spray applications:

- $1/2 + 1 = 1/2 \times \text{filler area} / 1 \times \text{total area}$
- Layer thickness is approx. 30-40 μm

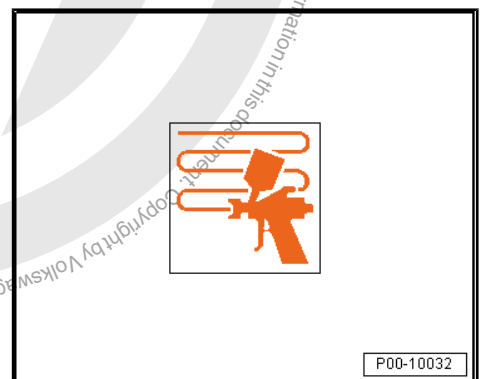
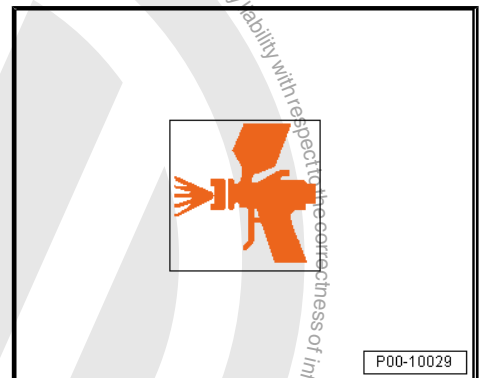


- Spray viscosity at +20°C, DIN 4

Spray viscosity, gravity-feed spray gun "Compliant" and "HVLP":
15-20 seconds.



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle following manufacturer's instructions to 1.3 mm, "HVLP".
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.0 bar.
- Adjust spray pressure (see manufacturer's instructions): "HVLP" 2.0 - 3.0 bar.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".
- One to two spray coats are necessary to achieve the recommended dry-film thickness of 30-40 μm .





Before recoating, observe flash-off time of 25 to 30 minutes at an ambient temperature of +20°C.

- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess cleaning agent with a lint-free cloth, leaving no streaks.

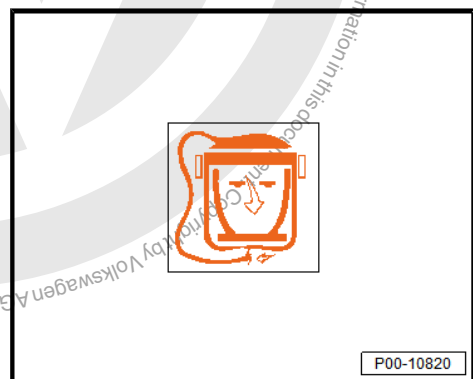
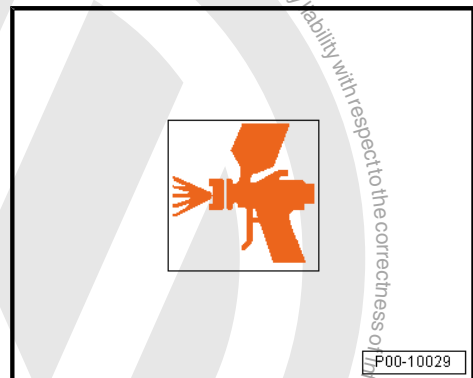
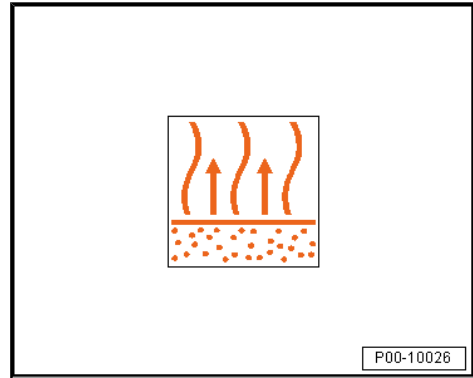
Recoating

Recoat with:

- ◆ Waterborne base coat and plasticised 2-pack HS clear coat
- ◆ Plasticised 2-pack HS top coat

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



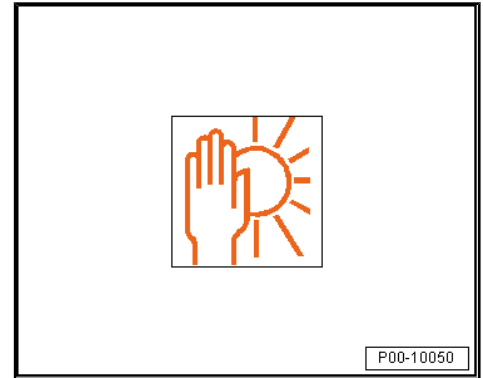


Storage

Guaranteed shelf life:

- ◆ 2-pack base filler, professional - LVM 037 500 B2- 24 months from production date.
- ◆ Filler hardener, professional - LVM 009 402 B1- 18 months from production date.
- ◆ Thinner - LVM 005 000 B2- 5 years from production date.

Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.7 Top coats

⇒ [“3.7.1 2-pack HS top coat”, page 151](#)

⇒ [“3.7.2 Aquaplus system, uni \(solid-colour\) and metallic colours”, page 157](#)

⇒ [“3.7.3 Aquaplus system \(pearlescent and heliochrome\)”, page 164](#)

⇒ [“3.7.4 Aquaplus blending system”, page 170](#)

⇒ [“3.7.5 Aqua Premium system”, page 174](#)

⇒ [“3.7.6 Aqua Premium blending system”, page 185](#)

⇒ [“3.7.7 Aqua Premium system \(painting rims\)”, page 190](#)

3.7.1 2-pack HS top coat

Designation:

- ◆ 2-pack HS uni (solid-colour top) coat - L2K 073 ... -
- ◆ 2-pack HS mixture paint - L2K 074 ... -

Issue 08.2016

Product description

The 2-pack HS top coat series is a high-solid, uni (solid-colour) top-coat system. It is used for car finishing.

The colour range is comprehensive due to a selection of mixture paints adjusted for this purpose.

Properties:

- ◆ Easy to apply
- ◆ Fast-drying
- ◆ Excellent top coat flow
- ◆ VOC-conforming below 420 g/l

Technical data sheet

Substrate

Suitable substrates:

- ◆ Fully cured, solvent-resistant, well-preserved and lightly sanded old paint or original paint
- ◆ Surfaces treated with primer or surfacer

Suitable priming materials:

- Depends on the object and the substrate, in accordance with recommendations for paintwork structure

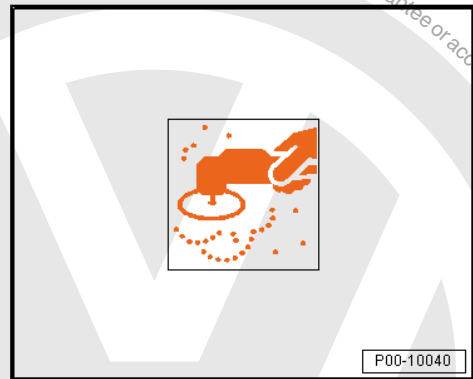


Substrate pre-treatment:

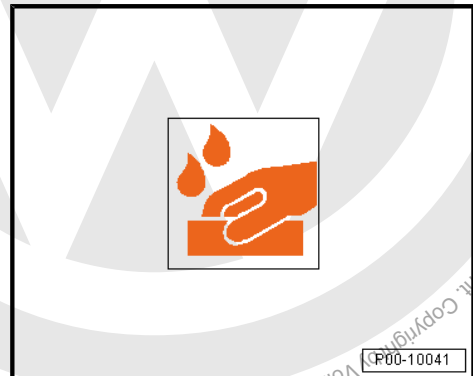
- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



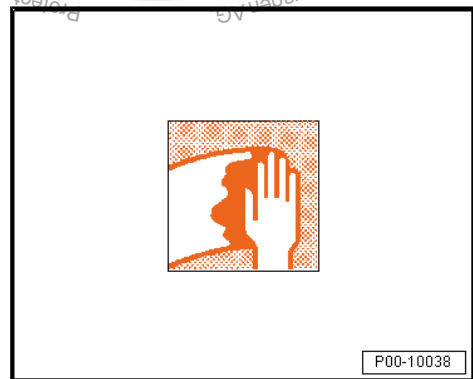
- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.



- Or lightly "wet" sand using P800 to P1000-grain sandpaper.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

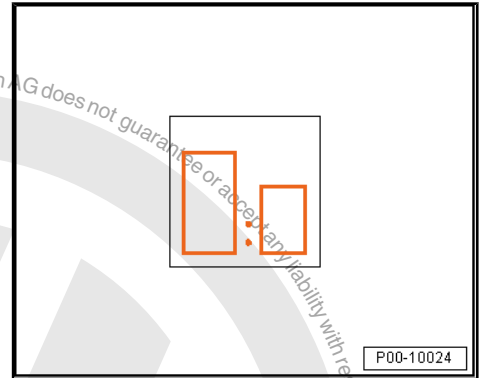




Application

Mixing ratio: 3:1 by volume with

- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2- (for small areas and spot repair)
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- (for small to medium-size areas at moderate temperatures)
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3- (for larger areas at moderate temperatures)
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2- (for large areas at high temperatures)
- ◆ See technical data sheet for 2-pack VHS hardener
⇒ [page 240](#)



Note

The mixture ratio for black matt - L2K 073 3FZ A2- and grey matt - L2K 073 7DL A2- is 4:1 with 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- .

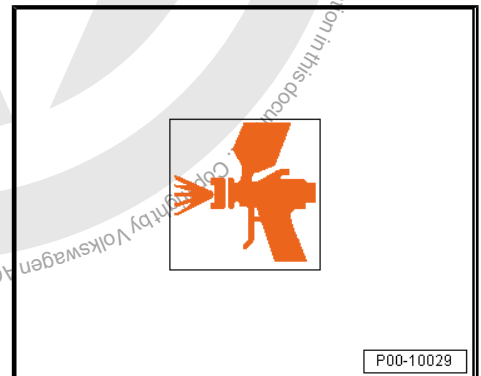
Application time/pot life:

- Ready-to-spray preparation 60-90 minutes at +20°C.

May be thinned with 2-pack thinner, special - LVM 009 200 A2- ,
HS spot thinner - LVM 006 000 A2- or 2-pack thinner, slow-drying
- LVM 009 300 A2-

Note

If HS spot thinner - LVM 006 000 A2- is used, observe the technical data sheet ⇒ [page 249](#) .



Method of application: "spray".





- Application viscosity for +20 °C material temperature

Application viscosity "Compliant" and "HVLP":

18-20 seconds

18-25 seconds for black matt - L2K 073 3FZ A2- and grey matt - L2K 073 7DL A2- .

- Add 12.5% thinner at +20°C material temperature

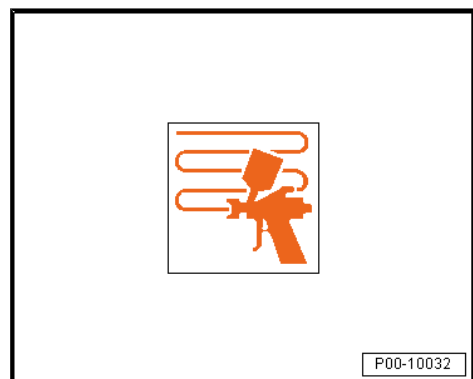
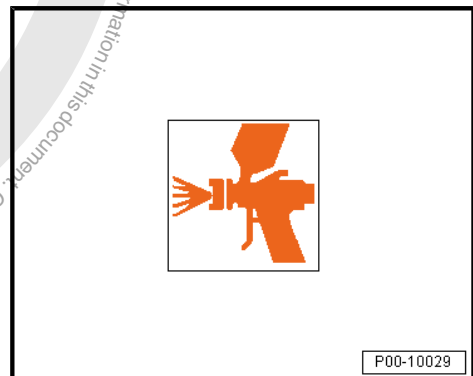
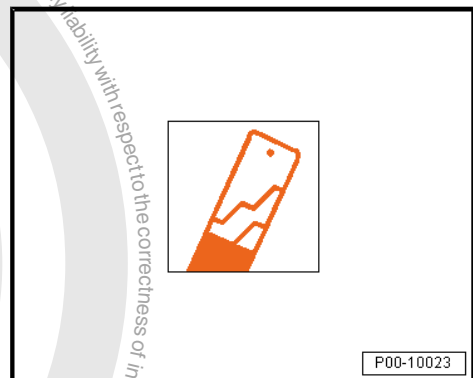
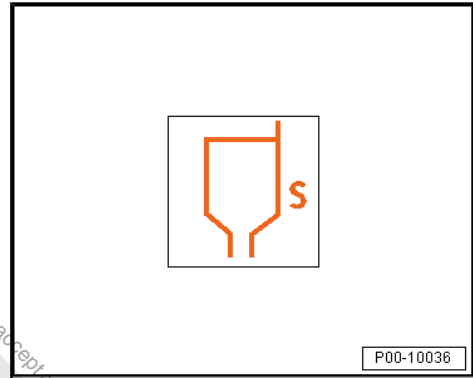
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.

- One-and-a-half spray coats are necessary to achieve the recommended dry-film thickness of 50-60 µm.



Note

- ◆ *When used for spot repairs (Clever Repair method), 12.5% HS spot thinner - LVM 009 200 A2- may be substituted for the 12.5% 2-pack thinner, special - LVM 006 000 A2- .*
- ◆ *Do not apply to horizontal surfaces.*
- ◆ *The first half-coat should form a uniformly thin film over which a full spray coat is directly sprayed.*
- ◆ *If the paint hue does not hide well, it may be necessary to apply an additional spray coat after an appropriate flash-off time. 2-pack HS top coat can be recoated with more of the same paint within 24 hours without »intermediate sanding«.*
- ◆ *The mixing colours in this mixing paint series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially to the description in this technical data sheet.*

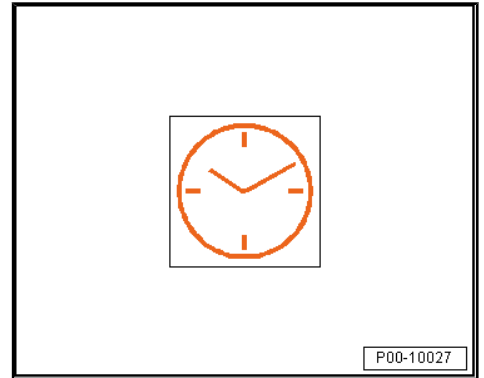




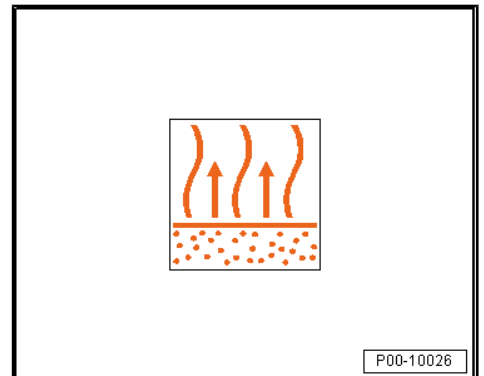
Drying

Air drying at +20 °C room temperature:

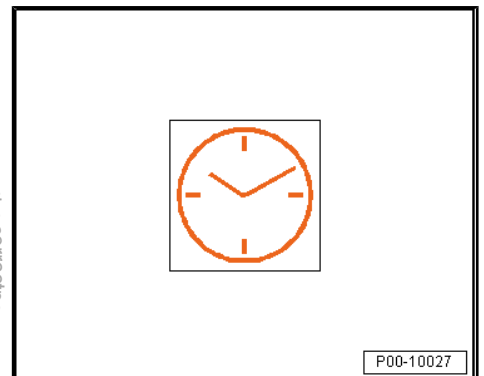
- ◆ Dust dry in 20-30 minutes
- ◆ Dry for assembly in 5-6 hours
- ◆ Dry overnight



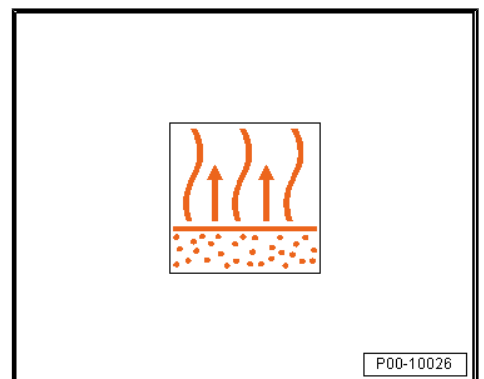
Final flash-off time with force drying is at least 5-10 minutes.



Force drying at +60°C material temperature in 15-20 minutes



The final flash-off time with infrared drying is at least 5 minutes.



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Infrared drying of light colours with short-wave radiant heater: 5 minutes at 50% power and then 10 minutes at 100% power

Infrared drying of light colours with medium-wave radiant heater: 15 minutes

Infrared drying of dark colours with medium-wave radiant heater: 12 minutes

Infrared drying of dark colours with short-wave radiant heater: 12 minutes at 50 % power



Note

If a short-wave radiant dryer is operated at 100 % power to dry dark colours, bubbles or blisters may develop when the next coat is applied.

Special notes:

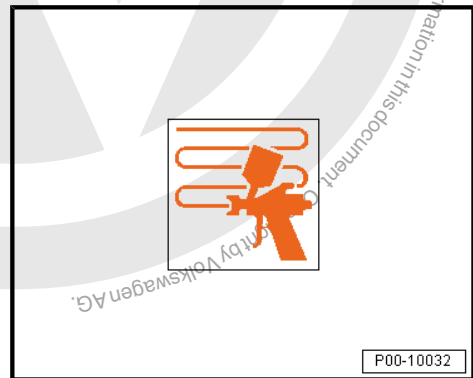
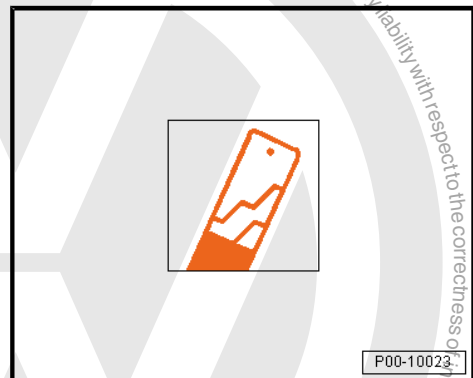
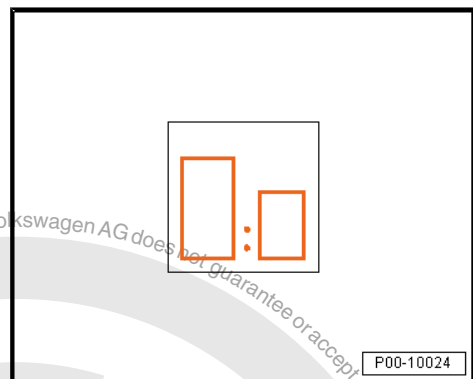
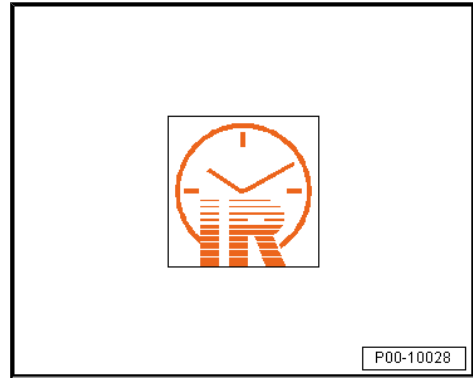
Plasticizer:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 15% thinner

Structuring:

- ◆ First mix the base material with 100 % fine texture additive - ALN 775 108- .
- ◆ Plasticizing not necessary!
- ◆ Mixture with 2-pack VHS hardeners, 4:1 with 15% thinner

To achieve a uniform paint film surface, 2 spray applications with 5-10 minutes interim flash-off time.





Matting:

- ◆ First mix the base material with 100 % matting additive - ALN 775 106- .
- ◆ Plasticizing not necessary!

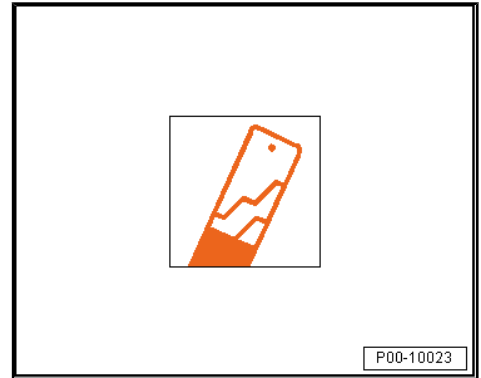
Detailed instructions on processing

⇒ [“3.2.2 Setting gloss level of HS clear coats and HS top coats with matting additive”, page 27](#) .



Note

- ◆ No further addition of matting additive - L2K 073 3FZ A2- is necessary for the 2-pack uni (solid-colour) top coats black matt - L2K 073 7DL A2- and grey matt - ALN 775 106- because they are already prepared for a matt finish.
- ◆ Mixing ratio with 2-pack VHS hardeners - LHA 009 051 A2- / -LVM 009 051 A5- is 4:1 with 15% thinner.
- ◆ Two spray coats with 5-10 minutes flash-off time are necessary for a uniform paint film surface.

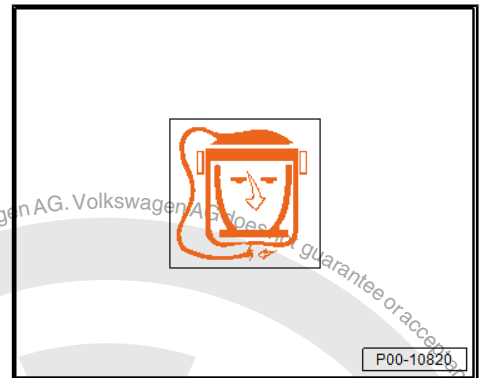


Personal protective equipment

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

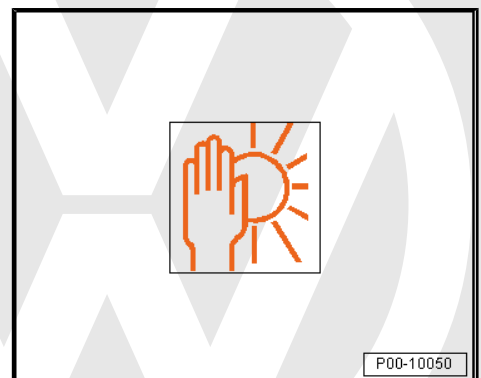
Viscosity as supplied	Depends on paint colour
Flash point:	+23°C
VOC content: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

Guaranteed storage time of 2-pack HS uni (solid-colour) top coat - L2K 073 ... - is 24 months from production date.

The guaranteed storage time of 2-pack HS mixing paint - L2K 074 ... - is 36/48 months from production date. Both products may be used until the date stated on the label at latest if stored in sealed original containers at +20 °C.



3.7.2 Aquaplus system, uni (solid-colour) and metallic colours

Designation:

- ◆ Uni (solid-colour) water-based mixing paint - LWM 075 ...-
- ◆ Metallic water-based mixing paint - LWM 076 ...-
- ◆ Uni (solid-colour) water-based priming paint - LUW/LWG 038 ...-
- ◆ Metallic water-based priming paint - LMW/LWG 039 ...-



Issue 11.2012

Product description

The Aquaplus system is a high-grade water-based base coat system. It is based on a special PU dispersion technology for high-grade two-stage solid and metallic colours.

Properties:

- ◆ Easy to apply
- ◆ Good vertical stability
- ◆ Good hiding power
- ◆ Recoatable with 2-pack HS clear coat
- ◆ VOC compliant



Note

After overspraying with 2-pack HS clear coat, it produces a high-gloss, weather-resistant finish.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Intact old paint
- ◆ Surfaces coated with primer or surfacer (2-pack HS surfacer)
- ◆ Substrates isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2-
- ◆ For plastic surfaces, substrates isolated with 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ See special notes ⇒ [page 160](#)

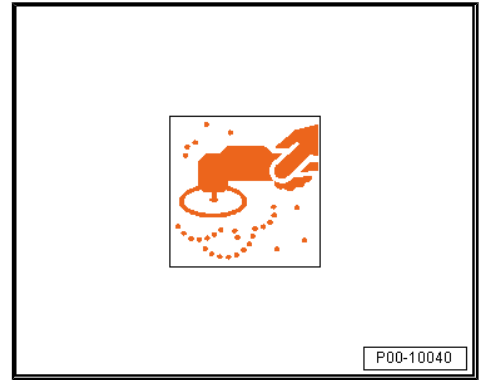
Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .





- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.



- Or sand "wet" using P800-1000-grit sandpaper.

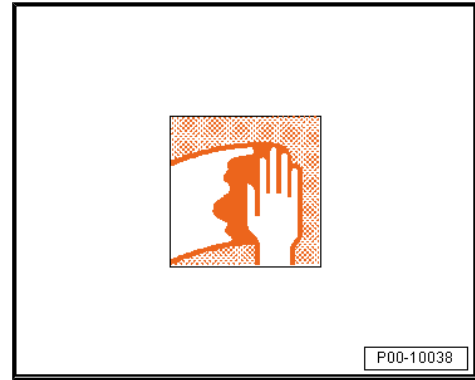




- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.

Special notes

- ◆ Areas sanded to bare metal must be isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- . Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be isolated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .



Application

Mixing containers:

- Plastic containers or tin plate containers with inner coating

Sieves:

- Water-based base coats are to be filtered through waterproof 125 µm quick sieves before application by means of cup systems.

Thinner:

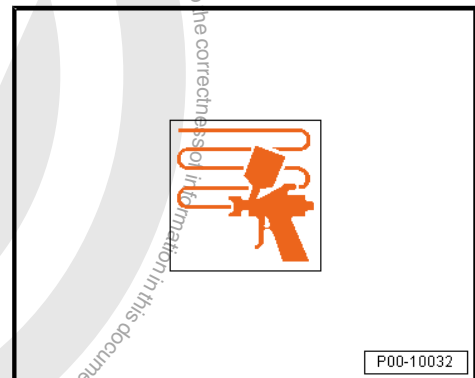
- Aquaplus demineralised water - LVW 010 000 A5- (according to ISO 3696)
- Use Aquaplus measuring stick.
- At higher temperatures (>+25°) and high relative humidity (>60%), adding 0-5% demineralised water - LVW 010 000 A5- is sufficient.



Note

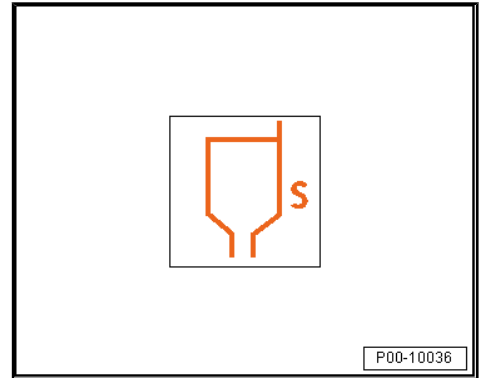
- ◆ *For reasons of safety, mixtures which include both micro silver extra - LWM 076 817 A2/A4- and translucent oxide - LWM 075 831 A1- may not be stored. Risk of pressure increase in the closed tin.*
- ◆ *Any unused material is immediately to be disposed of properly.*
⇒ [page 163](#) .

Method of application: "spray".

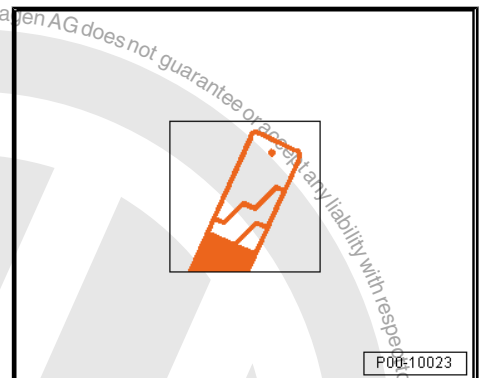




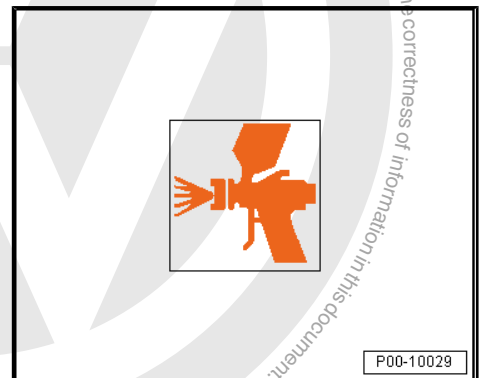
- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.



- Add 10 % thinner at +20°C material temperature



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" WSB/1.3 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



- One spray operation includes a tack coat followed by a full coat. A "finish coat" is recommended for special-effect colours.



Note

If the paint hue does not hide well, it may be necessary to apply additional spray coats after an appropriate flash-off time.





Drying

The flash-off time for clear coat application is 20 minutes at +20° C room temperature.

Ways to reduce flash-off times for small areas:

- ◆ Surface matting can be accelerated by blowing on it with an air diffuser (hand-held or stationary device).
- ◆ Blowing with a spray gun is also possible after waiting at least 5 minutes.

Ways to reduce flash-off times for large areas:

- ◆ Surface matting can be accelerated by using stationary air diffusing units (e.g. ceiling system), infrared drying or low baking.
- ◆ Ceiling system: 10-15 minutes
- ◆ Infrared drying: 3-5 minutes
- ◆ Cooling time at least 5 minutes

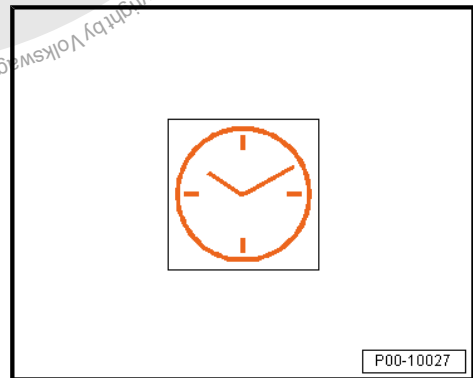
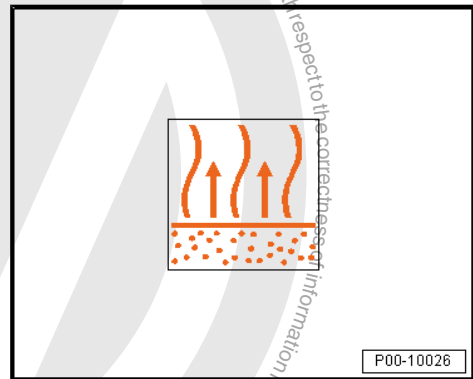
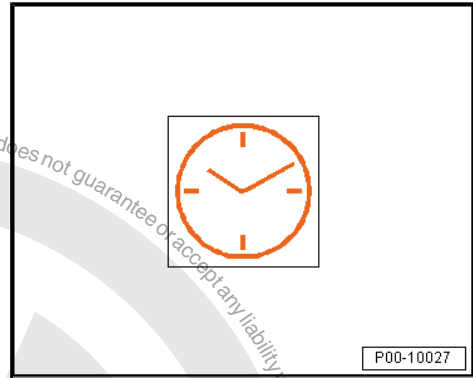
Oven drying at +60 °C

- ◆ Combination booth: at least 10 minutes including heat-up time
- ◆ Low-bake oven: at least 5 minutes
- ◆ Cooling time at least 5 minutes



Note

The specified flash-off and drying times depend on the temperature, humidity, air drop speed in the spray booth and the number of coats applied. The surface must, however, first appear completely matt.





Recoating

Recoat with:

- ◆ 2-pack HS clear coat from the Volkswagen Genuine paint programme

Special notes

Blending system (for achieving a perfect colour transition from repair to adjacent areas)

- Preparation:
 - Sand surfaced areas (dry with P400 to P500-grade paper or wet with P800 to P1000-grade waterproof paper).
 - Thoroughly but lightly sand the adjacent areas to which no surfacer was applied with a fine emery pad.
 - Thoroughly clean the whole surface with silicone remover - LVM 020 000 A5- to remove any dust, paint residue from sanding or any other impurities.
 - Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.
 - Allow the moisture on substrates which have been wet-sanded or cleaned to evaporate completely.
- Blending system for metallic and solid colours:
 - Spray the area on which the surfacer was applied with mixed water-based base coat at spray viscosity so that it forms an opaque film.
 - Extend the area of application of each subsequent coat through a process of overlapping so that only a fade-out area remains.
 - Extend this fade out area and blend in, spraying with reduced pressure.
 - After an appropriate final flash-off time, 2-pack HS clear coat can be applied.

Product application

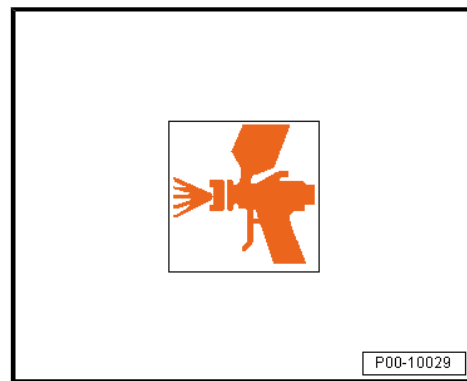
- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The mixing colours in this top coat series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.



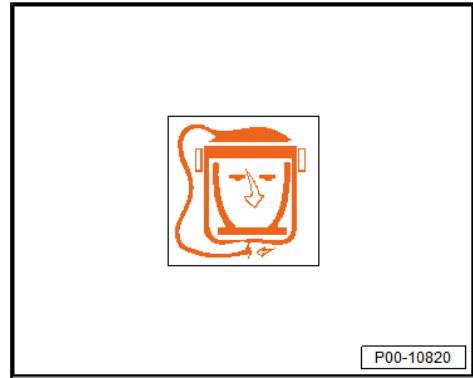


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

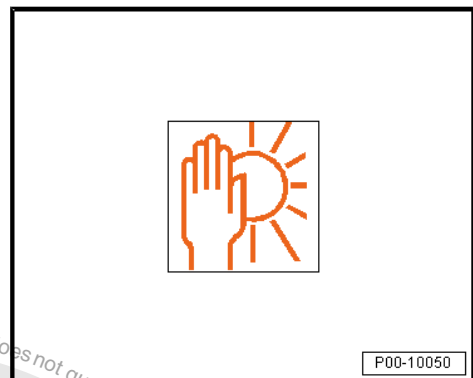
Flash point:	above +23 °C
VOC content: 2004/42/IIIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

Guaranteed storage time of the individual products is

- ◆ Uni (solid-colour) water-based mixing paint - LWM 075 ...- 24 months from production date.
- ◆ Uni (solid-colour) water-based base coat - LUW/LWG 038 ...- 24 months from production date.
- ◆ Metallic water-based mixing paint - LWM 076 ...- 24 months from production date.
- ◆ Metallic water-based base coat - LMW/LWG 039 ...- 18-24 months from production date.



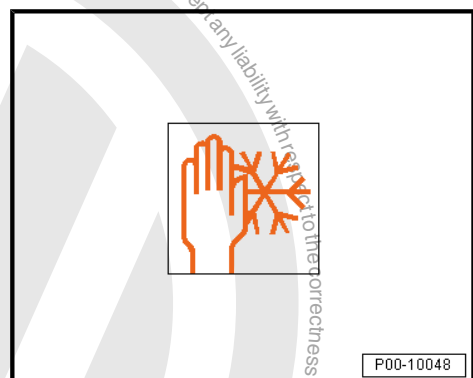
All products may be used until the date stated on the label at latest if stored in sealed original containers at +20 °C.

Storage conditions

The prescribed storage temperature is +20°C (do not store at temperatures below +5°C).

Preferred storage temperature +15°C to +25°C.

Short-term storage (approx. 4 weeks) at +5 °C to +35 °C is possible.



3.7.3 Aquaplus system (pearlescent and heliochrome)

Designation:

- ◆ Pearlescent water-based base coat - LPW 040 ...-
- ◆ Heliochrome water-based base coat - LHW 046 ...-
- ◆ Pearlescent water-based mixture coat - LWM 076 ...-

Issue 11.2012

Product description

The Aquaplus system is a high-grade water-based base coat system based on special PU dispersions.

The base coat can be used for two-stage pearlescent or heliochrome finishes on passenger cars and commercial vehicles.

Properties:

- ◆ Easy to apply



- ◆ Good vertical stability
- ◆ Good hiding power
- ◆ Recoatable with 2-pack HS clear coat
- ◆ VOC compliant

 **Note**

After overspraying with 2-pack HS clear coat, it produces a high-gloss, weather-resistant finish.

Technical data sheet

Substrate

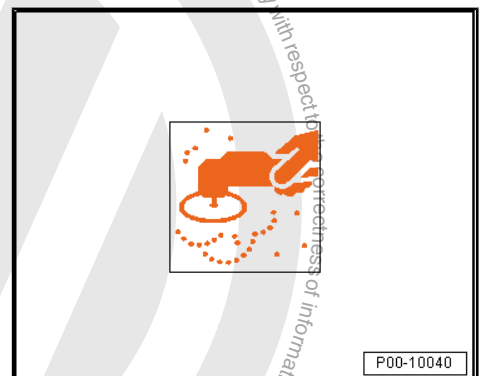
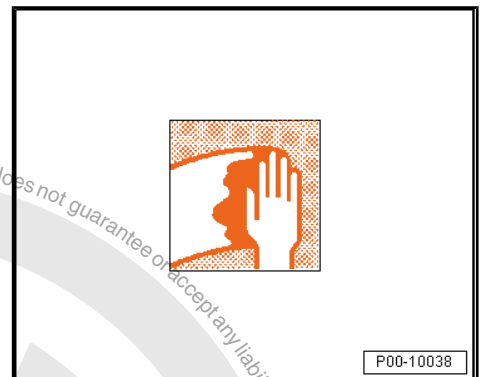
Suitable substrates:

- ◆ Intact old paint
- ◆ Surfaces coated with primer or surfacer (2-pack HS surfacer)
- ◆ Substrates isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2-
- ◆ For plastic surfaces, substrates isolated with 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ See special notes ⇒ [page 166](#)

Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

- Dry sand using orbital sander with P400-500 grit sandpaper and dust collector.



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- Or sand "wet" using P800-1000-grit sandpaper.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.

Special notes

- ◆ Areas sanded to bare metal must be isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- . Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be isolated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .



Application

Mixing containers:

- Plastic containers or tin plate containers with inner coating

Sieves:

- Water-based base coats are to be filtered through waterproof 125 µm quick sieves before application by means of cup systems.

Thinner:

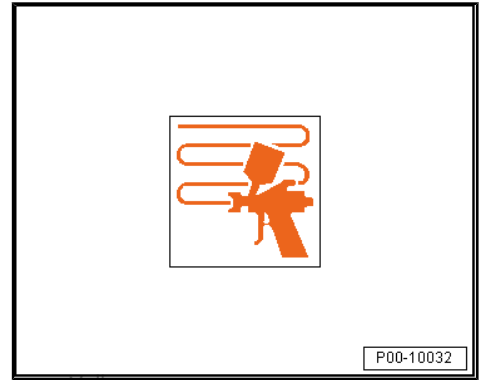
- Aquaplus demineralised water - LVW 010 000 A5- (according to ISO 3696)
- Use Aquaplus measuring stick.
- At higher temperatures (>+25°) and high relative humidity (>60%), adding 0-5% demineralised water - LVW 010 000 A5- is sufficient.

Preparation:

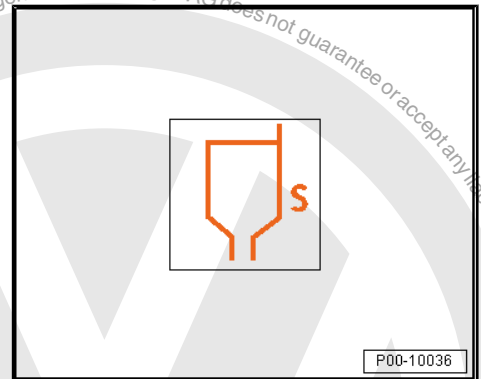
- A special base coat (application of solid-colour water-based base coat) is necessary for three-stage pearlescent colours. The respective hue must be determined from the formula information systems.
- Pearlescent water-based base coat is applied for pearlescent finishes.



Method of application: "spray".



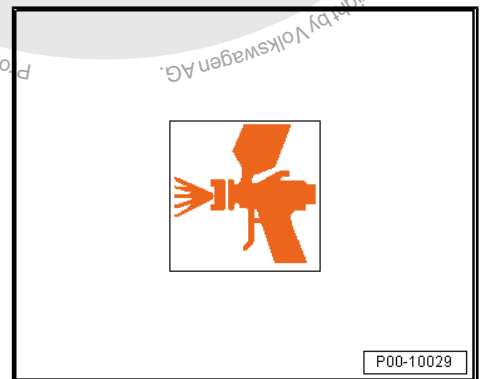
- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.



- Add 10 % thinner at +20°C material temperature



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" WSB/1.3 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.





- One spray operation includes a tack coat followed by a full coat. A "finish coat" is recommended for special-effect colours.



Note

- ◆ If the paint hue does not hide well, it may be necessary to apply additional spray coats after an appropriate flash-off time.
- ◆ The total film thickness (including the solid-colour water-based base coat) must not exceed 45 µm.

Drying

The flash-off time for clear coat application is 20 minutes at +20° C room temperature.

Ways to reduce flash-off times for small areas:

- ◆ Surface matting can be accelerated by blowing on it with an air diffuser (hand-held or stationary device).
- ◆ Blowing with a spray gun is also possible after waiting at least 5 minutes.

Ways to reduce flash-off times for large areas:

- ◆ Surface matting can be accelerated by using stationary air diffusing units (e.g. ceiling system), infrared drying or low baking.
- ◆ Ceiling system: 10-15 minutes
- ◆ Infrared drying: 3-5 minutes
- ◆ Cooling time at least 5 minutes

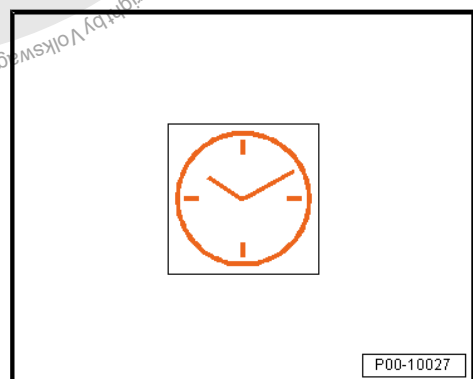
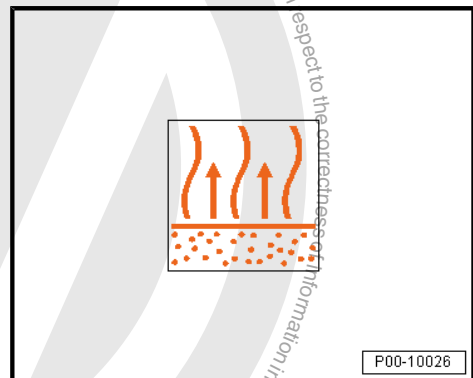
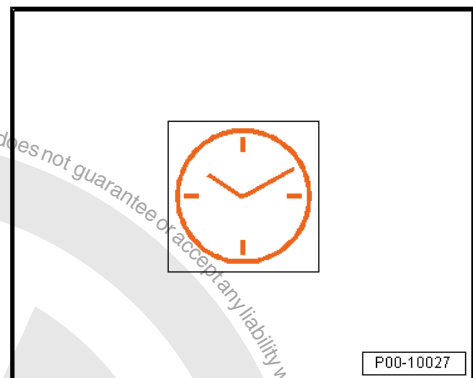
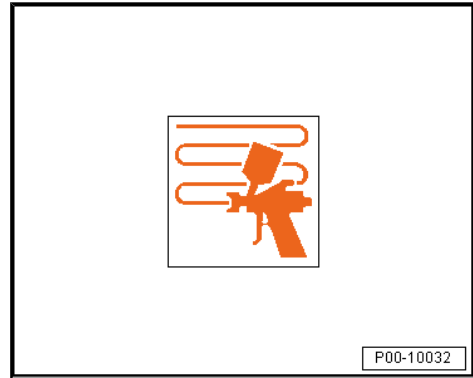
Oven drying at +60 °C

- ◆ Combination booth: at least 10 minutes including heat-up time
- ◆ Low-bake oven: at least 5 minutes
- ◆ Cooling time at least 5 minutes



Note

The specified flash-off and drying times depend on the temperature, humidity, air drop speed in the spray booth and the number of coats applied. The surface must, however, first appear completely matt.





Recoating

Recoat with:

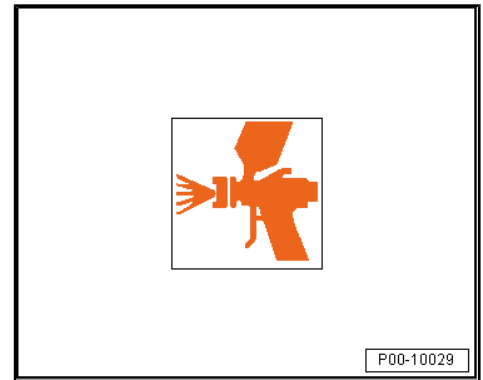
- ◆ 2-pack HS clear coat from the Volkswagen Genuine paint programme

Special notes



Note

- ◆ *The decision to use two or three coats (with a special undercoat) depends on the factory finish.*
- ◆ *The respective undercoat colour is stated in the formula information systems.*



Blending system (for achieving a perfect colour transition from repair to adjacent areas)

- Preparation:
 - Sand surfaced areas (dry with P400 to P500-grade paper or wet with P800 to P1000-grade waterproof paper).
 - Thoroughly but lightly sand the adjacent areas to which no surfacer was applied with a fine emery pad.
 - Thoroughly clean the whole surface with silicone remover - LVM 020 000 A5- to remove any dust, paint residue from sanding or any other impurities.
 - Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.
 - Allow the moisture on substrates which have been wet-sanded or cleaned to evaporate completely.
- Two-stage pearlescent and heliochrome colours:
 - Spray the area on which the surfacer was applied with mixed pearlescent or heliochrome water-based base coat at spray viscosity so that it forms an opaque film.
 - Extend the area of application of each subsequent coat through a process of overlapping so that only a fade-out area remains.
 - Extend this fade out area and blend in, spraying with reduced pressure.
 - After an appropriate final flash-off time, 2-pack HS clear coat can be applied.
- Three-stage pearlescent colours:
 - Blend in the area on which the surfacer was applied with the mixed solid-colour water-based base coat (see base coat colour application) using reduced pressure.
 - Spray the same area with the mixed pearlescent water-based base coat, overlapping slightly and at reduced pressure to match the original finish.
 - Blow dry with the spray gun after each coat.

Product application

- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.



- ◆ The mixing colours in this top coat series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

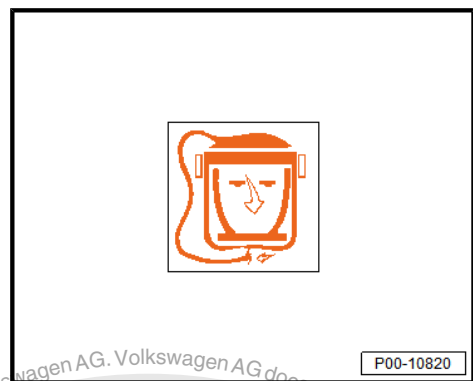
- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.

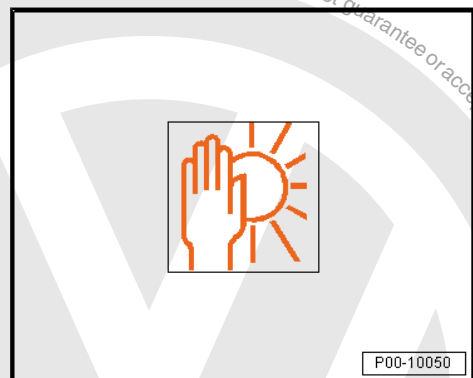


Storage

Guaranteed storage time of the individual products is

- ◆ Pearlescent water-based mixing paint - LWM 076 ...- 24 months from production date.
- ◆ Pearlescent water-based base coat - LPW 040 ...- 18-24 months from production date.
- ◆ Heliochrome water-based base coat - LHW 046 ...- 18 months from production date.

All products may be used until the date stated on the label at latest if stored in sealed original containers at +20°C.

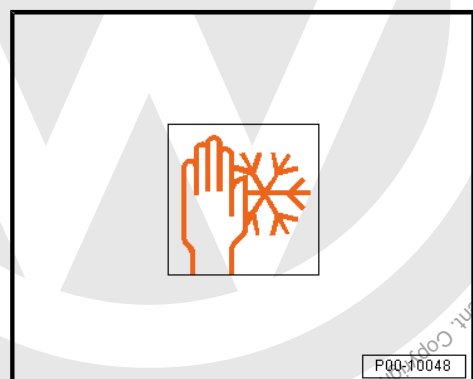


Storage conditions

The prescribed storage temperature is +20°C (do not store at temperatures below +5°C).

Preferred storage temperature +15°C to +25°C.

Short-term storage (approx. 4 weeks) at +5 °C to +35 °C is possible.



3.7.4 Aquaplus blending system

Designation:

- ◆ Blending additive for Aquaplus - LVM 030 000 A2-



Issue 06.2011

Product description

The blending additive for Aquaplus is especially suitable for blending in Aquaplus water-based base coat. It simplifies the blending process.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Surfaces coated with primer or surfacer (2-pack HS surfacer)
- ◆ Fully cured, solvent-resistant, well-preserved and lightly sanded old paint or original paint

Suitable priming materials:

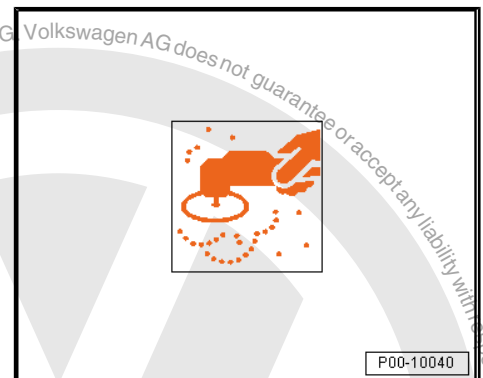
- Depends on the object and the substrate, in accordance with our recommendations for structure

Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Dry sand using orbital sander with P400-500 grade paper and dust collector or wet sand using P800 to P1000-grade water proof paper.

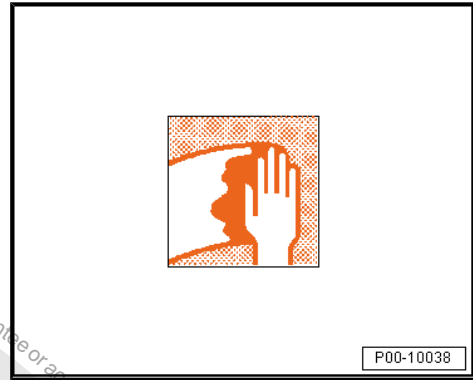


- Lightly sand the fade-out area of the undamaged original paintwork with P1000 to P1200-grade sandpaper.

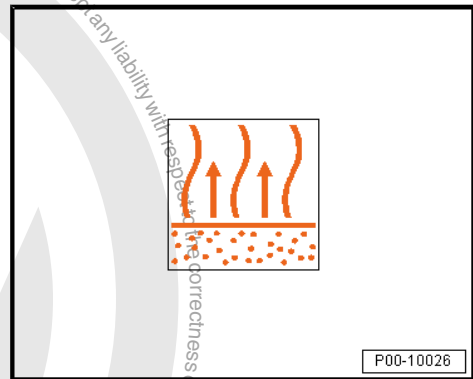




- Before recoating, clean again using a suitable cleaning agent to ensure a clean surface free of residues.



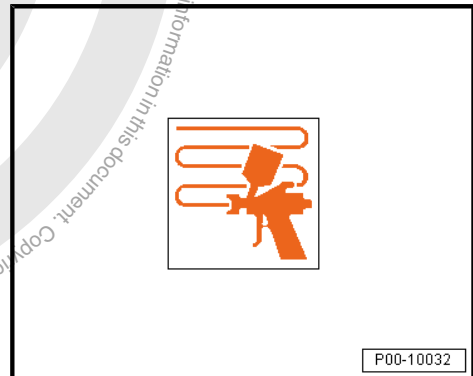
- Allow the moisture on substrates which have been wet-sanded or cleaned to evaporate completely.



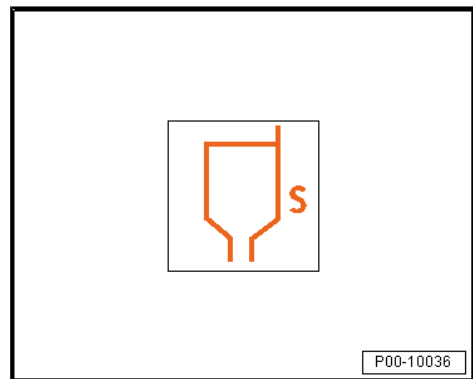
Application

Thinning is not necessary.

Method of application: "spray".

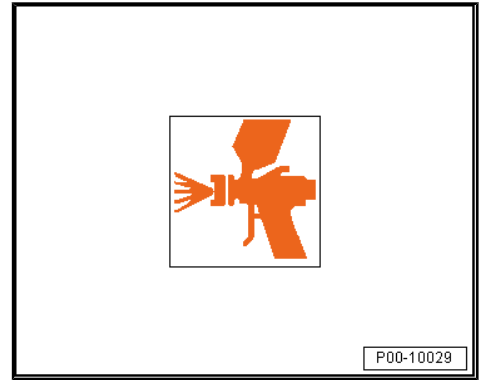


- Application viscosity 4 mm, +20°C, DIN 53211
- The application viscosity of the product is the mixing viscosity.





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" WSB/1.3 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.

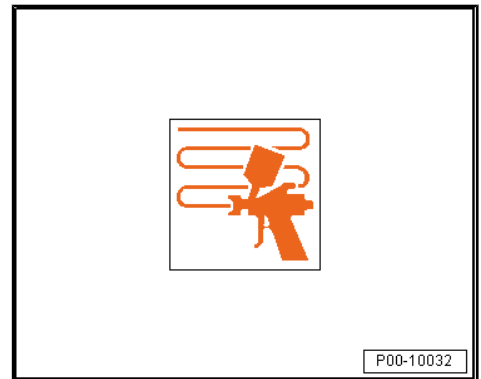


- Apply the mixed Aquaplus water-based base coat in 3 - 5 light coats, depending on colour and opacity, to the repair spot at reduced spray pressure (0.8 - 1.5 bar).



Note

Manufacturer's specifications notwithstanding, the inlet pressure should be reduced as specified for this blending system.



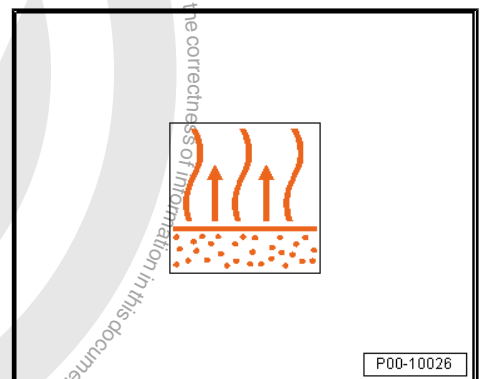
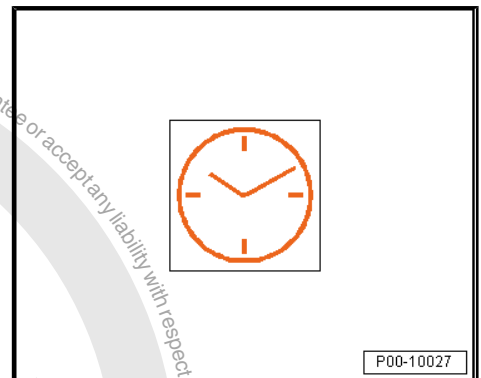
Drying

Flash-off time before clear coat application:

Flash off 15-20 minutes at +20°C ambient temperature.

Ways to reduce flash-off time:

- ◆ Surface matting can be accelerated by blowing on it with an air diffuser or force drying with infrared radiation or low baking.
- ◆ Blowing with a spray gun is also possible after waiting at least 5 minutes.
- ◆ Drying time: at least 5 minutes.





Recoating

Recoat with:

- ◆ 2-pack HS clear coat



Note

This product should not be used "without mixing".

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
--------------	--------------

Storage

The guaranteed storage time of Aquaplus blending additive - LVM 030 000 A2- is 24 months from the production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

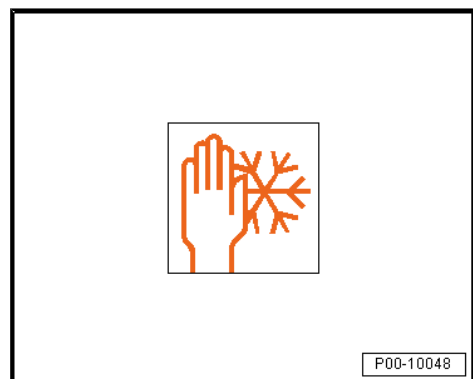
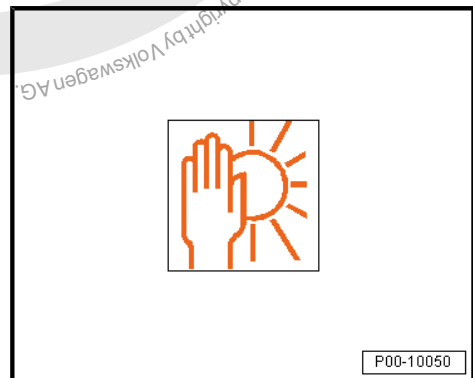
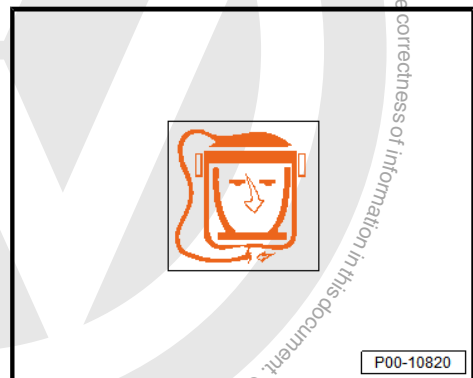
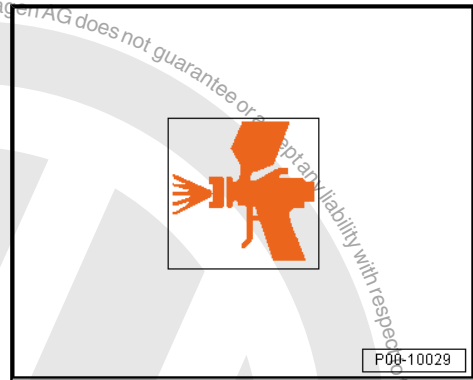
Storage conditions

Optimal storage temperature +5°C to +35°C.



Note

Higher or lower temperatures will spoil the product.



3.7.5 Aqua Premium system

Designation:

- ◆ Uni (solid-colour) water-based mixing paint - LWM 083 ...-
- ◆ Metallic, pearlescent, special-effect water-based mixing paint - LWM 084/ 086...-
- ◆ Uni (solid-colour) water-based priming paint - LWG 055 ...-



- ◆ Metallic water-based priming paint - LWG 056 ...-
- ◆ Pearlescent water-based base coat - LWG 057 ...-
- ◆ Flop control - LWM 085 386 A2-
- ◆ System component A - LWM 083 385 A3-
- ◆ System component B - LWM 085 387 A3-

Issue 03.2017

Product description

The Aqua Premium system is an innovative water-based base coat system. All solid and effect colours for passenger car refinishing can be mixed from this system.

Properties:

- ◆ Fast, easy to use system
- ◆ Very reliable results thanks to uniform effect formation
- ◆ Short process times
- ◆ Easy and reliable blending
- ◆ Versatile in use (interior, multi-stage and multi-colour finishes)

Technical data sheet

Substrate

Suitable substrates:

- ◆ Surfaces coated with primer or surfacer (2-pack HS surfacer)
- ◆ Intact old paint
- ◆ For plastic surfaces: adhesion promoter (transparent) - ALO 822 000 10- + 2-pack HS surfacer (plasticized)
- ◆ For plastic surfaces, substrates isolated with 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ See special notes ⇒ [page 176](#)

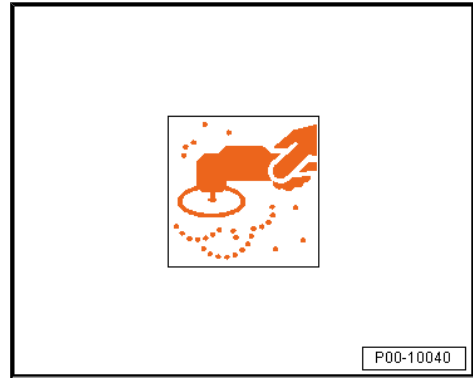
Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

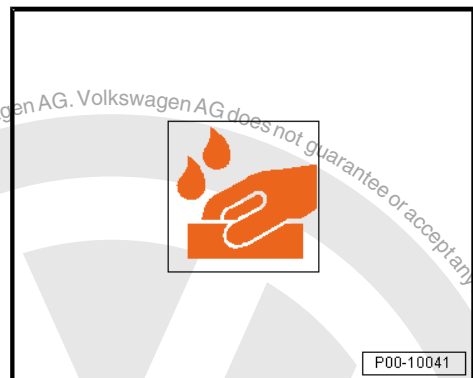




- Dry sand using orbital sander with P500-600 grit sandpaper and dust collector.



- Or sand "wet" using P800-1000-grit sandpaper.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.

Special notes

- ◆ Areas sanded to bare metal must be isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- . Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be isolated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .



Application for standard applications

Mixing containers:

- Plastic containers or tin plate containers with inner coating



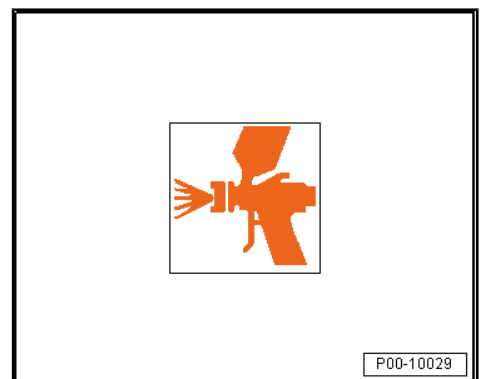
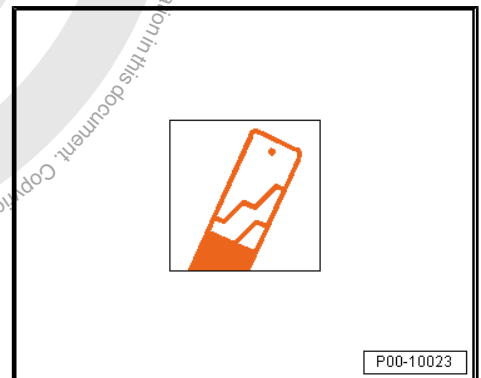
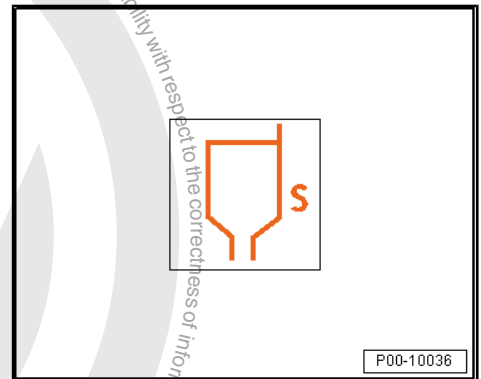
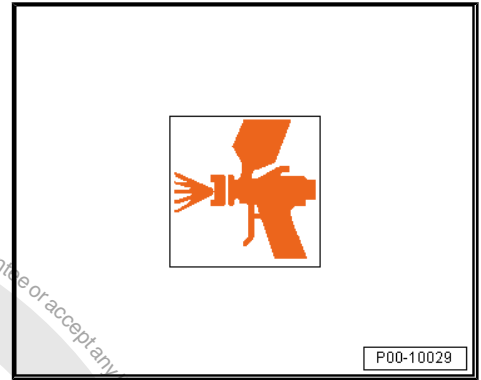
Note

The mixture must be applied within 24 hours after the additive has been added.



Application type "Compliant"

- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.
- For solid colours, add 10% additive for Aqua Premium - LVM 035 200 A3/LVM 035 301 A3- at +20 °C material temperature.
- For metallic or pearlescent colours, add 20% additive for Aqua Premium - LVM 035 200 A3/LVM 035 301 A3- at +20 °C material temperature.
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray jet (see manufacturer's specifications): "SATA RP 1.2 / RP 1.2W" / "Devilbiss GTi Pro Lite TE20" 1.2 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.8 to 2.0 bar.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".



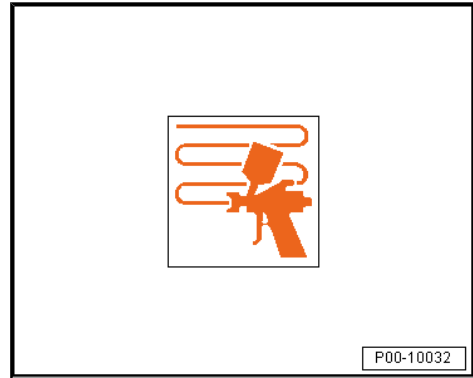


- One application consists of one-and-a-half spray coats. Apply one normal spray coat followed by a "finish or effect coat".



Note

If the paint colour does not hide well, it may be necessary to apply an additional wet-on-wet spray coat after an appropriate flash-off time.



Drying

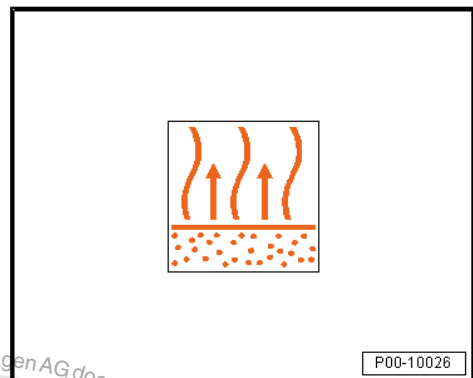
Continue the flash-off time until the entire surface is matt before applying clear coat.

Recoat with:

- ◆ 2-pack HS clear coat (see relevant data sheet)

Ways to reduce flash-off times for small areas:

- ◆ Surface matting can be accelerated by blowing on it with an air diffuser (hand-held or stationary device).
- ◆ Blowing with a spray gun is also possible after waiting at least 5 minutes.



Ways to reduce flash-off times for large areas:

- ◆ Surface matting can be accelerated by using stationary air diffusing units (e.g. ceiling system), infrared drying or low baking.

Application of 3-stage colours and multi-colour finishes

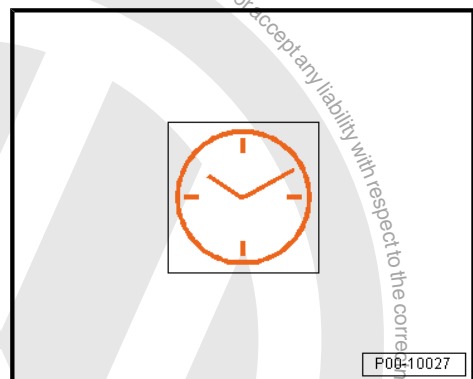
Hardener:

- Aqua Premium hardener - LVM 045 000 A1-

Additives:

(at high temperatures and low humidity)

- Additive for Aqua Premium - LVM 035 301 A3-
- Use the Aqua Premium measuring stick for three-stage colours.



Note

The mixture must be applied within 24 hours after the additive has been added.

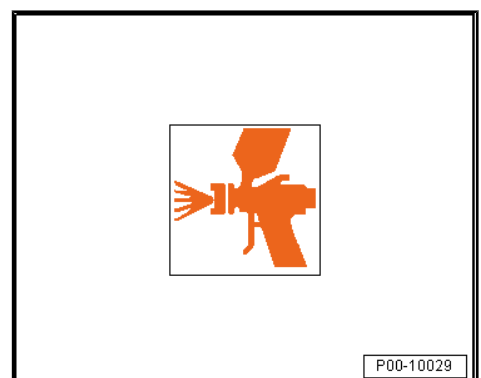
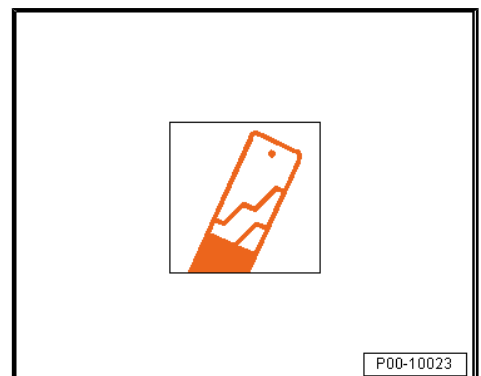
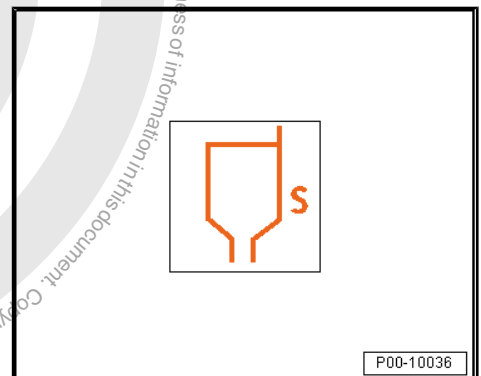
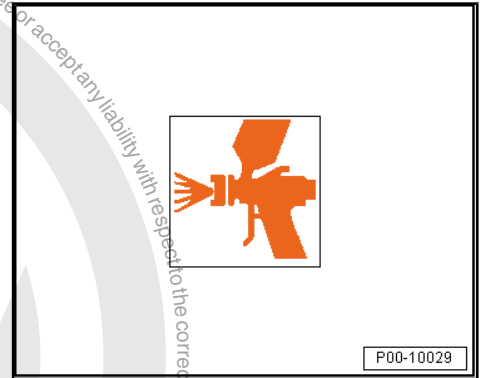
Pot life:

- Solid colours: 90-120 minutes at +20°C room temperature.
- Effect colours: 45-60 minutes at +20°C room temperature.



Application type "Compliant"

- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.
- For three-stage colours, add 5% Aqua Premium hardener - LVM 045 000 A1- only to the base coat
- For solid colours, add 10% additive for Aqua Premium - LVM 035 301 A3- at +20°C material temperature.
- For metallic or pearlescent colours, add 20% additive for Aqua Premium - LVM 035 301 A3- at +20 °C material temperature.
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2 to 1.3 mm.
- Adjust spray jet (see manufacturer's specifications): "SATA RP 1.2 / RP 1.2W" / "Devilbiss GTi Pro Lite TE20" 1.2 mm.
- Adjust spray pressure (see manufacturer's specifications): "Compliant" 1.8 to 2.0.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".



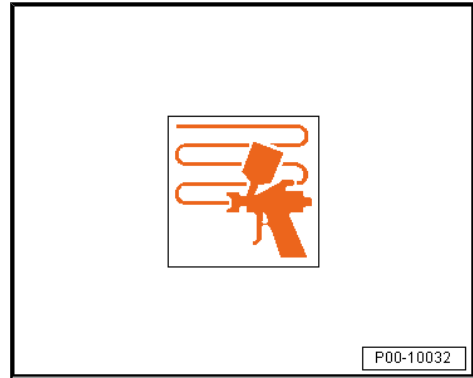


- One application consists of one-and-a-half spray coats. Apply one normal spray coat followed by a "finish or effect coat".

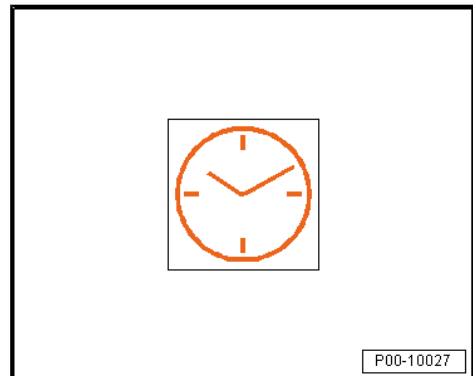


Note

If the paint colour does not hide well, it may be necessary to apply an additional wet-on-wet spray coat after an appropriate flash-off time.



Drying



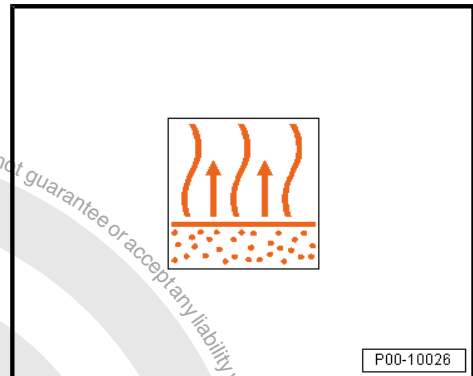
Continue the flash-off time without blowing on it until the entire surface is matt before applying clear coat.

- ◆ Flashing-off with an air diffuser is carried out for 5-10 minutes at +20-40°C until the entire surface is matt.
- ◆ The final flash-off time is 10-15 minutes at +60-65°C. Allow base coat to cool before applying effect coat.



Note

»Blue contour tape« is recommended for multi-stage finishes.





Recoating

Recoat with:

- ◆ Effect colour.
- ◆ 2-pack HS clear coat up to 72 hours maximum after base coat application

Application of interior finish without clear coat

Application:

- ◆ Areas of use are vehicle interiors, e.g. engine compartment and luggage compartment walls, where a robust semi-gloss finish without an additional clear coat are desired.

Hardener:

- Aqua Premium hardener - LVM 045 000 A1-

Additives:

(at normal or high temperatures and low humidity depending on size of object)

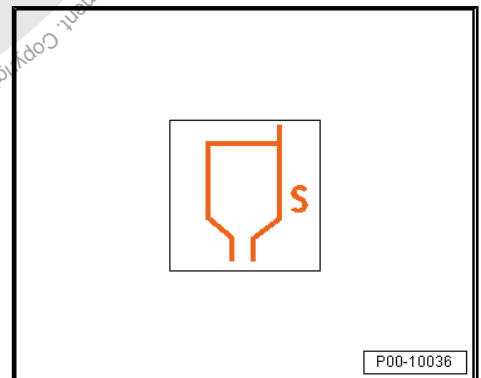
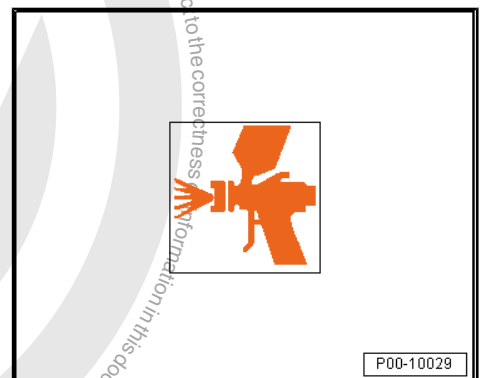
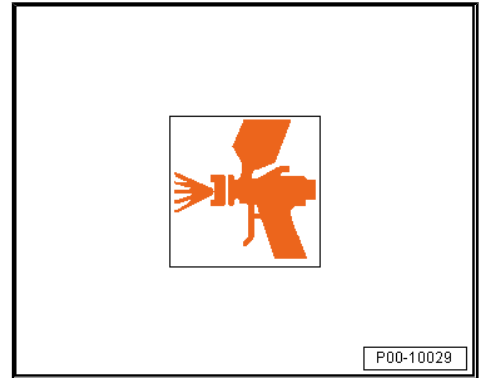
- Additive for Aqua Premium - LVM 035 200 A3-
- Additive for Aqua Premium - LVM 035 301 A3-
- Use Aqua Premium measuring stick for interior finishes.

Pot life:

- Solid colours: 45-60 minutes at +20°C room temperature
- Effect colours: 30-60 minutes at +20°C room temperature

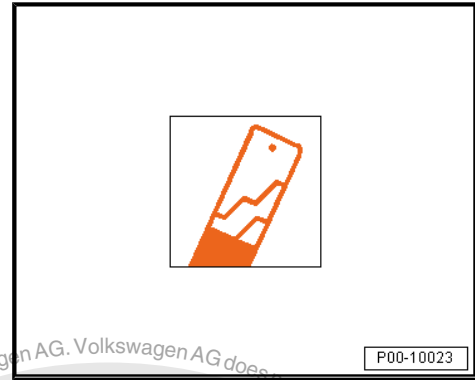
Application type "Compliant"

- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.
- Add 10% Aqua Premium hardener - LVM 045 000 A1- .

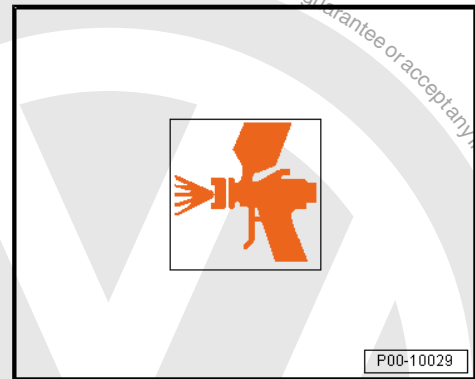




- For solid colours, add 10% additive for Aqua Premium - LVM 035 200 A3/LVM 035 301 A3- at +20 °C material temperature.
- For metallic or pearlescent colours, add 20% additive for Aqua Premium - LVM 035 200 A3/LVM 035 301 A3- at +20 °C material temperature.



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2 to 1.3 mm.
- Adjust spray jet (see manufacturer's specifications): "SATA RP 1.2 / RP 1.2W" / "Devilbiss GTi Pro Lite TE20" 1.2 mm.
- Adjust spray pressure (see manufacturer's specifications): "Compliant" 1.8 to 2.0.
- Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".



- One application consists of one-and-a-half spray coats. Apply one normal spray coat followed by a "finish or effect coat".



Note

If the paint colour does not hide well, it may be necessary to apply an additional wet-on-wet spray coat after an appropriate flash-off time.





Drying

Air dry overnight at +20 °C ambient temperature

Alternatively, slow-bake for 15-20 minutes at 60-65°C.

Special notes

Product application

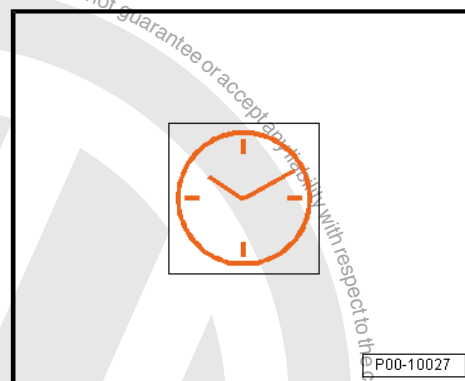
- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The mixing colours in this top coat series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.
- ◆ Do not have mixing system mix more often than 2 x 15 minutes within 24 hours.
- ◆ The material should be at room temperature before use (18 to 25 °C).
- ◆ New unopened mixed paint containers should be stirred appropriately before use.
- ◆ Filter waterborne base coat Aqua-Premium using cup systems (e.g. SATA or 3M) and water-resistant 125 µm quick sieves before processing it.
- ◆ Any equipment that comes into contact with this product must be approved for water-based products.
- ◆ Reduction of the flash-off time possible through the use of blowing nozzles or guns, booth air nozzle systems or increased booth temperatures.
- ◆ Allow for additional time to bring up to temperature.
- ◆ All drying and flash-off times given are related to relative humidity and type of blowers.
- ◆ After additive for Aqua-Premium - LVM 035 200/301- has been added, the material should be used up within one workday.
- ◆ Hardened or non-hardened waterborne base coat Aqua-Premium must be overpainted with clear coat within 72 hours.
- ◆ Non-activated ready-to-spray waterborne base coat Aqua-Premium can be used up within 6 months. Before use, however, additive for Aqua-Premium - LVM 035 200/301- must be added again using the same mixing ratio. It is recommended to spray onto a sample card before painting the vehicle. Adding additive for Aqua-Premium - LVM 035 200/301- again, may influence the opacity.

Cleaning of tools

- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.



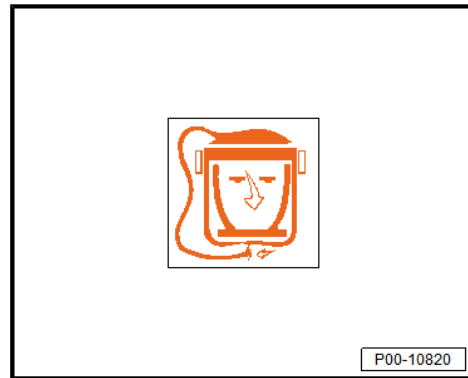


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

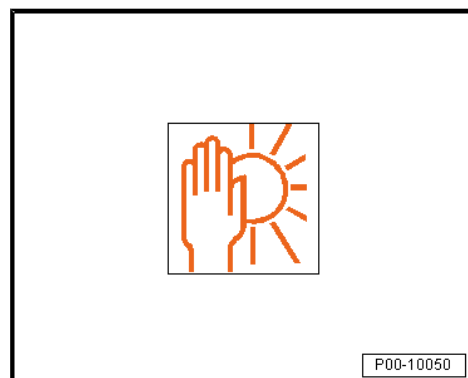
Flash point:	above +23 °C
VOC content: 2004/42/II B (d)(420)420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



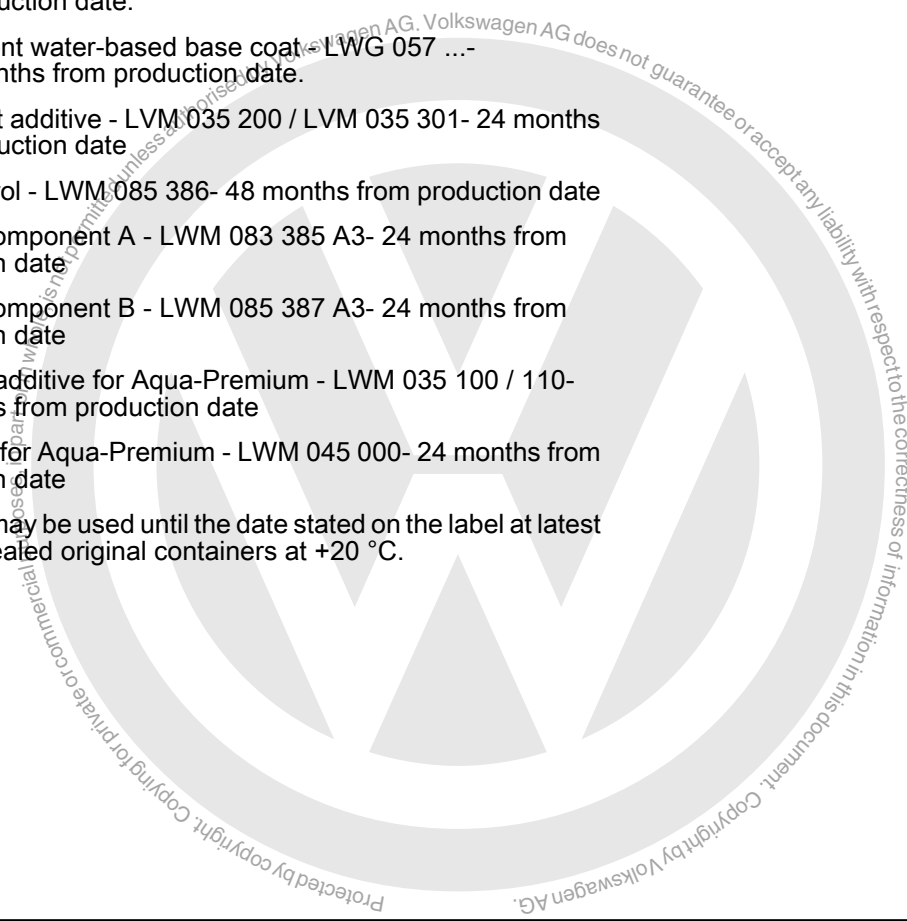
Storage

Guaranteed storage time of the individual products is

- ◆ Uni waterborne mixing paint - LWM 083 ...- 48 months from production date (exception: -LWM 083 328- , -LWM 083 331- , -LWM 083 150- and maroon - LWM 083 332- 24/36 months from production date), (exception super deep black - LWM 083 388 A2- 48 months from production date).
- ◆ Metallic, pearlescent and special-effect water-based mixing paint - LWM 084 ...- 24 months from production date
- ◆ Silver mixing paint - LWM 084 / 086...- 24 months from production date.
- ◆ Pearlescent mixing paint - LWM 084 / 086...- 36 months from production date.
- ◆ Aqua Premium uni (solid-colour) base coat - LWG 055 ...- 24 months from production date.
- ◆ Metallic water-based base coat - LWG 056 ...- 18-24 months from production date.
- ◆ Pearlescent water-based base coat - LWG 057 ...- 18-24 months from production date.
- ◆ Clear coat additive - LVM 035 200 / LVM 035 301- 24 months from production date
- ◆ Flop control - LWM 085 386- 48 months from production date
- ◆ System component A - LWM 083 385 A3- 24 months from production date
- ◆ System component B - LWM 085 387 A3- 24 months from production date
- ◆ Blending additive for Aqua-Premium - LWM 035 100 / 110- 24 months from production date
- ◆ Hardener for Aqua-Premium - LWM 045 000- 24 months from production date



All products may be used until the date stated on the label at latest if stored in sealed original containers at +20 °C.



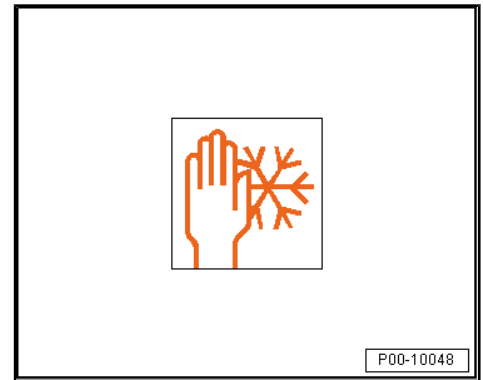


Storage conditions

Optimal storage temperature +20°C.

Preferred storage temperature +15°C to +25°C.

Short-term storage (several days) at +5 °C to +35 °C is possible.



3.7.6 Aqua Premium blending system

Designation:

- ◆ Blending additive for Aqua Premium - LVM 035 100 A3-

Issue 10.2012

Product description

To attain visually perfect colour transition in blending area or to adjacent parts such as wings or doors.

Technical data sheet

Substrate

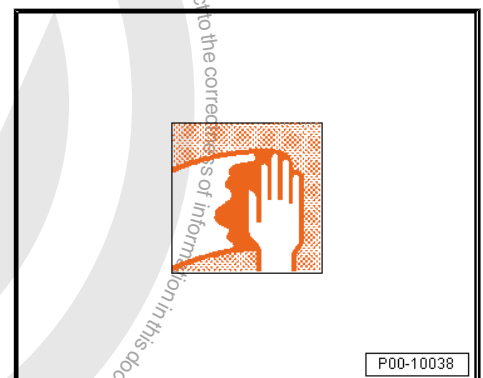
Suitable substrates:

- ◆ Surfaces coated with primer or surfacer (2-pack HS surfacer)
- ◆ Intact old paint
- ◆ For plastic surfaces, substrates isolated with 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ See special notes ⇒ [page 186](#)

Substrate pre-treatment:

- Thoroughly clean factory paint, old paint or 2-pack HS surfacer with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

- Dry sand using orbital sander with P500 grade paper and dust collector or wet sand using P800 to P1000-grade waterproof paper.





- An extensive section of the adjacent area or parts surrounding the repair area must be thoroughly but lightly sanded with P1000 to P3000 grade sandpaper or an emery pad (e.g. ultrafine). Use an emery pad to sand swage lines, edges or door-handle recesses during preparation work.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.
- Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks.

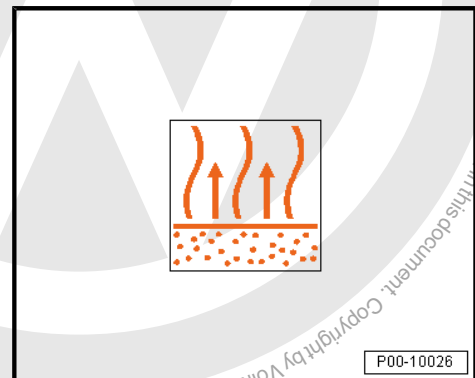


- Allow the moisture on substrates which have been wet-sanded or cleaned to evaporate completely.

Tack cloths of the latest generation with an effective adhesion formula, e.g. duster - VAS 6177-) to minimise the risk of chemical or sticky residue ⇒ [page 379](#) .

Special notes

- ◆ Areas sanded to bare metal must be isolated with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- . Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be isolated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .



Application, repair procedure

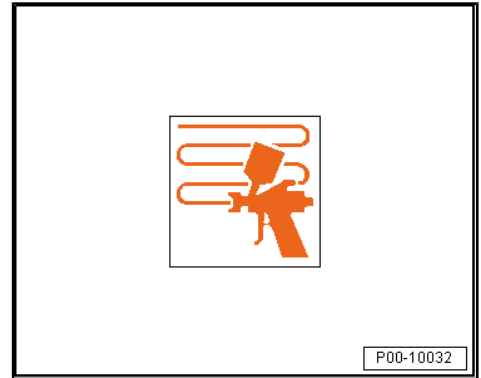
Blending in within the surface, e.g. side panel:

- Preparing substrate ⇒ [page 185](#) .





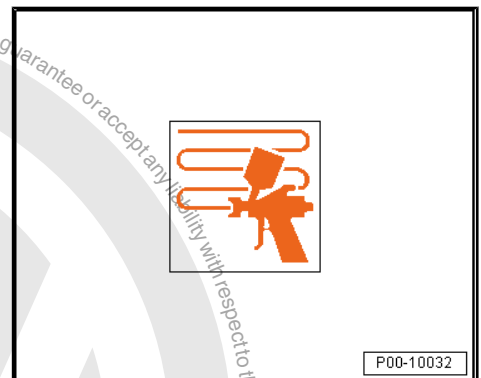
- Apply one or two full coats of blending additive for Aqua Premium - LVM 035 100 A3- at normal spraying pressure in the blending area surrounding the repair.



- The first spray coat of the mixed water-based base coat is applied from the repair area to the edge of the wet blending additive. Half of the effect or finish spray coat is applied immediately over the wet blending additive at a greater spraying distance.

i Note

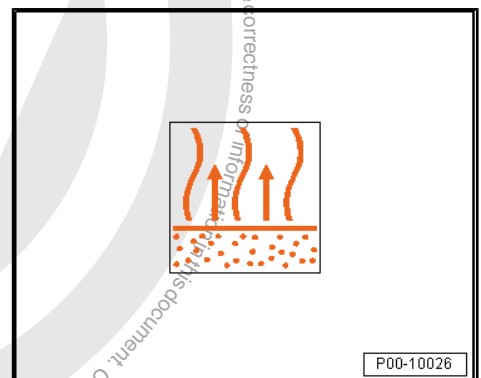
When doing this, ensure that the blending area is larger than the repair area and covers the wet blending additive for Aqua Premium - LVM 035 100 A3- .



- After flashing-off, apply a coat of 2-pack HS clear coat to the entire repair area.

i Note

- ◆ *Keep the material flow trigger of the spray gun completely open while applying Aqua Premium water-based base coat.*
- ◆ *The spray pressure for the effect coat may be varied between 1.5 and 2.0 bar depending on the size of the object.*



Blending in very small damage, e.g. Clever Repair:

- Preparing substrate => [page 185](#) .

i Note

The repair/surfacers area should be kept as small as possible.

Method »a«:

- ◆ Ready-to-spray water-based base coats are used for most colours.

Method »b« (recommended for colours with very high metal content):

- ◆ Mix Aqua Premium water-based base coat and blending additive for Aqua Premium - LVM 035 100 A3- in a 1:1 ratio with 10% Flop control - LWM 085 386 A2- (blending additive for Aqua Premium - LVM 035 200/301 ...- is not needed).
- ◆ Use the Aqua Premium measuring stick for Clever Repair to adjust the correct mixture.





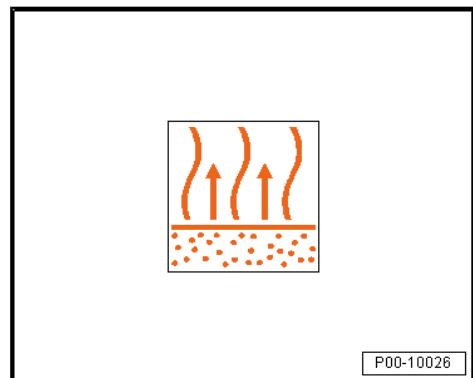
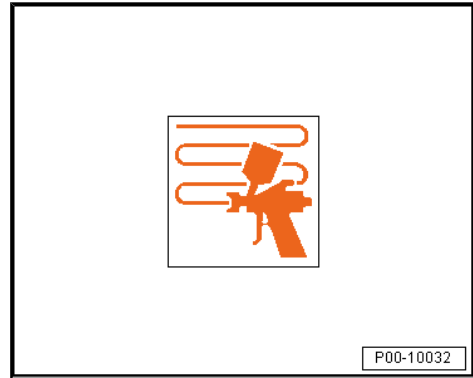
- Depending on colour and opacity, this mixture is applied in 3 to 5 light spray coats with reduced pressure (0.8 to 1.5 bar) to the repair area and fade-out area.



Note

Ensure that each spray coat is somewhat larger in area and flash-off until matt. The flash-off time can be accelerated by »blowing«.

- After an appropriate final flash-off time, 2-pack HS clear coat can be applied.



Blending in 3-stage colours:

- Preparing substrate => [page 185](#) .



- Apply the base coat mixed with 5% Aqua Premium hardener - LVM 045 000 A1- and, for solid colours 10% additive for Aqua-Premium - LVM 035 200 A3/LVM 035 300 ...- , or for effect colours mixed with 20% additive for Aqua Premium - LVM 035 200 A3/LVM 035 300 ... to the repair area and adjacent blending area until coverage is opaque.



Note

- ◆ *It is recommended to spray a sample object.*
- ◆ *Use the Aqua Premium measuring stick for three-stage colours to adjust the correct mixture.*
- ◆ *Observe drying times.*



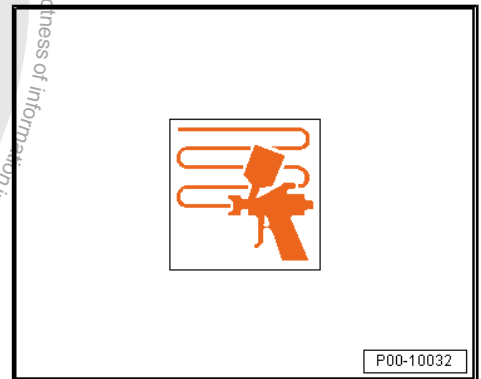
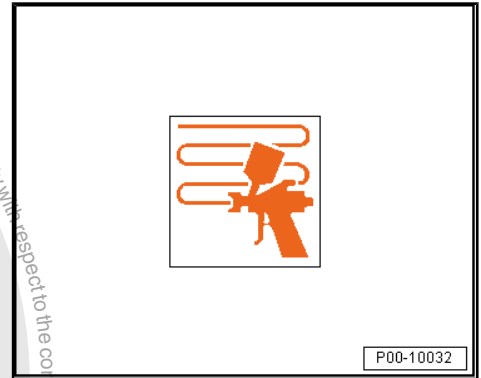


- Apply one or two full coats of blending additive for Aqua Premium - LVM 035 100 A3- at normal spraying pressure to the fade-out area of the base colour or adjacent parts.
- Paint should now be applied from the fade-out area towards the repair area. That means, apply the first coat of effect paint from the fade-out area towards the blending additive for Aqua Premium - LVM 035 100 A3- ("wet-on-wet").
- Then apply the next coat of effect paint towards the repair area.
- It is necessary to apply 2 to 3 additional spray coats of some effect paints to match the effect. Normal spray coats are applied "wet-on-wet" without intermediate flash-off.



Note

- ◆ *It is recommended that all coats, starting with the first coat, are applied from the furthest blending area to the base colour in the repair area. This way, all subsequent coats remain within the previous coat to avoid visible edges or shadows.*
- ◆ *To make it easier to evaluate the effect, it is recommended to spray a sample object before every spray coat application.*



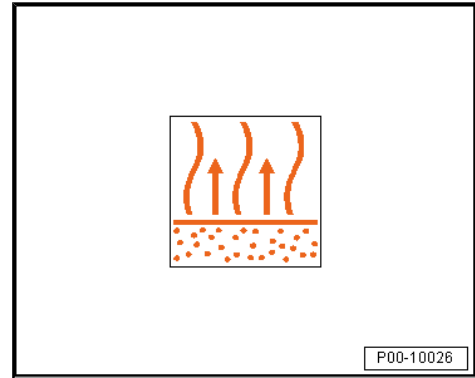


- After flashing-off, apply a coat of 2-pack HS clear coat to the entire repair area.



Note

- ◆ *Keep the material flow trigger of the spray gun completely open while applying Aqua Premium water-based base coat.*
- ◆ *The spray pressure for the effect coat may be varied between 1.5 and 2.0 bar depending on the size of the object.*
- ◆ *The use of stationary air diffusers or force drying, e.g. low baking, for efficient flash-off and drying processes is recommended.*



Product application

- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The mixing colours in this top coat series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.

Health and safety

- ◆ A respirator mask must be worn when applying water-based products.

3.7.7 Aqua Premium system (painting rims)

Designation:

- ◆ Metallic water-based priming paint - LWG 056 1H7 A1-

Issue 04.2013

Product description

Instructions for painting rims with metallic water-based base coat - LWG 056 1H7 A1- .

Properties:

- ◆ Good vertical stability
- ◆ Good hiding power
- ◆ Recoatable with 2-pack HS clear coat
- ◆ VOC compliant



Note

After overspraying with 2-pack HS clear coat, it produces a high-gloss, weather-resistant finish.



Technical data sheet

Substrate

Suitable substrates:

- ◆ Surfaces coated with primer or surfacer 2-pack HS Vario surfacer - LGF 786 004 A4- , grey
- ◆ Factory paint or old paint (except thermoplastic paint)

Substrate pre-treatment:

- Thoroughly clean factory or old paintwork with silicone remover - LSW 019 000 A5- . If severely soiled, pre-clean the paintwork with silicone remover, slow-drying - LVM 020 100 A5- .

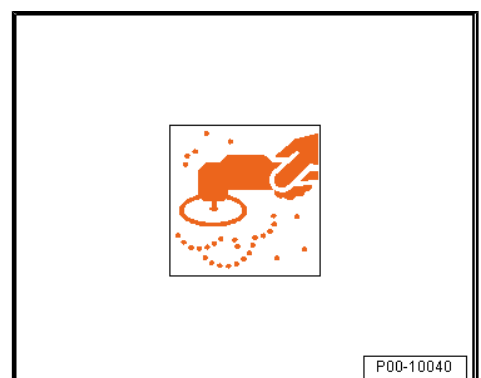
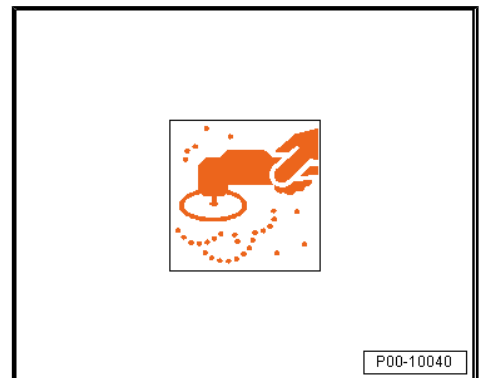
- Dry sand using orbital sander with P1000-1500 grit sandpaper and dust collector.
- Sand spokes and edges by hand using P300-grade ultrafine emery pad.

- Before recoating the lightly sanded substrates, thoroughly clean them of dust, sanding residue and other dirt with silicone remover - LSW 019 000 A5- . If severely soiled, pre-clean +with silicon remover, slow-drying - LVM 020 100 A5- .

Application

Substrate pretreatment (sanding before surfacer coat)

- When 2-pack HS Vario surfacer - LGF 786 004 A4- is to be used, bare-metal spots must be primed with 2-pack wash primer - LHV 043 000 A2- .
- A uniform substrate without bare metal spots is absolutely essential.
- Dry sand using orbital sander with P500 grit sandpaper and dust collector.

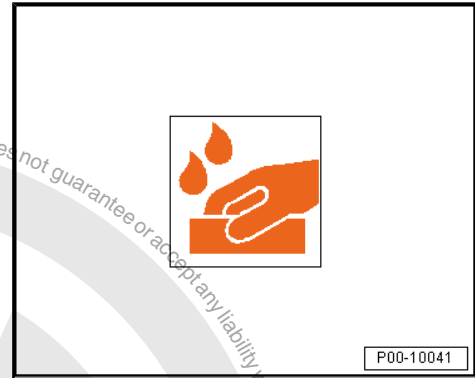




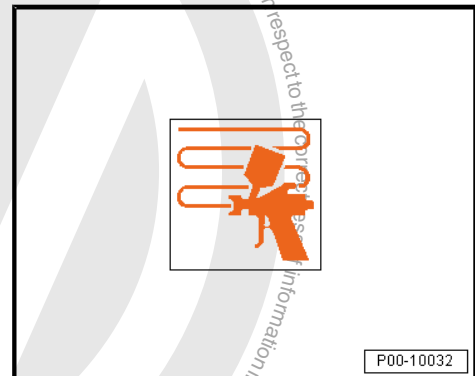
- Wet sand with P800 to P1000-grit sandpaper.

Clear coat over surfacer:

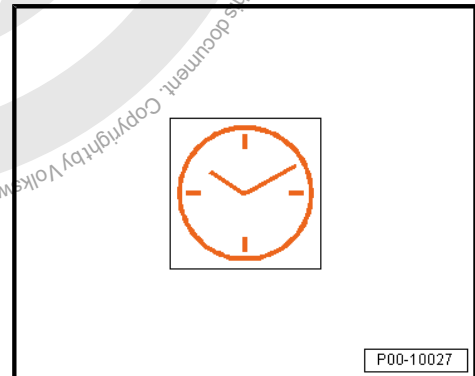
- Apply 2-pack HS clear coat to the sanded surfacer. Depending on the size of the repair area or if there are several repair areas, it is recommended to apply 2-pack HS clear coat to the entire rim.



- Apply a full coat (approx. 20 µm).



Force drying at +60°C material temperature in 20-25 minutes.



Sanding before clear coat:

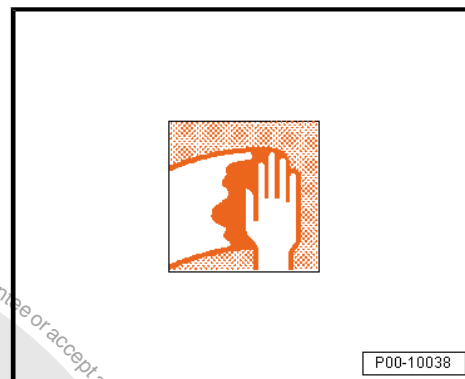
- Dry sand using orbital sander with P1000-1500 grit sandpaper and dust collector.
- Sand spokes, corners and edges by hand using P300-grade ultrafine emery pad.





Cleaning:

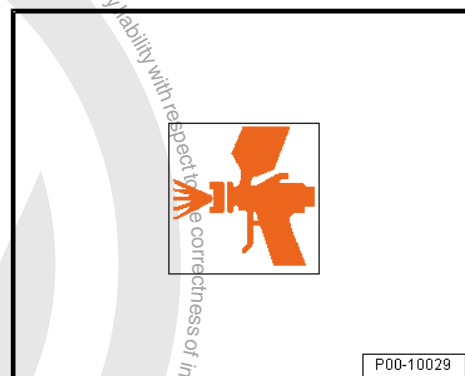
- Before recoating the lightly sanded substrates, thoroughly clean them of dust, sanding residue and other dirt with silicone remover - LVM 020 000 A5- .



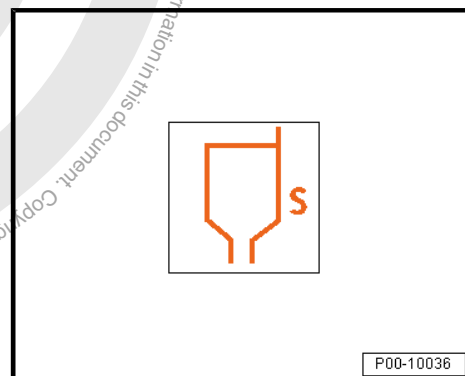
Base coat application "spray"

Materials suitable as additives:

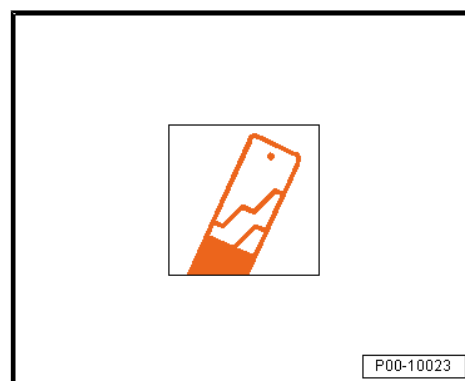
- ◆ Additive for Aqua Premium - LVM 035 301-



- Application viscosity 4 mm, +20°C, DIN 53211
- The application viscosity of 4 mm at +20°C is the mixing viscosity for "Compliant" and "HVLP".

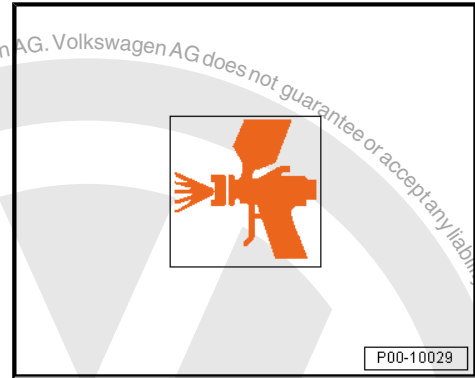


- 50 % additive for Aqua Premium - LVM 035 301- (to be added at material temperature of 20 °C).





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.2-1.3 mm.
- Adjust spray pressure (see manufacturer's instructions): "Compliant" 2.0 bar.
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



- One application consists of one-and-a-half spray coats (one normal full coat followed by a light coat at greater distance to object).



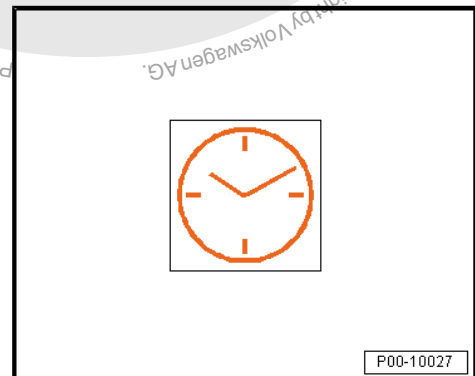
Note

- ◆ *The best results are achieved when using an HVLP spray gun with 1.3 mm nozzle.*
- ◆ *Blending additive for Aqua Premium - LVM 035 200 A3- / -LVM 035 301 A3- should be added to metallic water-based base coat - LWG 056 1H7 A1- immediately before application. Best results will be achieved if the mixture is applied within one working day.*



Drying

Flash-off time before clear coat application:





Flash off at +20°C room temperature until matt.

i Note

- ◆ The best results are achieved when using an HVLP spray gun with 1.3 mm nozzle.
- ◆ Additive for Aqua Premium - LVM 035 301- should be added to metallic water-based base coat - LWG 056 1H7 A1- (silver) immediately before application. Best results will be achieved if the mixture is applied within one working day.

Ways to reduce flash-off time:

- ◆ Surface matting can be accelerated by blowing on it with an air diffuser or force drying with infrared radiation or low baking.
- ◆ Blowing with a spray gun is also possible after waiting at least 5 minutes.
- ◆ Drying time: at least 5 minutes.

i Note

The specified flash-off and drying times depend on the temperature, humidity, air drop speed in the spray booth and the number of coats applied. The surface must, however, first appear completely matt.

Recoating

Recoat with:

- ◆ 2-pack HS clear coat (plasticized)

Special notes

i Note

Blending in with metallic water-based base coat - LWG 056 1H7 A1- is done in 1 or 2 normal spray coats. Apply blending additive for Aqua Premium - LVM 035 100 A3- to the fade-out area.

Product application

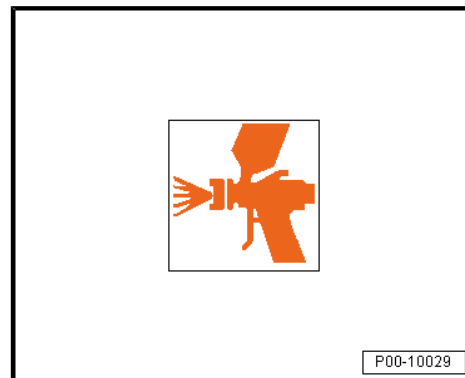
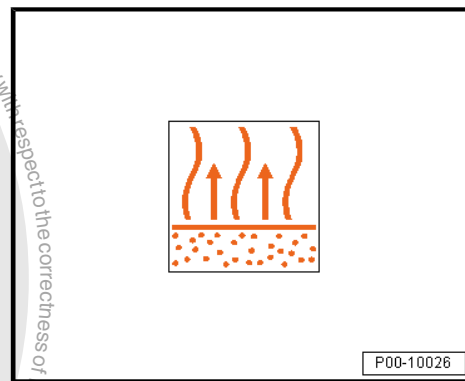
- ◆ The spray equipment must be suitable for water-based products. Pay attention to the manufacturer's specifications.
- ◆ The mixing colours in this top coat series can be used only as part of a colour formula. If any mixing colour is applied alone, the results may differ substantially from the description in this technical data sheet.

Cleaning of tools

- ◆ Rinse with aqua plus demineralised water - LVW 010 000 A5- before and after use. Then wash out with nitrocellulose thinner - LVE 856 000 A3- .

Waste disposal

- ◆ Collect liquid water-based waste separately from conventional liquid waste. If the two are mixed, it may be impossible to dispose of the mixture, or at best difficult, and therefore expensive.



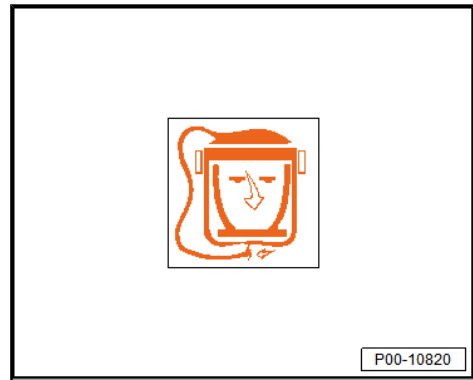


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

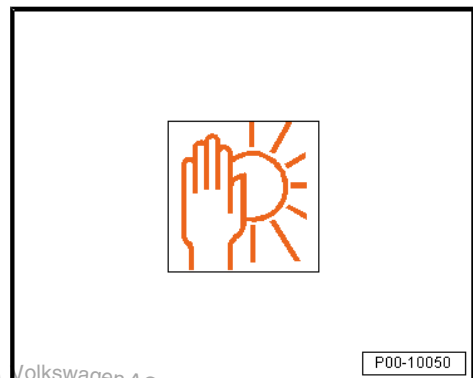
Data

Flash point:	above +23 °C
VOC content: 2004/42/II B (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

The guaranteed storage time of metallic water-based base coat - LWG 056 1H7 A1- is 24 months from the production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



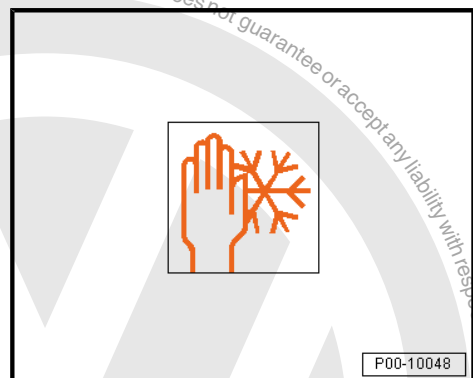
Storage conditions

Optimal storage temperature +5°C to +35°C.



Note

Higher or lower temperatures will spoil the product.



3.8 Clear coats

- ⇒ ["3.8.1 2-pack HS clear coat", page 196](#)
- ⇒ ["3.8.2 2-pack MS matt clear coat", page 202](#)
- ⇒ ["3.8.3 2-pack HS Vario clear coat", page 206](#)
- ⇒ ["3.8.4 2-pack HS optimum clear coat", page 212](#)
- ⇒ ["3.8.5 2-pack HS optimum plus clear coat", page 216](#)
- ⇒ ["3.8.6 2-pack HS brilliant clear coat", page 220](#)
- ⇒ ["3.8.7 2-pack HS brilliant plus clear coat", page 224](#)
- ⇒ ["3.8.8 2-pack HS Performance clear coat", page 229](#)
- ⇒ ["3.8.9 Blender", page 233](#)

3.8.1 2-pack HS clear coat

Designation:

- ◆ 2-pack HS clear coat - L2K 769 500 A5-



Issue 10.2012

Product description

2-pack HS clear coat is a VOC compliant, high-grade high-solid clear coat.

Properties:

- ◆ Easy to apply
- ◆ Versatile use with 2-pack HS and 2-pack VHS hardeners
- ◆ Good levelling
- ◆ Brilliant surface finish

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats

Suitable priming materials:

- Depends on the object and the substrate, in accordance with our recommendations for structure

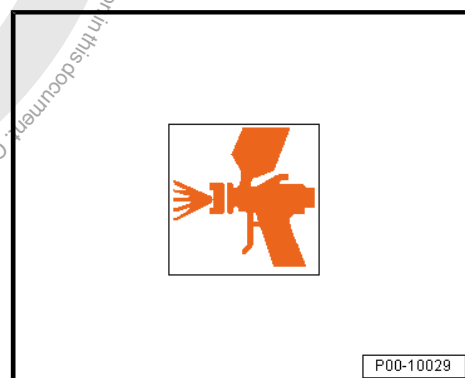
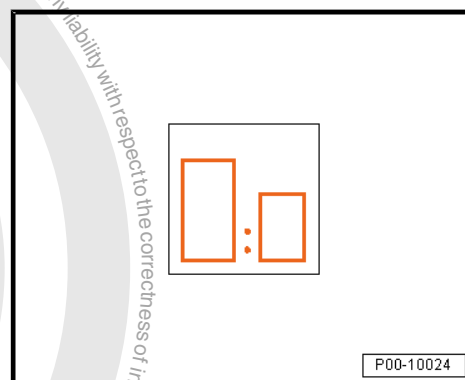
Application with 2-pack HS hardeners

Mixing ratio:

- 2:1 ratio by volume with:
 - ◆ 2-pack HS hardener - LHA 009 041 A3-
 - ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
 - ◆ 2-pack HS hardener, extra fast-drying - LHA 009 046 A2-
 - ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
 - ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-
 - ◆ See technical data sheet for 2-pack HS hardener
[=> page 237](#)

Application time/pot life:

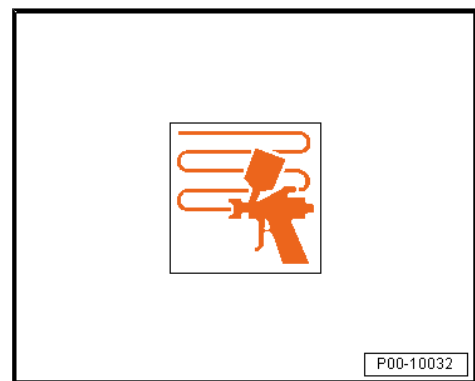
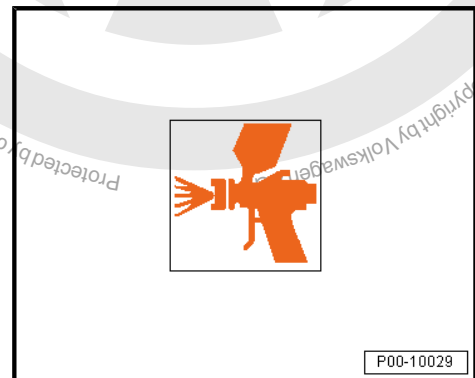
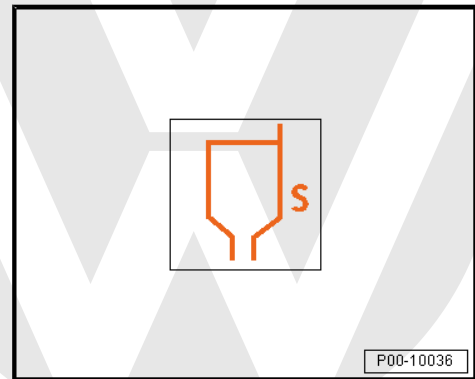
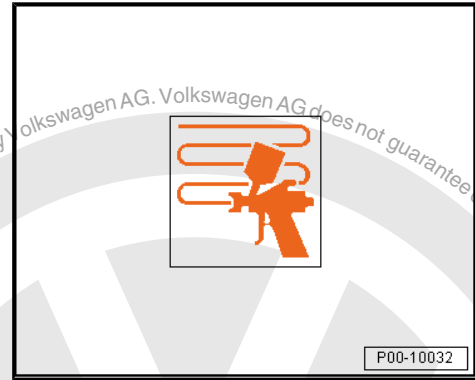
- Mixed for spraying, 90 minutes at +20 °C





Method of application: "spray".

- The application viscosity at +20°C is the "Compliant" and "HVL" mixing viscosity.
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVL" 1.3-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVL" 0.7 bar.
- Recommended dry film thickness is 50-60 µm.





Application with 2-pack VSH hardeners

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for 2-pack VHS hardener
=> [page 240](#)

Thinner:

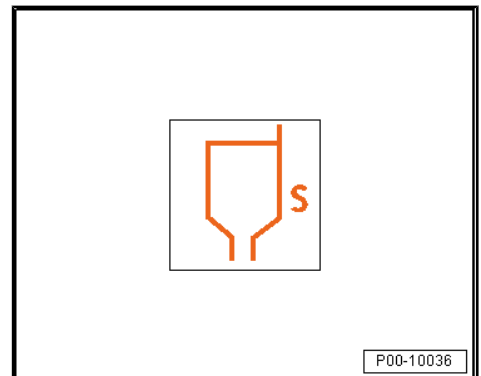
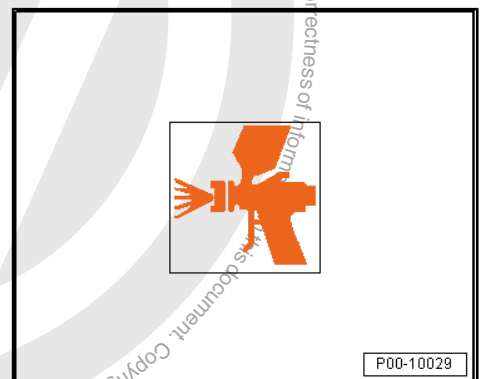
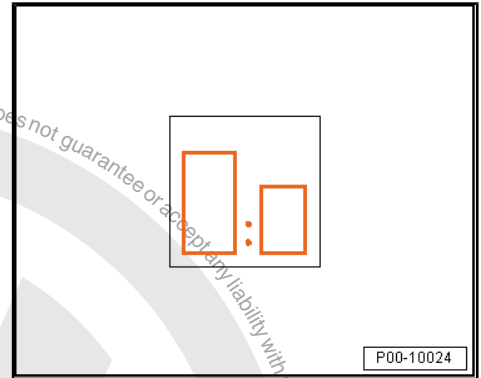
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-

Application time/pot life:

- Ready-to-spray preparation 60-90 minutes at +20°C.

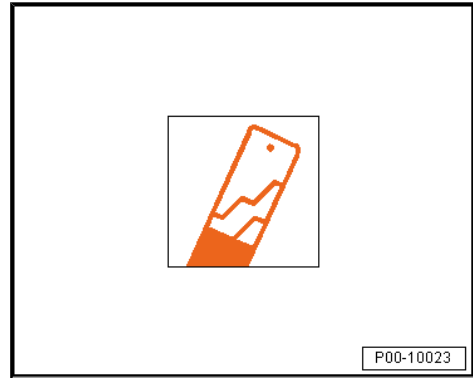
Method of application: "spray".

- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.

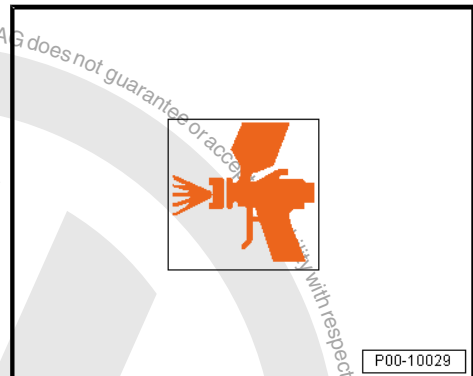




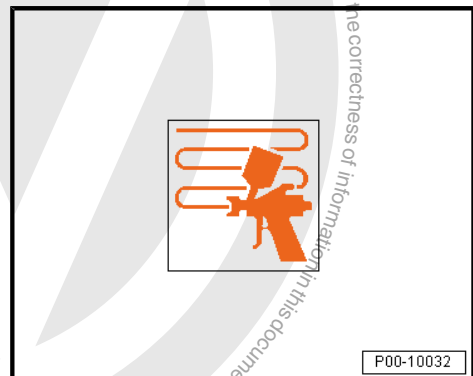
- Add 12.5 to 15 % 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5- .



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



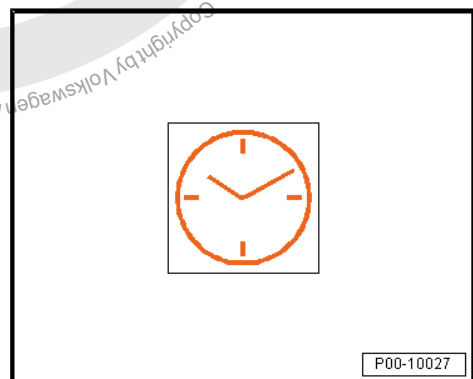
- The specified thickness for the dry film is 50-60 µm applied in 1.5 coats.



Drying

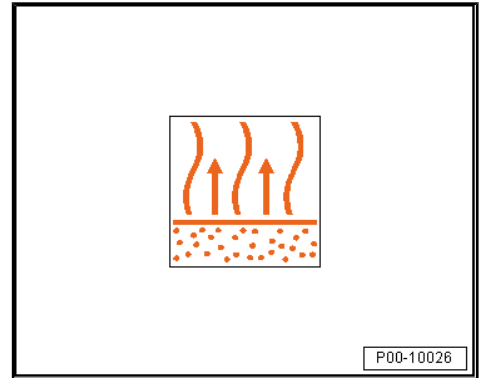
Air drying at +20 °C room temperature:

- ◆ Dust dry in 40-50 minutes
- ◆ Dry for assembly in 4-6 hours
- ◆ Dry overnight

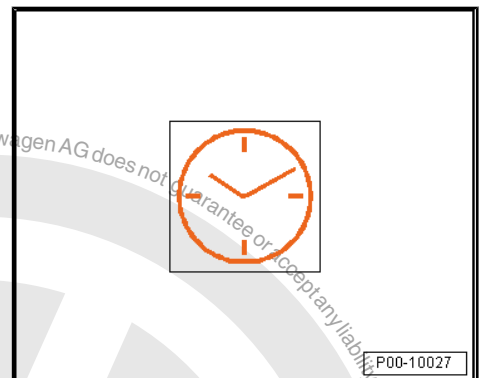




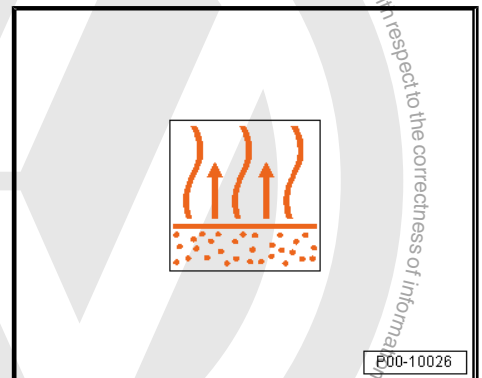
Flash-off time with force drying is at least 5-10 minutes.



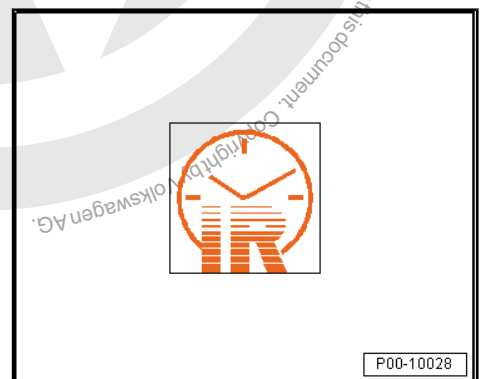
Force drying at +60°C material temperature in 30-40 minutes.



The final flash-off time with infrared drying is at least 5 minutes.



Infrared drying with short-wave radiant heater, 10-15 minutes and
medium-wave radiant heater, 15-20 minutes





Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack HS hardeners, 2:1
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 15% thinner (drying time increases)

Personal protective equipment:

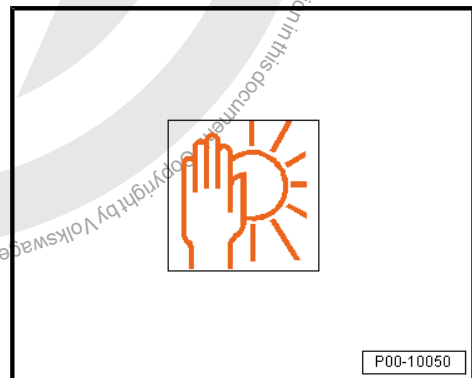
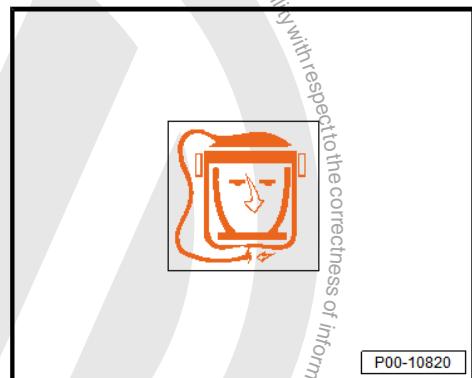
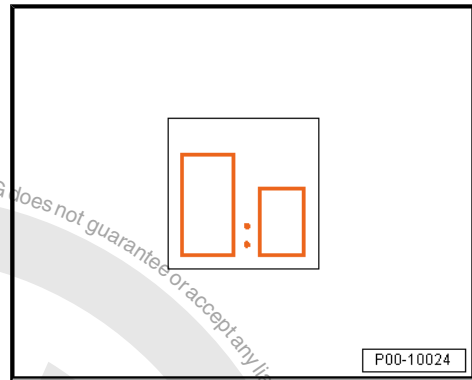
- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.

Storage

The guaranteed storage time of 2-pack HS clear coat - L2K 769 500 A5- is 48 months from production date. Can be processed on or before date indicated on label, if stored in unopened, original containers at +20 °C.



3.8.2 2-pack MS matt clear coat

Designation:

- ◆ 2-pack MS clear coat, matt - L2K 769 020 A2-

Issue 08.2013

Product description

2-pack MS clear coat is a matt clear coat from the 2-pack acrylic system.

Properties:

- ◆ High elasticity
- ◆ Matt finish
- ◆ Can be mixed with both HS and VHS products
- ◆ The degree of gloss can be adjusted by mixing with 2-pack HS clear coats.
- ◆ Particularly suitable for refinishing plastic parts



Note

2-pack MS matt clear coat - L2K 769 020 A2- should be used only for small areas (add-on parts of passenger cars).

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats

Application

Mixing ratio:

3:1 ratio by volume with:

- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

Mixing ratio:

– 5:1 ratio by volume with:

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-

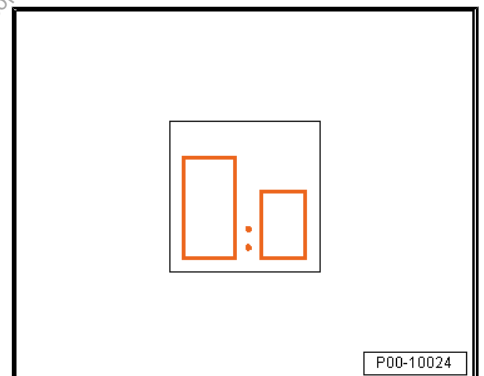
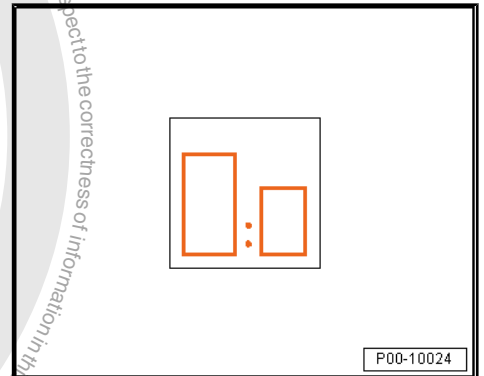


Note

- ◆ *Different HS and VHS hardeners and thinners result in different degrees of gloss.*
- ◆ *The clear coat must be stirred carefully before it is poured out of the tin.*

Thinner:

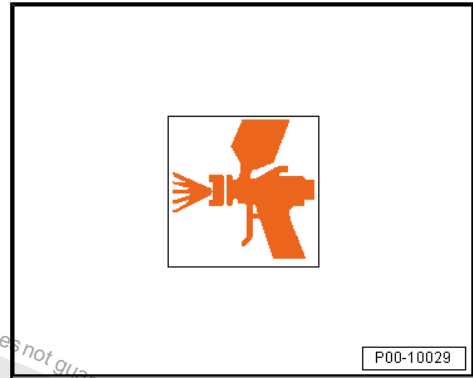
- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-



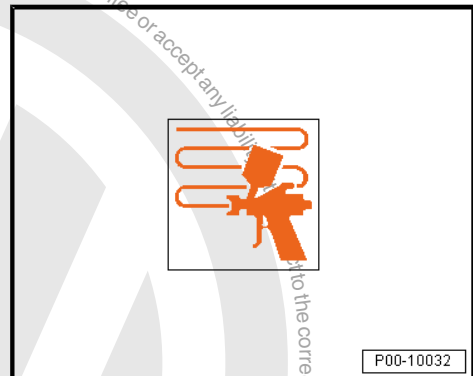


Application time/pot life:

- Mixed for spraying, 4 hours at +20°C.



Method of application: "spray".

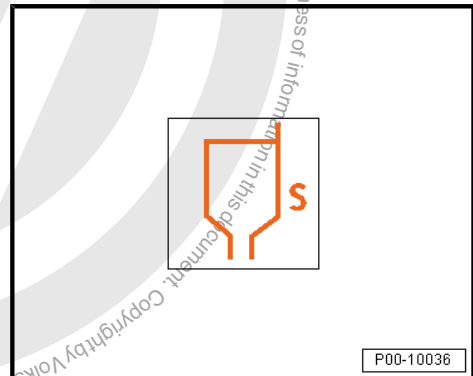


- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

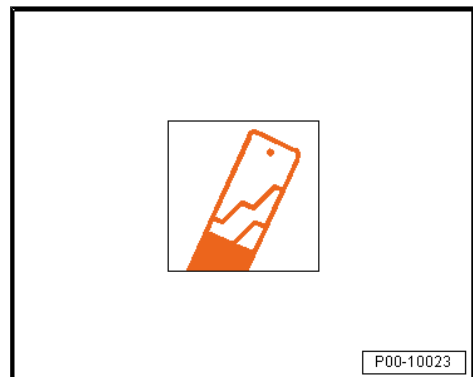
DIN 4 mm: 14-16 seconds

ISO 4 mm: 28-33 seconds



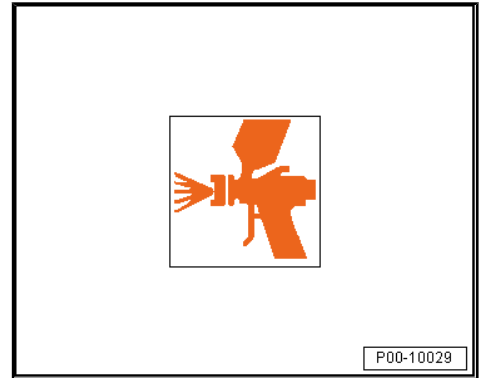
Addition of thinner at +20°C material temperature: 25% HS hardener (3:1) and 30% VHS hardener (5:1)

- If thinner is added, use measuring stick to mix.





- Adjust spray nozzle following manufacturer's instructions to 1.3-1.4 mm for "Compliant" and "HVLP".
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- Apply in two coats.



- Apply one full coat, flash-off 15-20 minutes and then finish painting.
- Prescribed dry film thickness is 50-60 µm.



Note

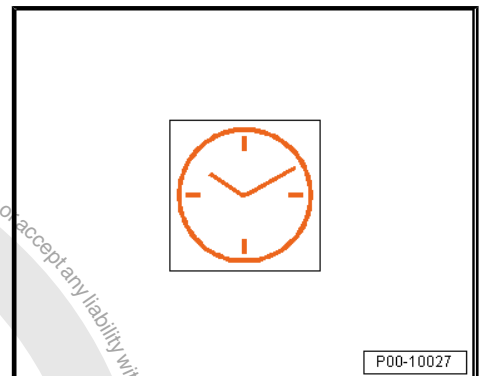
Different methods of application result in different degrees of gloss.



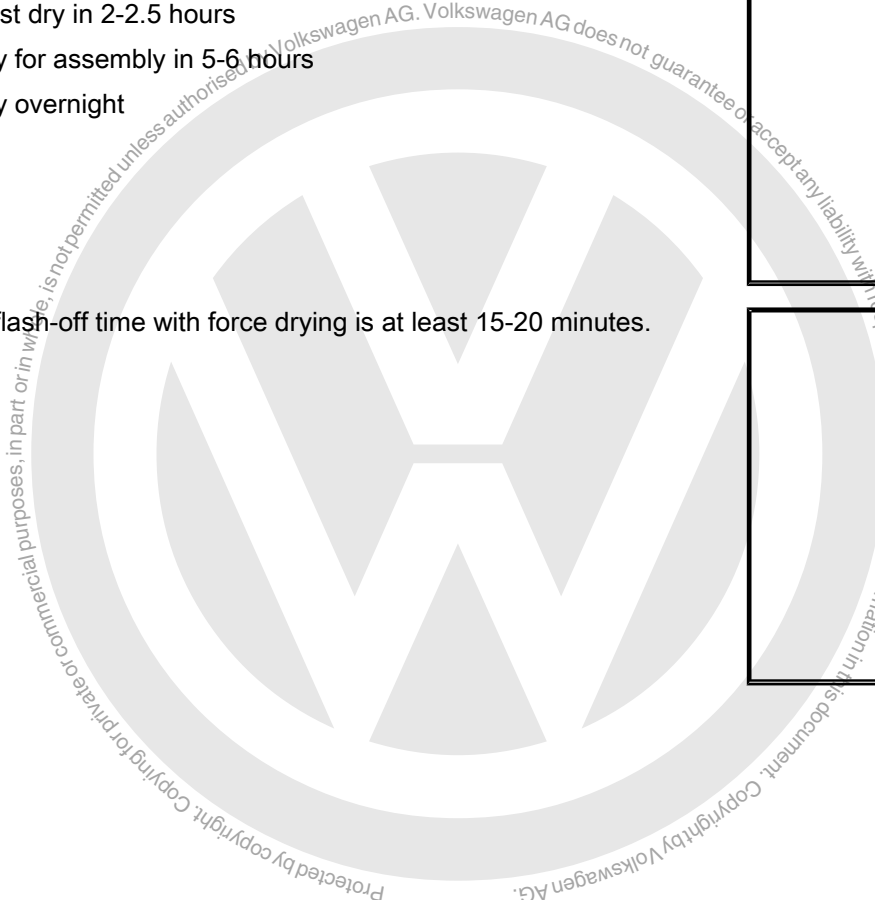
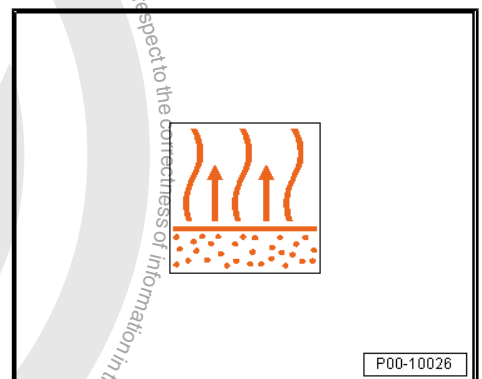
Drying

Air drying at +20 °C room temperature:

- ◆ Dust dry in 2-2.5 hours
- ◆ Dry for assembly in 5-6 hours
- ◆ Dry overnight



Final flash-off time with force drying is at least 15-20 minutes.





Force drying at +60°C material temperature in 40-45 minutes.

Personal protective equipment:

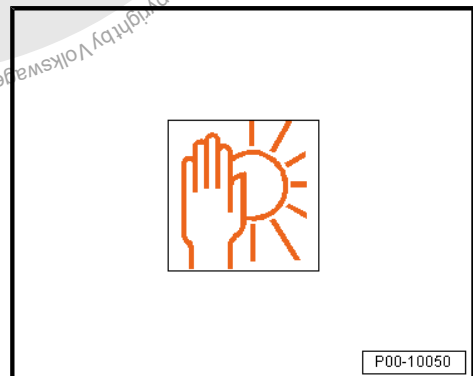
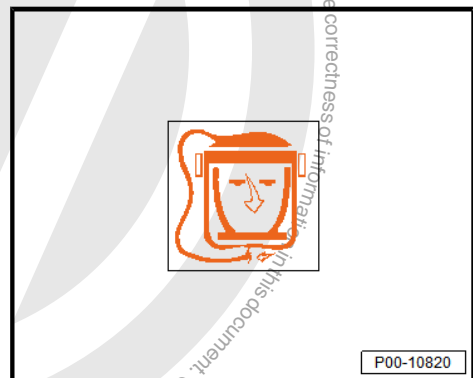
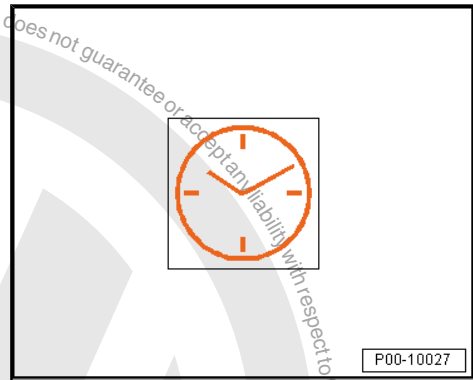
- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (e) (840) 580	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 580 g/l.

Storage

Guaranteed storage time of 2-pack MS matt clear coat - L2K 769 020 A2- is 24 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.3 2-pack HS Vario clear coat

Designation:

- ◆ 2-pack HS Vario clear coat - L2K 769 K01 A5-

Issue 06.2013

Product description

The 2-pack HS Vario clear coat is a VOC-compliant (VOC value < 420 g/l) high-grade, productive high-solid clear coat.

Properties:

- ◆ Quick and easy to use
- ◆ Versatile use with 2-pack HS and 2-pack VHS hardeners
- ◆ Good levelling
- ◆ Fast-drying
- ◆ Easy to polish



Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats

Application with 2-pack HS hardeners

Mixing ratio:

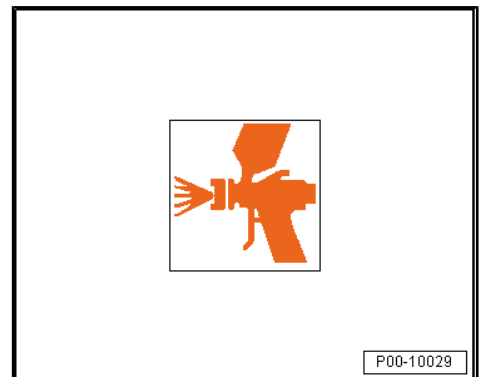
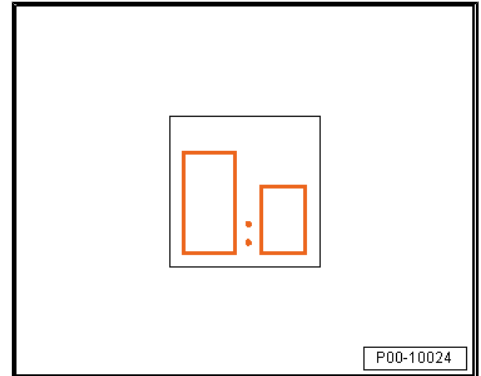
- 2:1 ratio by volume with:

- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

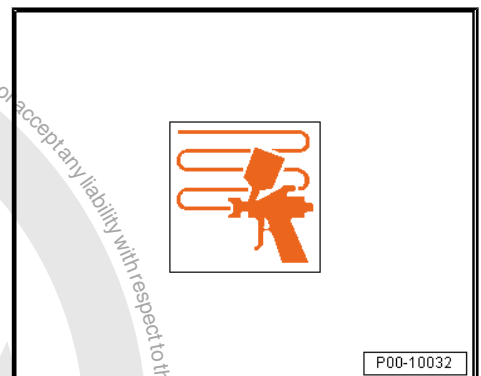
For plasticizing, see ⇒ [page 211](#)

Application time/pot life:

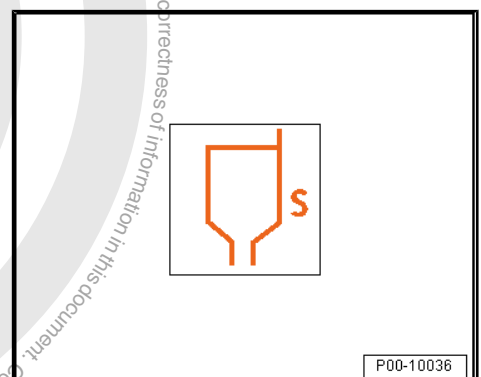
- Ready for spraying: 60-90 minutes at +20°C (depending on the hardener used)



Method of application: "spray"

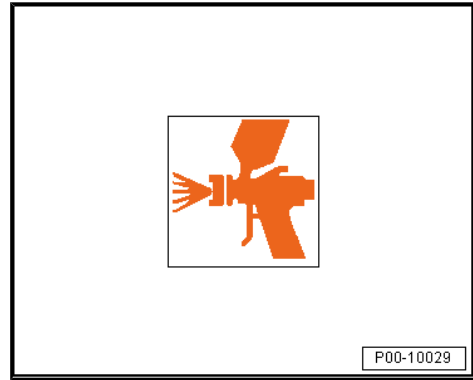


- The application viscosity at +20°C is the "Compliant" and "HVL" mixing viscosity.





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



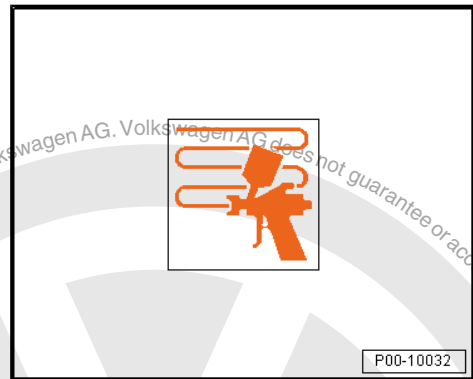
- Apply in one-and-a-half coats.



Note

The first half-coat should form a nearly complete, thin film over which a full spray coat is directly sprayed.

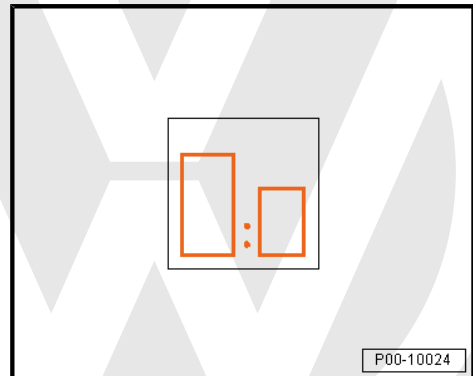
- Recommended dry film thickness is 50-60 µm.



Application with 2-pack VSH hardeners

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for 2-pack VHS hardener
⇒ [page 240](#)



Thinner:

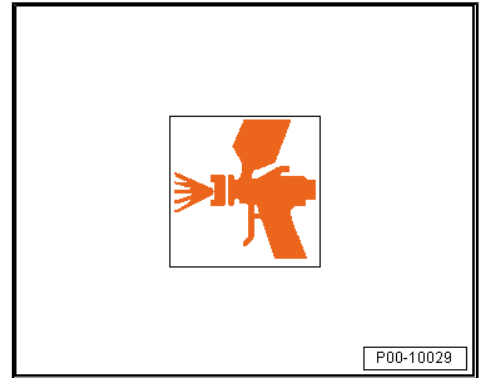
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-
- ◆ 2-pack thinner, slow-drying - LVM 009 300 A2-
- ◆ HS Spot thinner - LVM 006 000 A2- Please refer to technical data sheet ⇒ ["3.10.2 HS spot thinner", page 249](#)

For plasticizing, see ⇒ [page 211](#)



Application time/pot life:

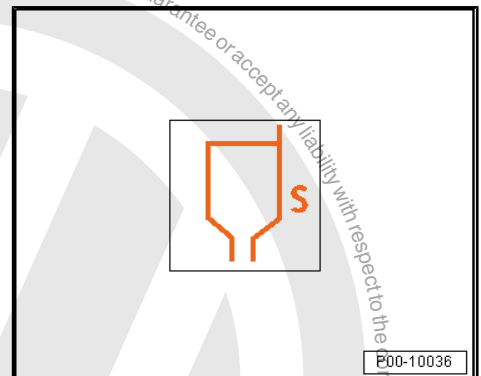
- Ready for spraying: 60-90 minutes at +20°C (depending on the hardener used)



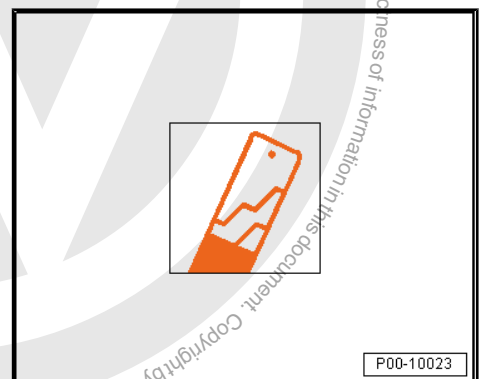
Method of application: "spray".



- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.

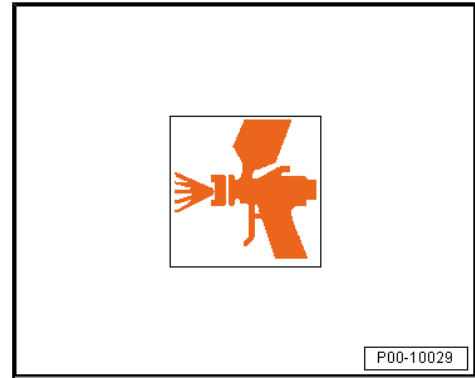


- Add 12.5 % 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5- / 2-pack thinner, slow-drying - LVM 009 300 A2- at +20 °C material temperature.





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.

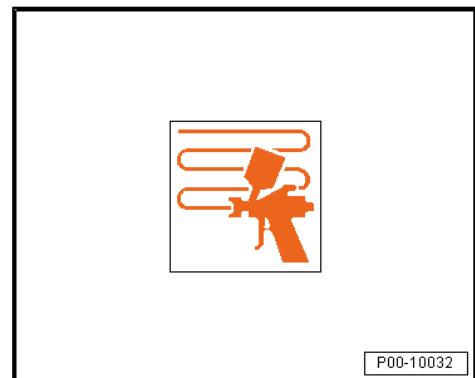


- Apply in one-and-a-half coats.



Note

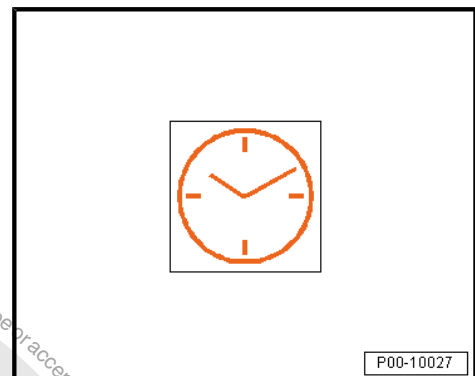
- ◆ *The first half-coat should form a nearly complete, thin film over which a full spray coat is directly sprayed.*
 - ◆ *When used as clear coat for spot repairs (Clever Repair method), 12.5% HS spot thinner - LVM 009 200 A2- may be substituted for the 12.5% special 2-pack thinner - LVM 006 000 A2- . Do not apply to horizontal surfaces.*
- Recommended dry film thickness is 50-60 µm.



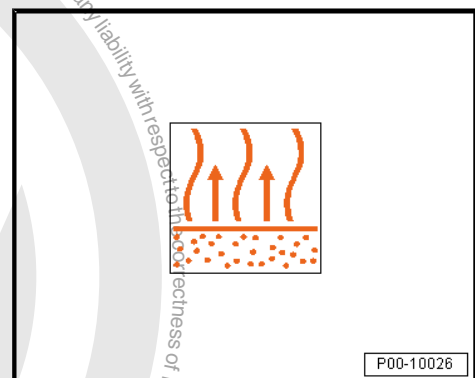
Drying

Air drying at +20 °C room temperature:

- ◆ Dust dry in 20-30 minutes
- ◆ Dry for assembly in 4-5 hours
- ◆ Dry overnight

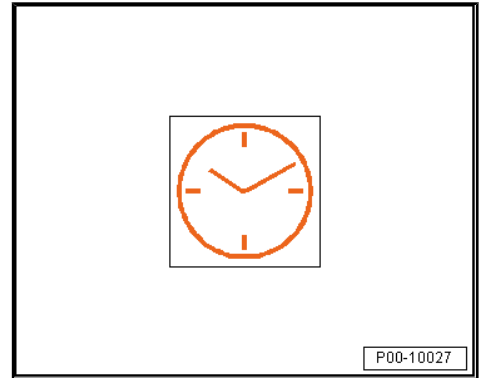


Final flash-off time with force drying is at least 5-10 minutes.

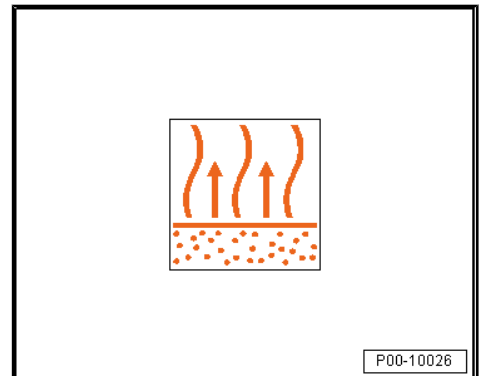




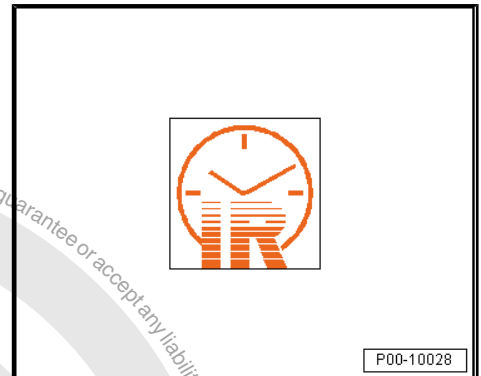
Force drying at +60°C material temperature in 20-30 minutes.



The final flash-off time with infrared drying is at least 5 minutes.



Infrared drying with short-wave radiant heater, 10-15 minutes and medium-wave radiant heater, 15-20 minutes

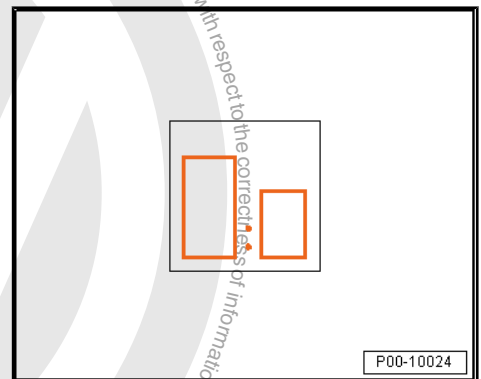


Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack HS hardeners, 2:1
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 20 % thinner (drying time increases)

When used as clear coat for spot repairs (Clever Repair method), 12.5% HS spot thinner - LVM 009 200 A2- / -LVM 009 200 A5- may be substituted for the 12.5% 2-pack thinner, special - LVM 006 000 A2- . Do not apply to horizontal surfaces.



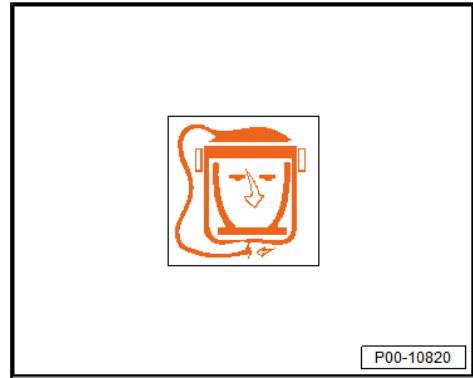


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

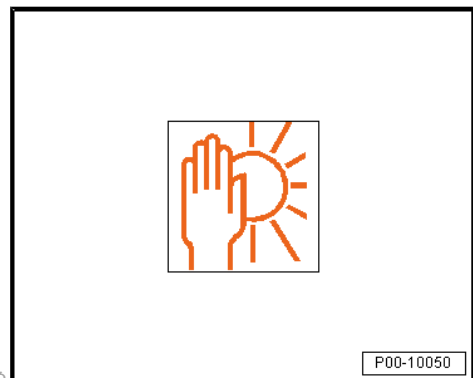
Data

Flash point:	above +23 °C
VOC content: 2004/42/IIIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

The guaranteed storage time of 2-pack HS Vario clear coat - L2K 769 K01 A5- is 48 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.4 2-pack HS optimum clear coat

Designation:

- ◆ 2-pack HS optimum clear coat - LZK 769 K02 A5-

Issue 10.2012

Product description

The 2-pack HS optimum clear coat is a VOC-conforming (VOC value < 420 g/l) high-grade, productive high-solid clear coat.

Properties:

- ◆ Easy to apply and economical to use
- ◆ Very good levelling
- ◆ Very fast-drying
- ◆ Very good infrared drying
- ◆ Fast and easy to polish
- ◆ High-gloss finish

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats



Application

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for 2-pack VHS hardener
⇒ [page 240](#)

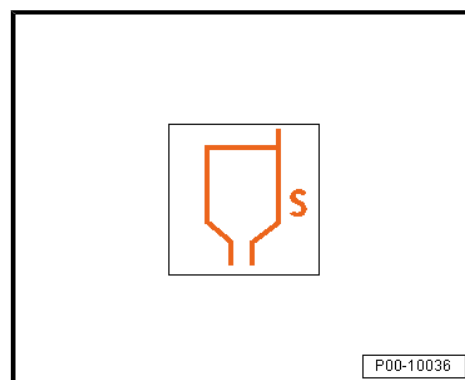
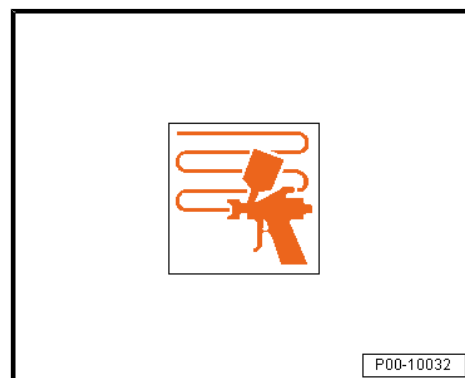
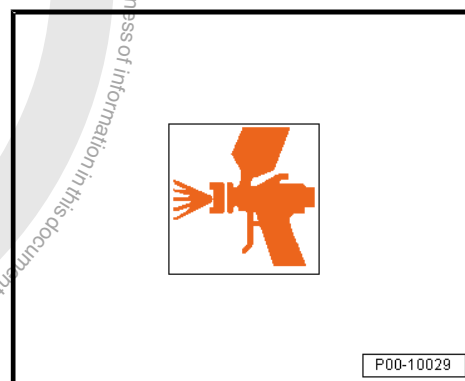
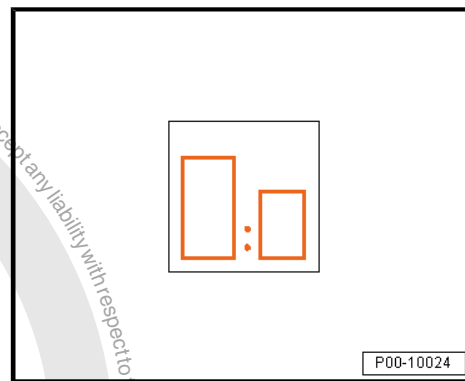
For plasticizing, see ⇒ [page 215](#)

Application time/pot life:

- Ready-to-spray . 80-100 min. at +20°C

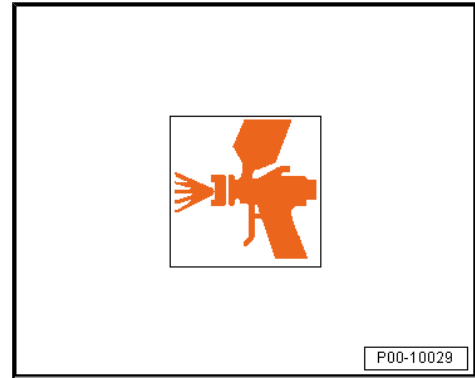
Method of application: "spray".

- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.





- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



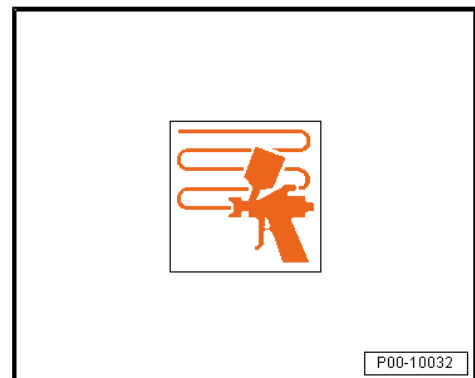
- Apply in one-and-a-half coats.



Note

The first half-coat should form a nearly complete, thin film over which a full spray coat is directly sprayed.

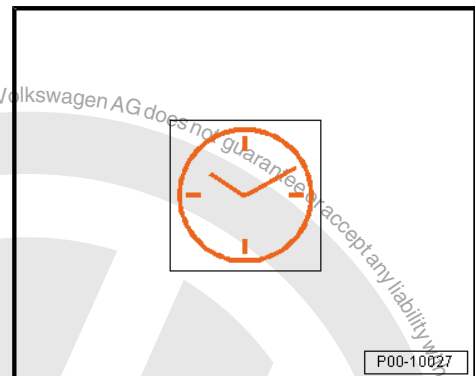
- Recommended dry film thickness is 45-55 µm.



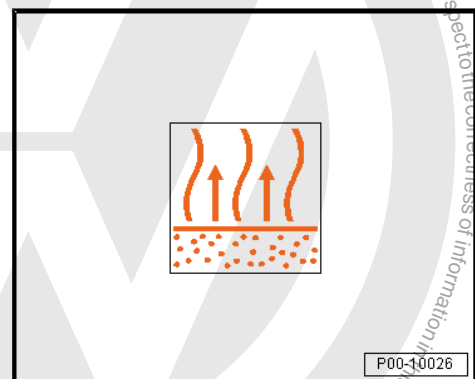
Drying

Air drying at +20 °C room temperature:

- ◆ Dust dry in 40-50 minutes
- ◆ Dry for assembly in 4-6 hours
- ◆ Dry overnight



Final flash-off time with force drying is at least 5-10 minutes.





Forced drying at +60 °C object temperature with:

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- 20-25 minutes.
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2- 15-20 minutes.
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3- 20-30 minutes.
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2- 25-35 minutes.

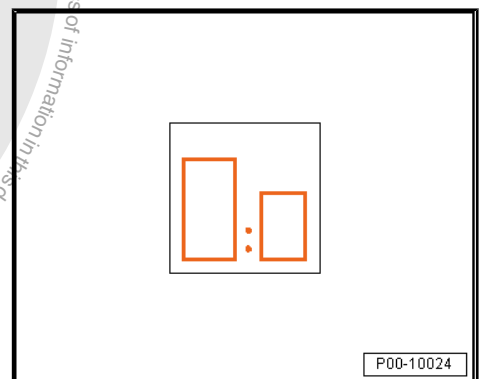
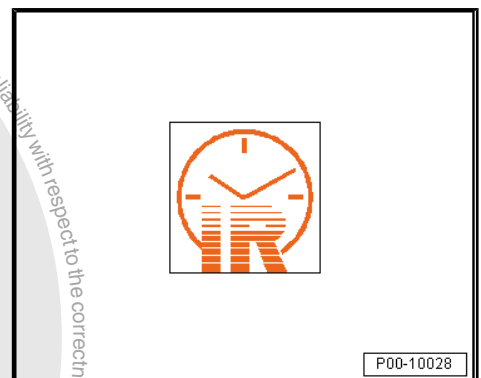
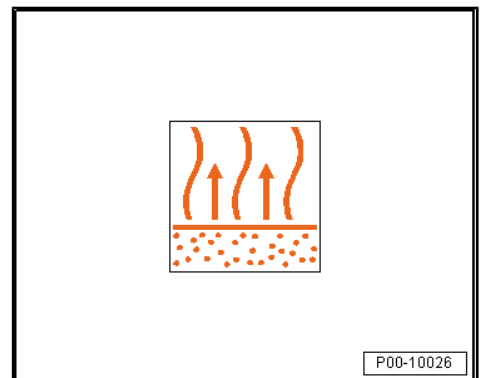
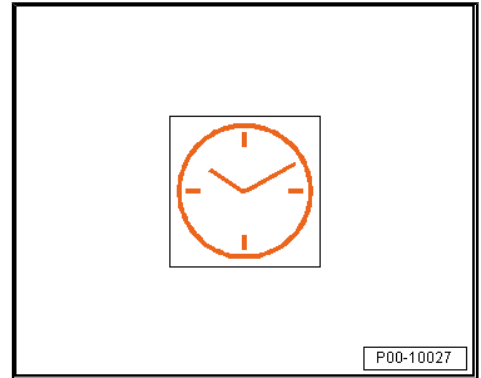
Final flash-off time with infrared drying is at least 5-10 minutes.

Infrared drying with short-wave radiant heater, 8-12 minutes

Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive ALZ 011 001- .
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 5% thinner (drying time increases).



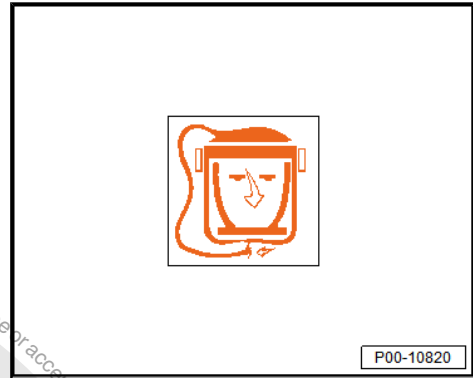


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

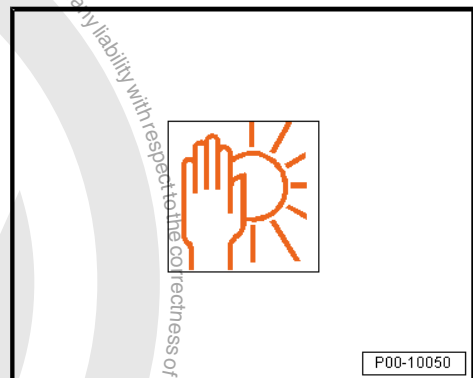
Data

Flash point:	above +23 °C
VOC content: 2004/42/IIIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

The guaranteed storage time of 2-pack HS optimum clear coat - LZK 769 K02 A5- is 48 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.5 2-pack HS optimum plus clear coat

Designation:

- ◆ 2-pack HS optimum plus clear coat - LZK 769 K07 A5-

Issue 04.2013

Product description

2-pack HS optimum plus clear coat is a VOC compliant high-solid clear coat. Perfectly suitable for application even under unfavourable operating conditions (such as too low drying temperature) in the spray booth.

Properties:

- ◆ Flexible and efficient application.
- ◆ Very fast-drying
- ◆ Fast and easy to polish
- ◆ HS spot thinner - LVM 006 000 A2- may be used.

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats



Application

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for 2-pack VHS hardener
⇒ [page 240](#)

Thinner:

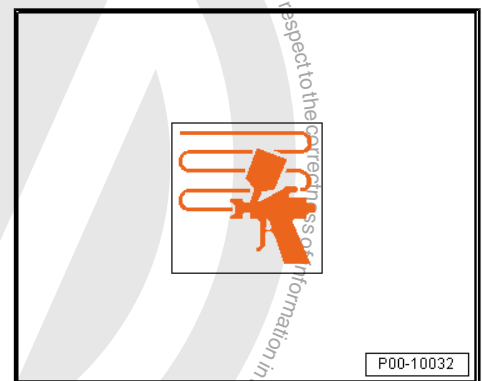
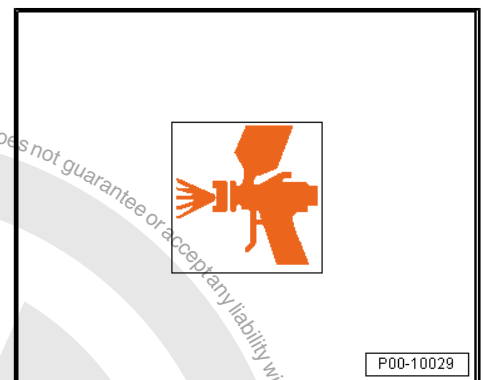
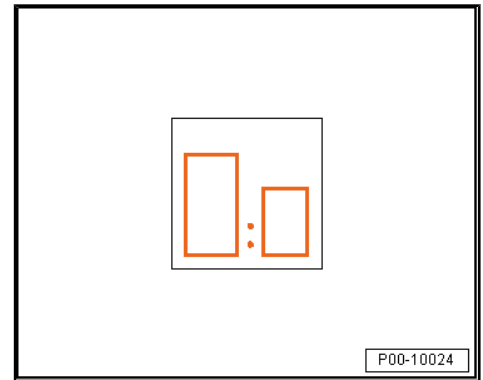
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-
- ◆ 2-pack thinner, slow-drying - LVM 009 300 A2-
- ◆ HS spot thinner - LVM 006 000 A2-
- ◆ See technical data sheet for HS spot thinner LVM 006 000 A2
⇒ [page 249](#) .

For plasticizing, see ⇒ [page 220](#)

Application time/pot life:

- Ready for spraying: 45-60 minutes at +20°C (depending on the hardener used)

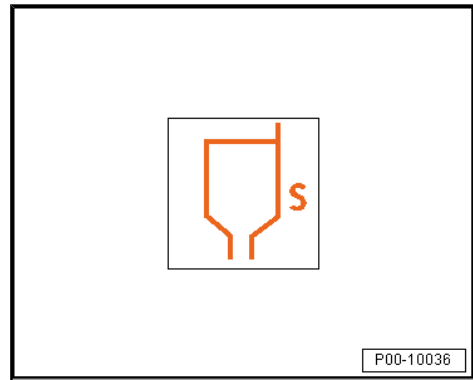
Method of application: "spray".



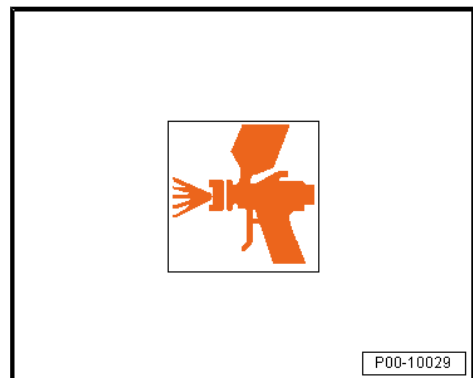
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- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



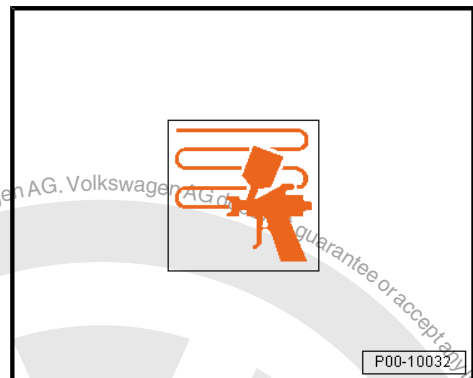
- Apply in one-and-a-half coats.



Note

The first half-coat should form a nearly complete, thin film over which a full spray coat is directly sprayed.

- Recommended dry film thickness is 40-60 µm.



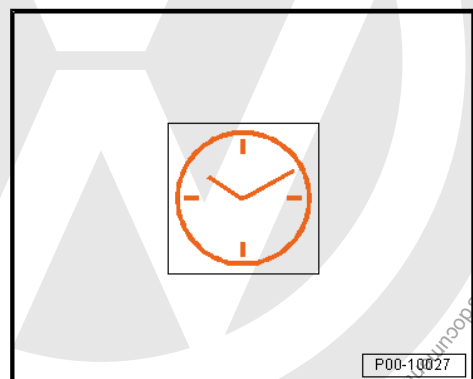
Note

If used as a clear coat to repair minor damage (Clever Repair spot repair method), the 10 % special 2-pack thinner - LVM 0009 200 A2- and special 2-pack thinner - LVM 009 200 A5- may be replaced with 10 % HS spot repair thinner - LVM 006 000 A2 HS-. Do not apply to horizontal surfaces.

Drying

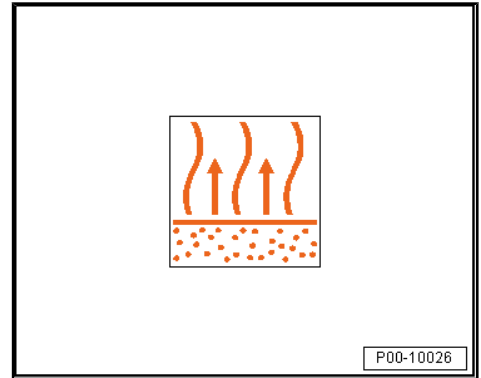
Air drying at +20 °C room temperature:

- ◆ Dust dry in 15-30 minutes
- ◆ Dry for assembly in 2-5 hours
- ◆ Dry overnight



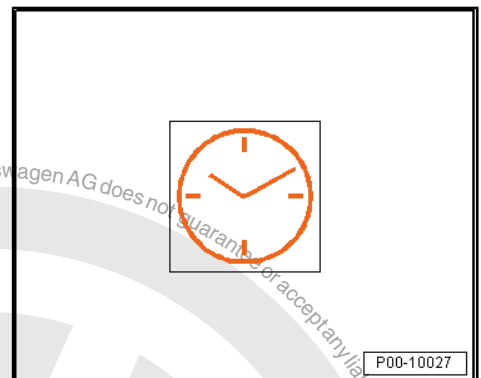


Final flash-off time with force drying is 5 minutes.

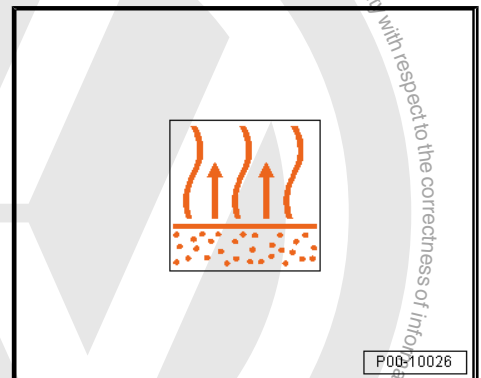


Forced drying at +60 °C object temperature with:

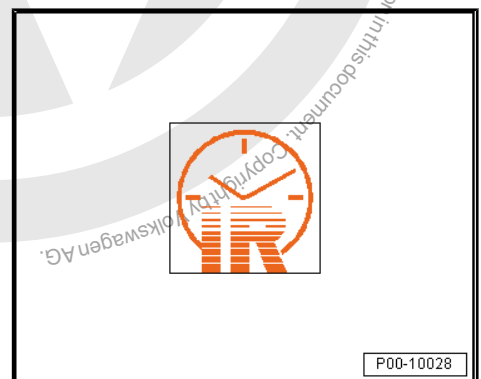
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- 15-25 minutes.
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2- 10-15 minutes.
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3- 20-30 minutes.
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2- 25-35 minutes.



The final flash-off time with infrared drying is 5 minutes.



Infrared drying with short-wave radiant heater, 8-12 minutes

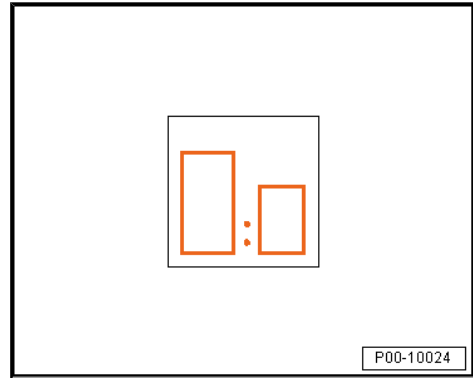




Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixing ratio with 2-pack VHS hardeners: 3:1, with 10 % 2-pack thinner, special - LVM 009 200 A2- or 2-pack thinner, special - LVM 009 200 A5- (drying time increases).

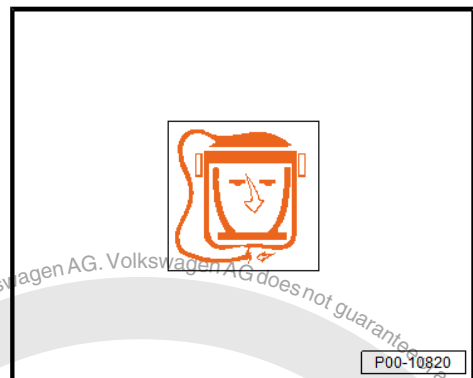


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

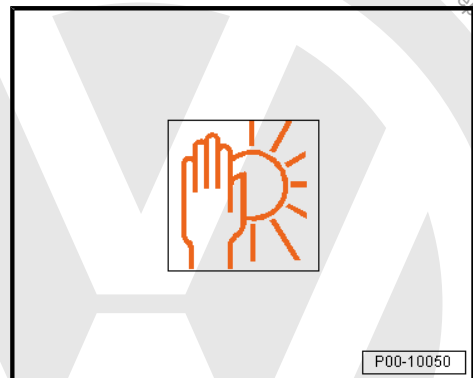
Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

The guaranteed shelf life of the 2-pack HS optimum plus clear coat - LZK 769 K07 A5- is 48 months as of production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.6 2-pack HS brilliant clear coat

Designation:

- ◆ 2-pack HS brilliant clear coat - L2K 769 K04 A5-

Issue 10.2010

Product description

2-pack HS brilliant clear coat is a high-gloss, VOC-compliant, high-solid clear coat from the 2-pack acrylic system.

Properties:

- ◆ Very high stability
- ◆ Highly reliable application
- ◆ Very good gloss and filling power
- ◆ Flexible in use with addition of thinner
- ◆ Application in two coats



Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats

Application

Mixing ratio:

– 3:1 ratio by volume with:

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ The choice of hardener depends on the temperature and size of the surface. See technical data sheet for 2-pack VHS hardener ⇒ [page 240](#) .

For plasticizing, see ⇒ [page 224](#)

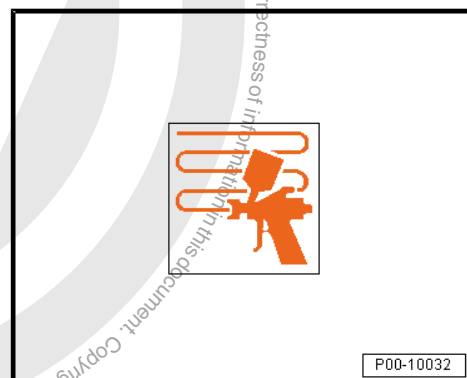
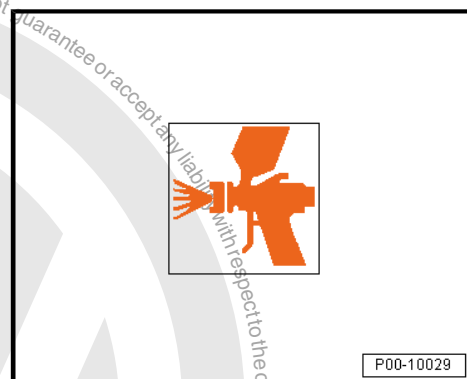
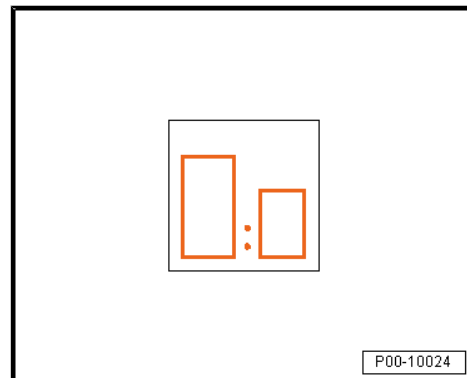
Thinner:

- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-

Application time/pot life:

- Ready-to-spray preparation 60–75 minutes processing time at +20°C.

Method of application: "spray".





- Application viscosity 4 mm, +20°C, DIN 53211

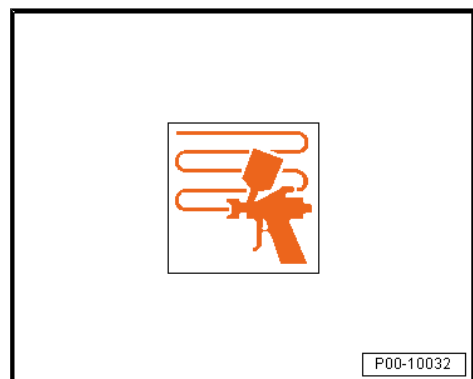
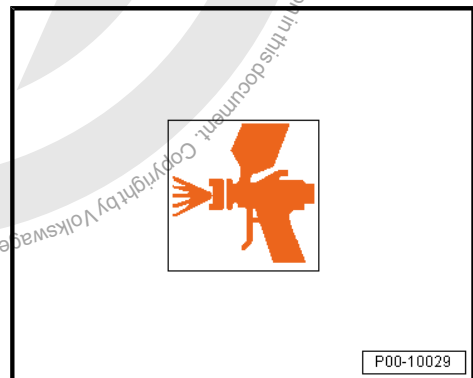
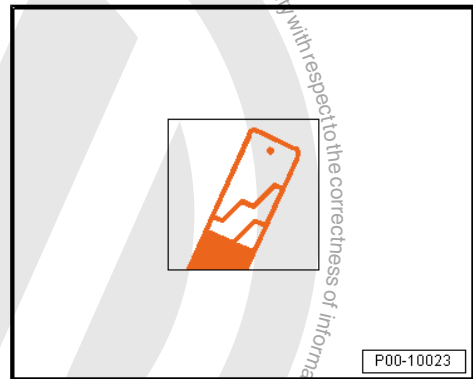
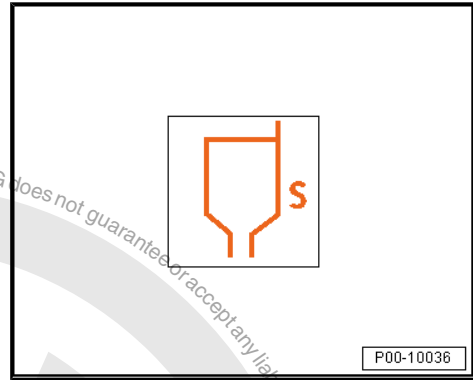
Add 10 % thinner at a material temperature of +20°C.

- If thinner is added, use measuring stick to mix.

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP":

DIN 4 mm: 18-21 seconds

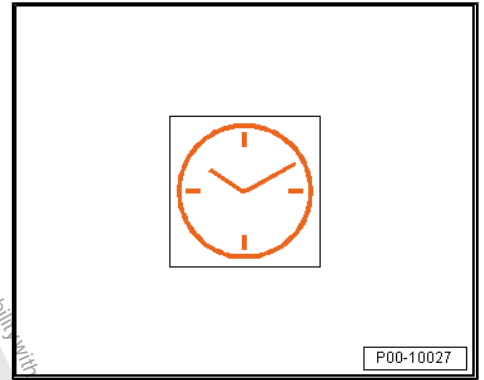
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.2-1.3 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.2-1.3 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- Apply in 2 spray passes with a flash-off time of 5 to 10 minutes between the passes. The first coat is applied with restraint, though still uniformly.
- Recommended dry film thickness is 50-70 µm.



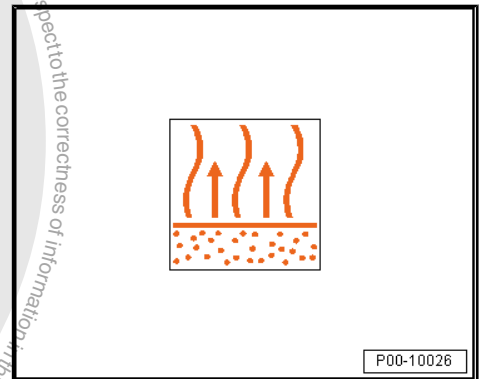


Drying

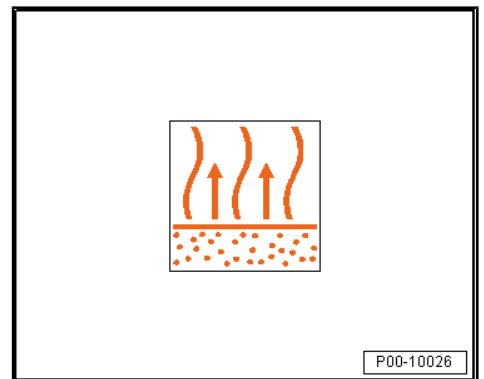
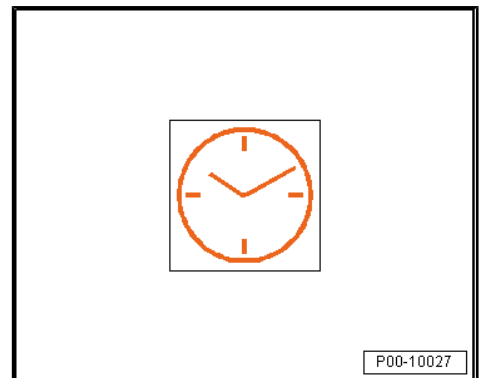
Final flash-off time with force drying is at least 10 minutes.



Force drying at +60-65°C material temperature in 35-40 minutes.

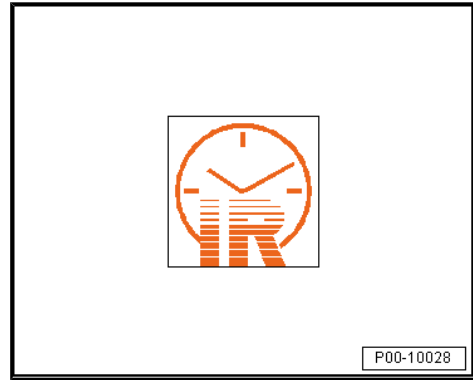


Final flash-off time with infrared drying is at least 5-10 minutes.





Infrared drying with medium-wave radiant heater, 15-20 minutes and short-wave radiant heater, 10-15 minutes.



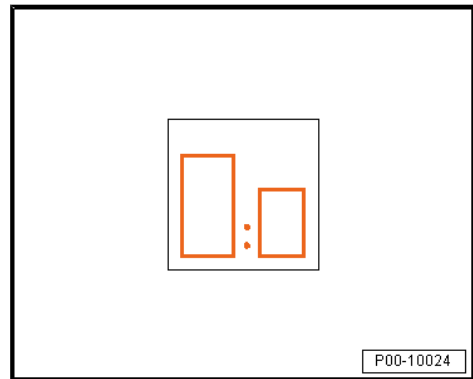
Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 10% 2-pack thinner, special - LVM 009 200 A2/A5- (drying time increases).

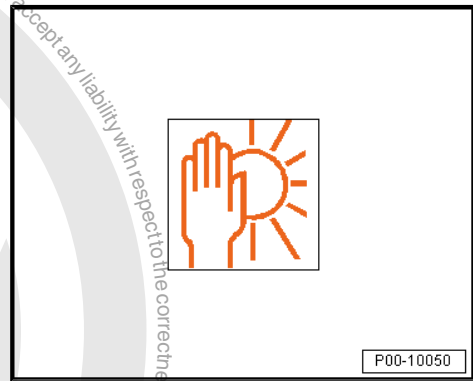
Data

Viscosity as supplied	DIN 4 mm, +20°C: 24-28 seconds
Flash point:	above +23 °C
VOC content: 2004/42/IIIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



Storage

Guaranteed storage time of 2-pack HS brilliant clear coat - L2K 769 K04 A5- is 48 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.7 2-pack HS brilliant plus clear coat

Designation:

- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5-

Issue 01.2017

Product description

2-pack HS brilliant clear coat is a high-gloss, VOC-compliant, high-solid clear coat from the 2-pack acrylic system.

Properties:

- ◆ Flexible application
- ◆ High stability
- ◆ Very easy to polish
- ◆ Good levelling



- ◆ Good gloss and filling power
- ◆ Application in two spray coats preferred, one-and-a-half coats possible

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats

Application

Mixing ratio:

– 3:1 ratio by volume with:

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ The choice of hardener depends on the temperature and size of the surface. See technical data sheet for 2-pack VHS hardener ⇒ [page 240](#) .

For plasticizing, see ⇒ [page 228](#)

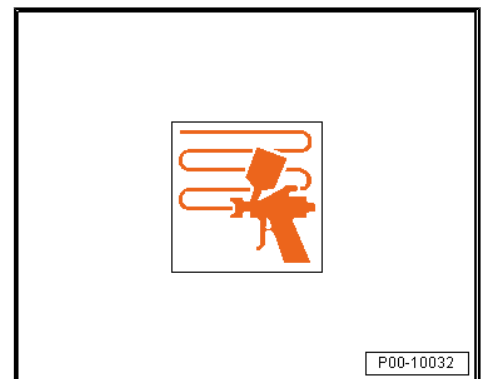
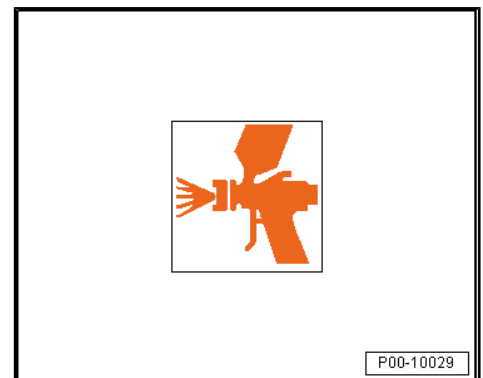
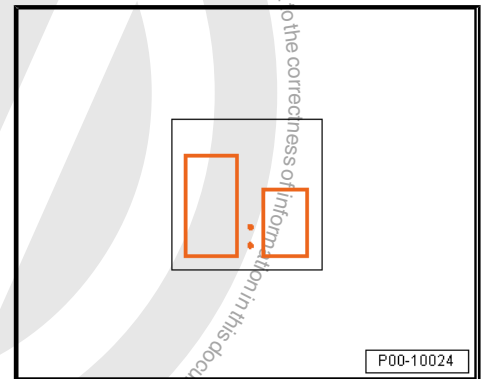
Thinner:

- ◆ Clear coat additive - LVM 007 000 A2-
- ◆ HS spot thinner - LVM 006 000 A2-
- ◆ See technical data sheet for 2-pack HS spot thinner ⇒ [page 249](#)

Application time/pot life:

– Mixed for spraying, 70-90 minutes at +20°C

Method of application: “spray”.





- Application viscosity 4 mm, +20°C, DIN 53211

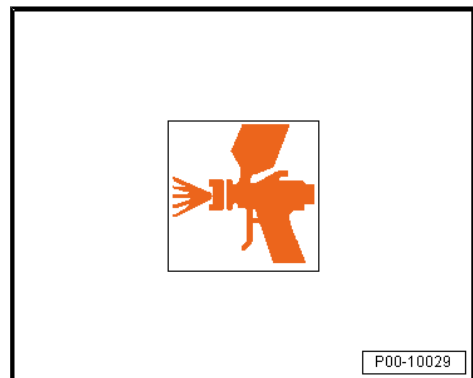
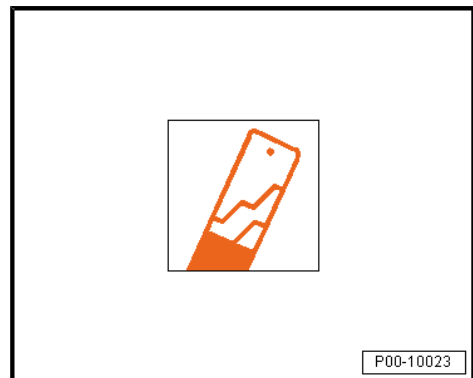
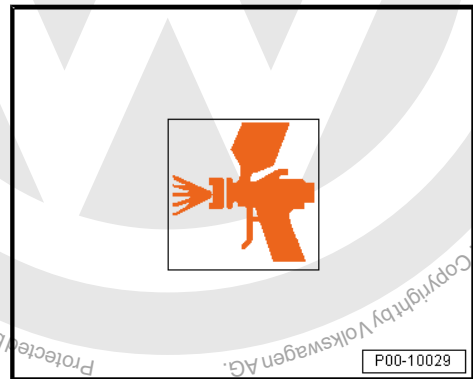
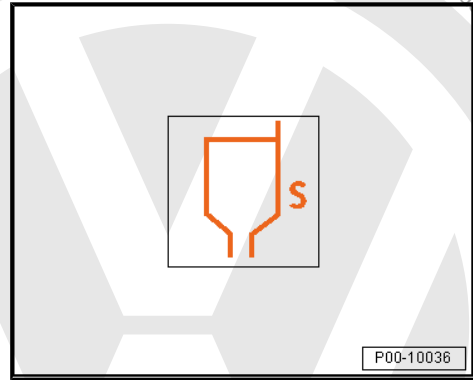
Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP".

Add 5% thinners clear coat additive - LVM 007 000 A2- at a material temperature of +20°C



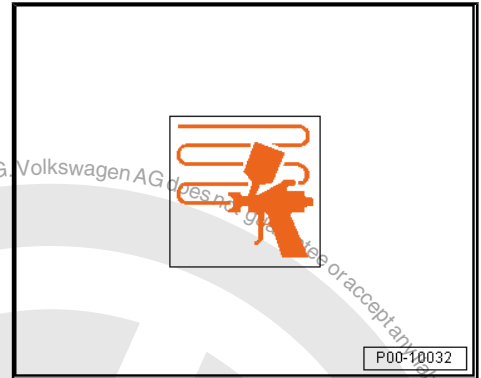
Note

- ◆ *When used as clear coat for spot repairs (Clever Repair method), the 5% clear coat additive - LVM 007 000 A2- may be replaced with 5% HS spot thinner - LVM 006 000 A2- .*
 - ◆ *The mixture described here for the Clever Repair method must not be used on horizontal surfaces.*
- If thinner is added, use measuring stick to mix.
 - Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3 to 1.4 mm.
 - Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3 to 1.4 mm.
 - Adjust spray pressure (see manufacturer's instructions): "Compliant" 1.8 to 2.2 bar.
 - Adjust atomising pressure following manufacturer's instructions to 0.7 bar for "HVLP".





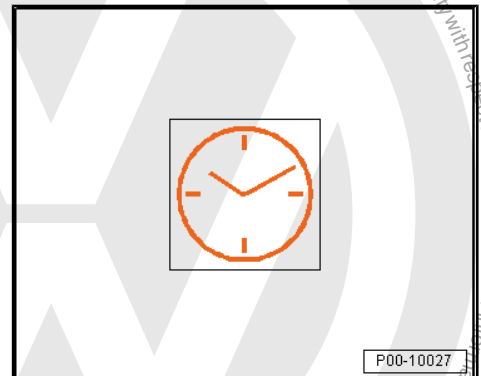
- Apply in two spray coats with 5-10 minutes intermediate flash-off time. The first coat is applied with restraint, though still uniformly.
- Can be applied in one-and-a-half coats; i.e. the first half coat forms a thin, nearly uniform film, upon which a complete, uniform coat is sprayed.
- Recommended dry film thickness is 50-70 µm.



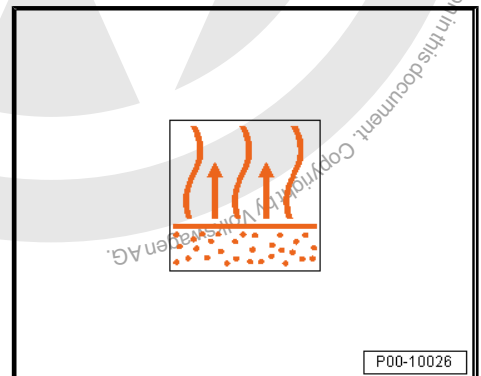
Drying

Air drying at 18-22°C room temperature:

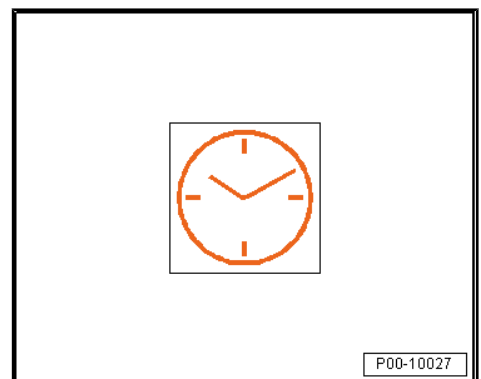
- ◆ Dry overnight



Final flash-off time with force drying is at least 5-10 minutes.

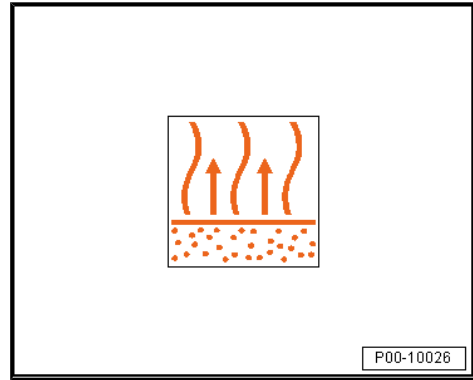


Force drying at +60-65°C material temperature in 30-35 minutes.



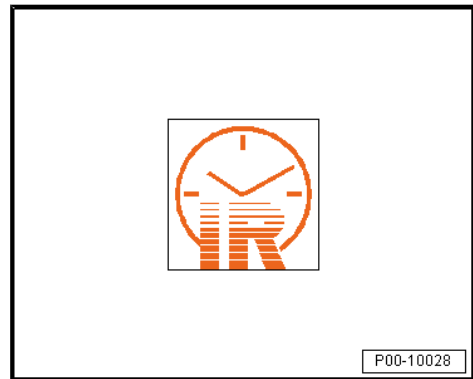


Final flash-off time with infrared drying is at least 5-10 minutes.



Infrared drying with short-wave radiant heater:

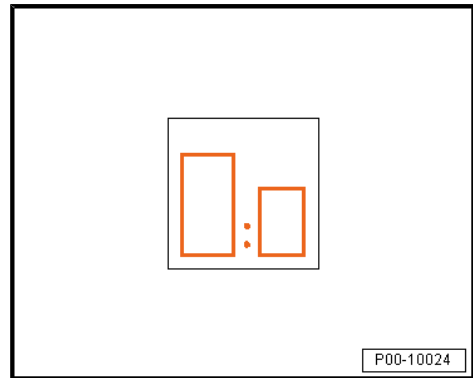
- ◆ 5 minutes (at 50 % output)
- ◆ Approx. 10 to 15 minutes (at 100% output)



Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 5% clear coat additive - LVM 007 000 A2- (drying time increases).

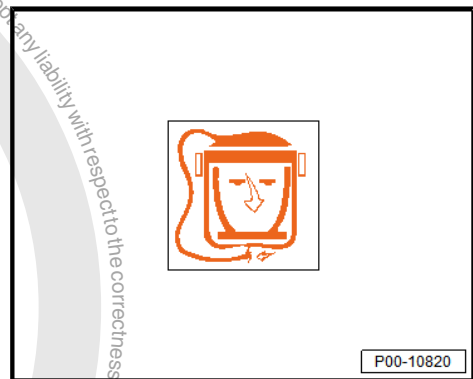


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.



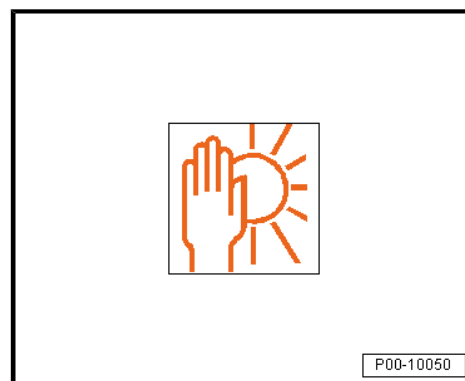


Storage

Guaranteed shelf life:

- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5- , 48 months from production date.
- ◆ Clear coat additive - LVM 007 000 A2- 24 months from production date.

Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.8 2-pack HS Performance clear coat

Designation:

- ◆ 2-pack HS performance clear coat - LZK 769 K06 A5-

Issue 08.2012

Product description

2-pack HS Performance clear coat is a high-gloss, VOC compliant, high-solid clear coat.

Properties:

- ◆ Flexible application in all areas of repair
- ◆ Flexible application in one-and-a-half spray coats (preferred) or two coats (possible)
- ◆ Good stability
- ◆ Good gloss and filling power
- ◆ Fast-drying

Technical data sheet

Substrate

Suitable base coats:

- ◆ Water-based base coats



Application

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ The choice of hardener depends on the temperature and size of the surface. See technical data sheet for 2-pack VHS hardener ⇒ [page 240](#) .

For plasticizing, see ⇒ [page 233](#)

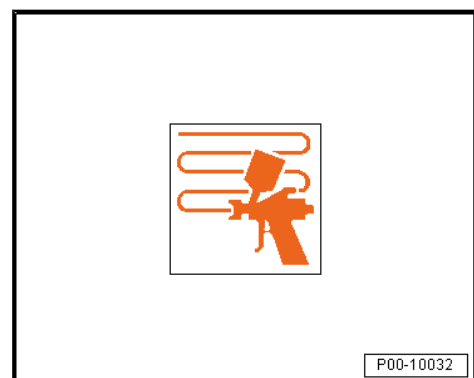
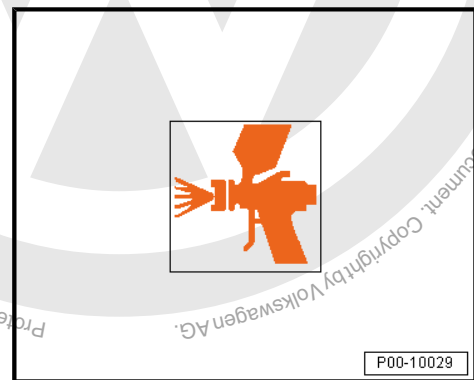
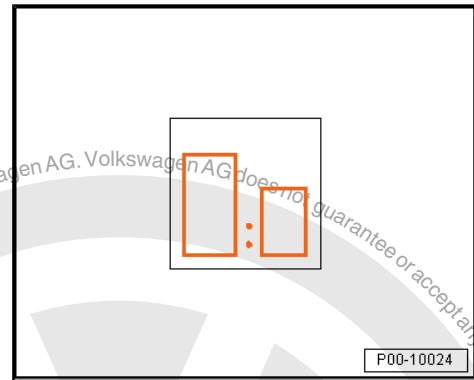
Thinner:

- ◆ Clear coat additive - LVM 007 000 A2-
- ◆ HS spot thinner - LVM 006 000 A2-
- ◆ See technical data sheet for 2-pack HS spot thinner ⇒ [page 249](#)

Application time/pot life:

- Mixed for spraying, 60 to 120 minutes at +20°C

Method of application: "spray".





- Application viscosity 4 mm, +20°C, DIN 53211

Application viscosity 4 mm, gravity-feed spray gun "Compliant" and "HVLP".

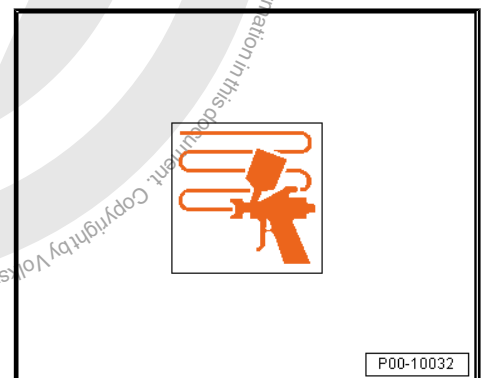
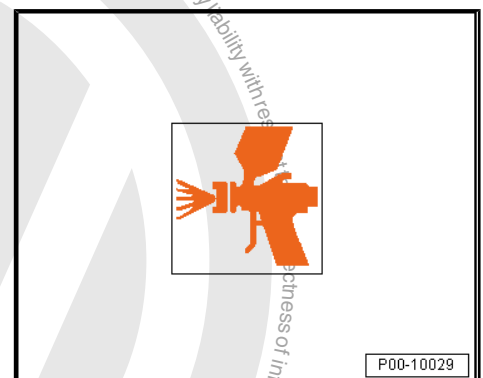
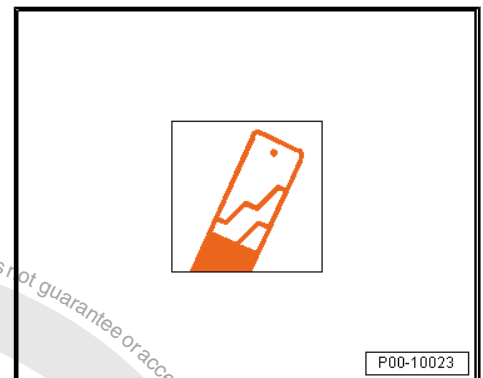
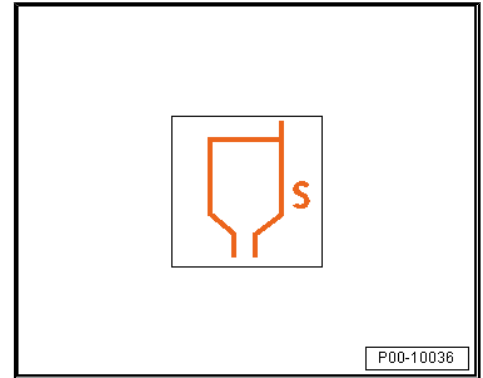
Add 5% thinners clear coat additive - LVM 007 000 A2- at a material temperature of +20°C



Note

- ◆ *When used as clear coat for spot repairs (Clever Repair method), the 5% clear coat additive - LVM 007 000 A2- may be replaced with 5% HS spot thinner - LVM 006 000 A2.*
- ◆ *The mixture described here for the Clever Repair method must not be used on horizontal surfaces.*

- If thinner is added, use measuring stick to mix.
- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.
- Can be applied in one-and-a-half coats; that is, the first half coat forms a thin, nearly uniform film, upon which a complete, uniform coat is sprayed.
- Apply in two spray coats with 5-10 minutes intermediate flash-off time. The first coat is applied with restraint, though still uniformly.
- Recommended dry film thickness is 50-70 µm.

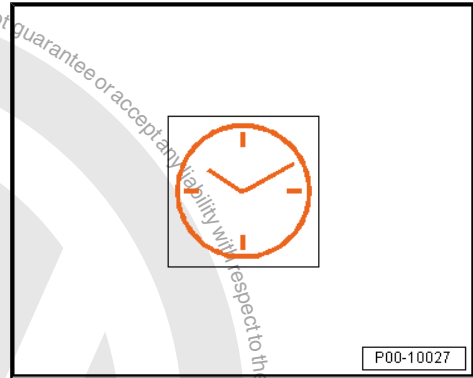




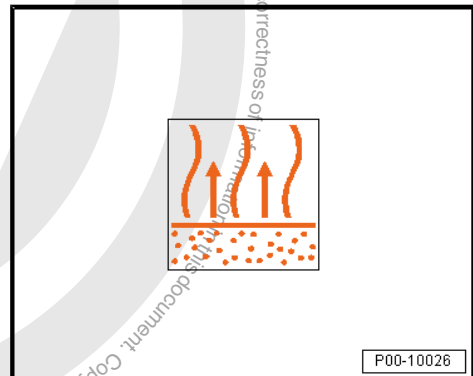
Drying

Air drying at 18-22°C room temperature:

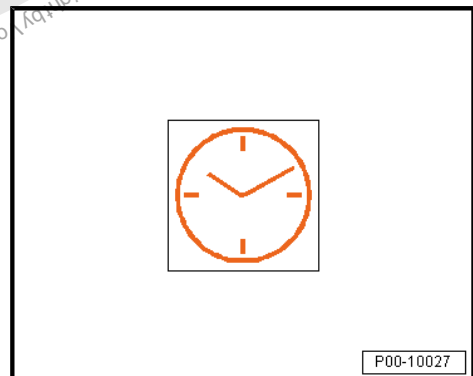
- ◆ Dry overnight



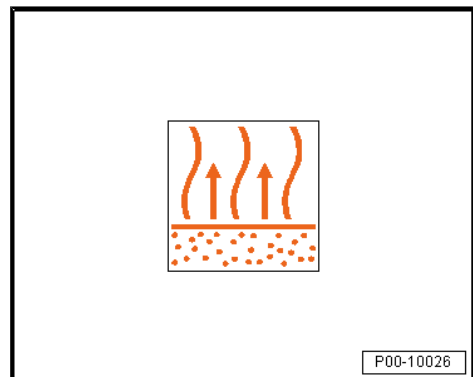
Final flash-off time with force drying is at least 5-10 minutes.



Force drying at +60-65°C material temperature in 25-35 minutes.

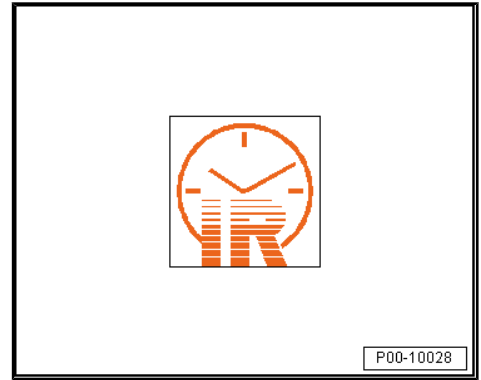


Final flash-off time with infrared drying is at least 5-10 minutes.





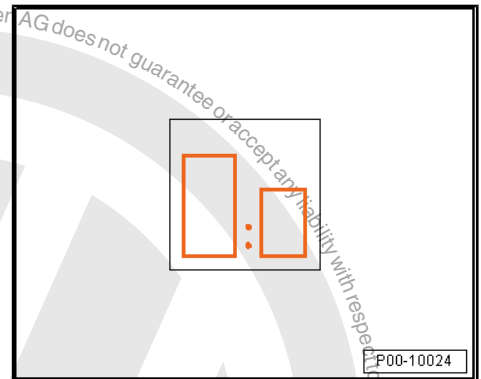
Infrared drying with short-wave radiant heater, 10-15 minutes



Special notes

Plasticizing of rigid and semi-rigid plastics:

- ◆ First mix the base material with 15% 2-pack plasticizer additive - ALZ 011 001- .
- ◆ Mixture with 2-pack VHS hardeners, 3:1 with 5% clear coat additive - LVM 007 000 A2- (drying time increases).

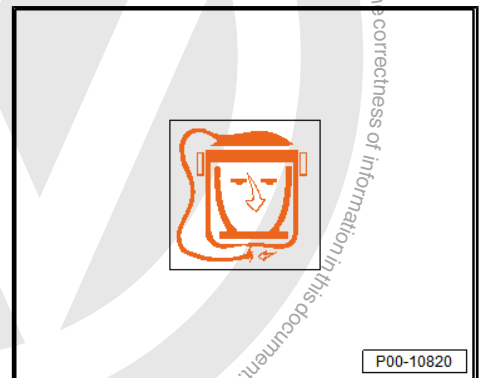


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

Flash point:	above +23 °C
VOC content: 2004/42/IIIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 420 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 420 g/l.

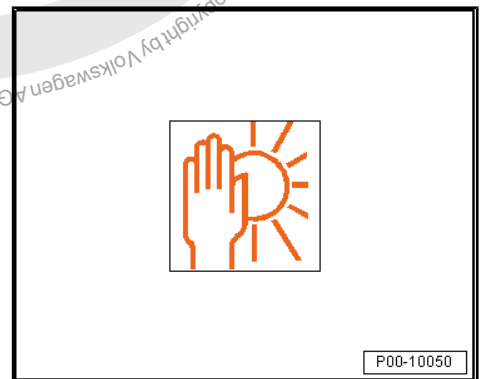


Storage

Guaranteed shelf life:

- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5- , 48 months from production date.
- ◆ Clear coat additive - LVM 007 000 A2- 24 months from production date.

Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.8.9 Blender

Designation:

- ◆ Blender - LVE 013 100 A2-



Issue 10.2012

Product description

The blender was developed to guarantee easy touch-up of 2-pack clear coats and 2-pack top coats.

Properties:

- ◆ Easy to use in its pure form
- ◆ Good wetting on all substrates
- ◆ Very fine fade-out to the old finish

Technical data sheet

Preparation

Base coat application:

- ◆ Keep the surfacer area as small as possible.
- ◆ Overpaint with water-based base coat until surfacer area is fully hidden (overlapping coats).

Blending system for 2-pack clear coats

Mixing ratio with 2-pack clear coat:

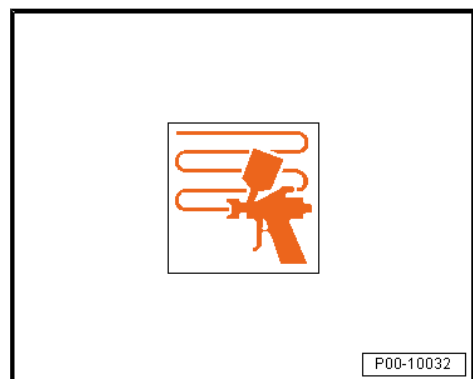
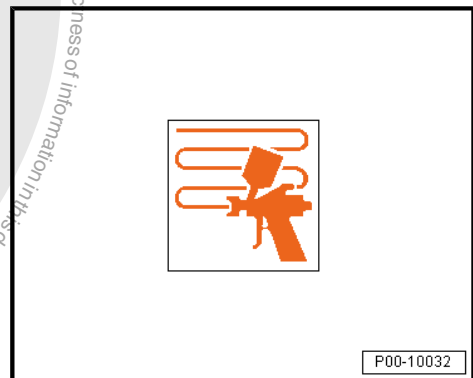
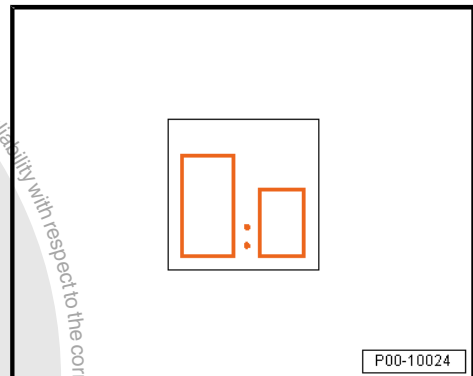
- Mix according to the technical data sheet for the clear coat
⇒ [page 196](#) .

Paintwork:

Overpaint water-based base coat with adjusted clear coat, overlapping the coats.

Blending in:

- Apply pure blender - LVE 013 100 A2- to the blending area within the sanded area.

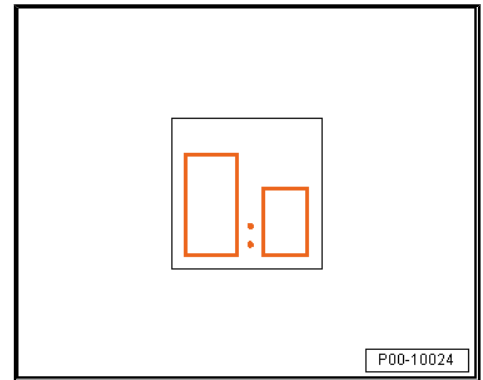




Blending system for 2-pack top coats

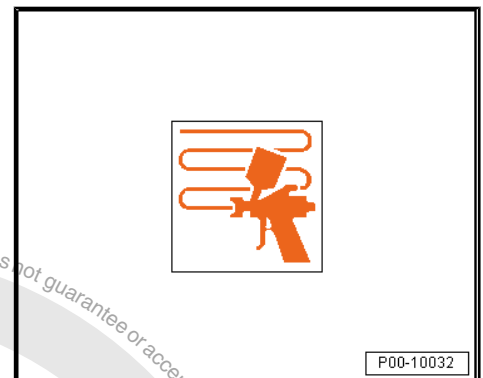
Mixing ratio with 2-pack top coat:

- Mix according to the technical data sheet for the 2-pack top coat => [page 151](#) .



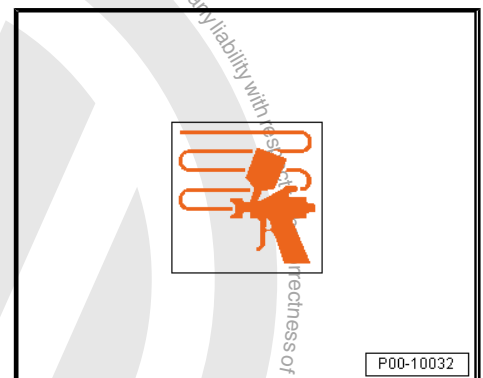
Paintwork:

- Recoat until surfacer area is fully hidden, overlapping the coats.



Blending in:

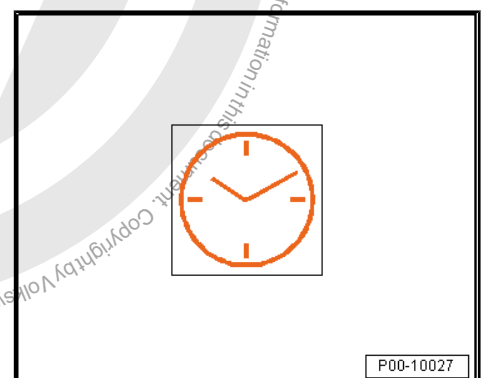
- Apply pure blender - LVE 013 100 A2- to the blending area within the sanded area.



Polishing blending areas

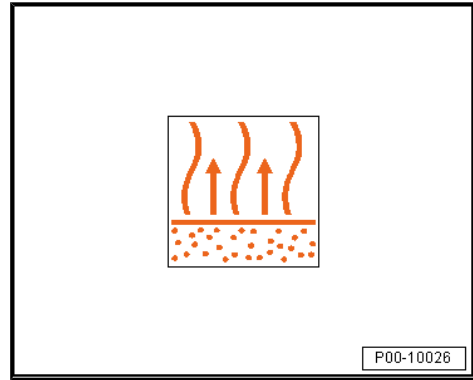
Air drying at +20 °C room temperature:

- ◆ Allow blending areas to dry overnight before polishing



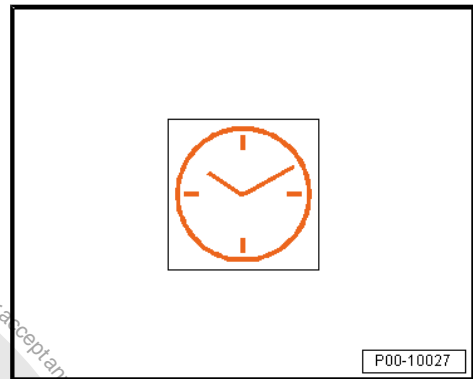


Final flash-off time with force drying is at least 5-10 minutes.

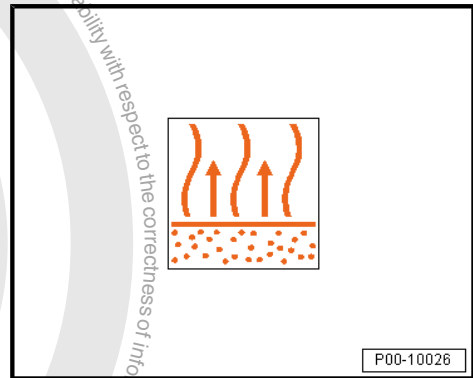


Force drying at +60°C material temperature in 30 minutes.

- The blending areas may then be polished after cooling for one hour at +20°C ambient temperature.



Final flash-off time with infrared drying is at least 5-10 minutes.



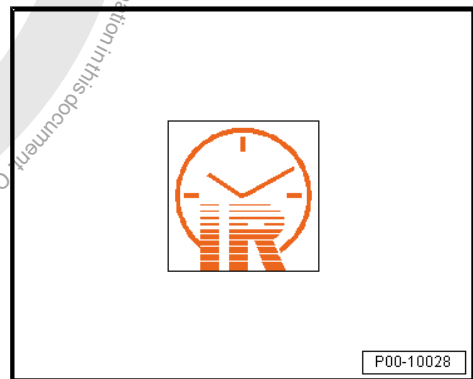
Infrared drying with short-wave radiant heater, 10 minutes

- The blending areas may then be polished after cooling for one hour at +20°C ambient temperature.



Note

- ◆ *Polish the blending areas with fine polishing paste by hand or with a polishing machine.*
- ◆ *Finally treat the surface with high-gloss sealer.*



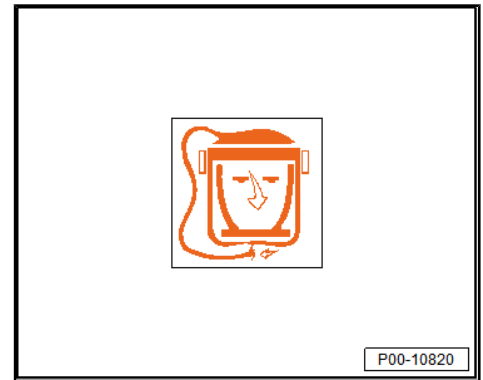


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

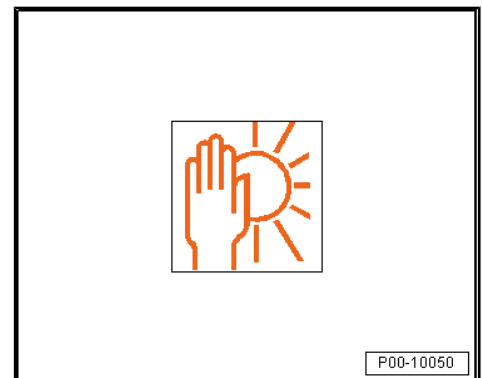
Data

Flash point:	+20°C
--------------	-------



Storage

The guaranteed shelf life is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.9 Hardener

⇒ [“3.9.1 2-pack HS hardener”, page 237](#)

⇒ [“3.9.2 2-pack VHS hardeners and 2-pack VHS Performance hardeners”, page 240](#)

⇒ [“3.9.3 Hardener for 2-pack primer surfacer”, page 245](#)

⇒ [“3.9.4 Aqua Premium hardener”, page 245](#)

3.9.1 2-pack HS hardener

Designation:

- ◆ 2-pack HS hardener - LHA 009 041 A3-
- ◆ 2-pack HS hardener, fast-drying - LHA 021 004 A3-
- ◆ 2-pack HS hardener, extra fast-drying - LHA 009 046 A2-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-

Issue 10.2014

Product description

The products described here are High Solid hardeners suitable for selected HS surfaces and clear coats.

Properties:

- ◆ Their high solids content allows for economical and environmentally friendly application.
- ◆ A choice of 5 versions makes them suitable for all painting conditions and ensures very reliable application.



Technical data sheet

Application

Possible base materials:

- ◆ 2-pack HS Vario surfacer ⇒ [page 104](#)
- ◆ 2-pack HS premium surfacer ⇒ [page 113](#)
- ◆ 2-pack HS wet-on-wet surfacer ⇒ [page 130](#)
- ◆ 2-pack HS clear coat ⇒ [page 196](#)
- ◆ 2-pack HS Vario clear coat ⇒ [page 206](#)

Area of application

- 1 - 2-pack HS hardener - LHA 009 041 A3- is suitable for full and partial refinishes at normal temperatures.
- 2 - 2-pack HS hardener, fast-hardening - LHA 021 004 A3- is suitable for partial refinishes and low exhaust air volume in the spray booth.
- 3 - 2-pack HS hardener, extra fast-drying - LHA 009 046 A2- is suitable for spot repairs and partial refinishes at low temperatures.
- 4 - 2-pack HS hardener, slow-drying - LHA 009 047 A3- is suitable for all full and partial refinishes, even at high temperatures.
- 5 - 2-pack HS hardener, extra slow-drying - LHA 009 048 A3- is suitable for full and partial refinishes, even at very high temperatures. Finishes applied using this hardener are characterised by excellent levelling



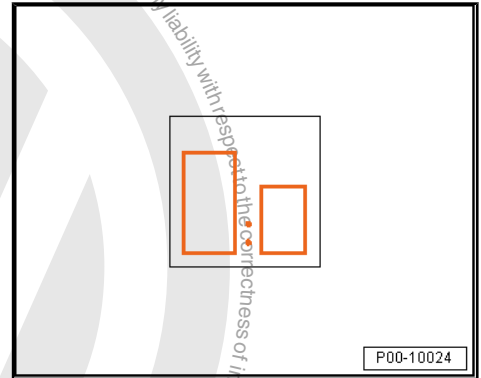


Mixing ratio:

- Refer to the technical data sheet for the respective base material.

Hardener selection table

- ++ - Ideal
- + - Suitable
- Suitable to a limited extent
- Not suitable



Hardener selection	2-pack HS hardener - LHA 009 041 A3-	2-pack HS hardener, fast-drying - LHA 021 004 A3-	2-pack HS hardener, extra fast-drying - LHA 009 046 A2-
Complete or partial refinish (large areas)	+	-	--
Partial refinish (small repairs)	+	++	++
High temperatures above +25 °C	+		--
Very high temperatures +30 °C to +35 °C	-	--	--
Normal temperature +20 °C to +25 °C	++	-	--
Low temperature +15 °C to +20 °C	-	+	++
Low baking	++	+	+
Air drying	++	++	++

Hardener selection	2-pack HS hardener, slow-drying - LHA 009 047 A3-	2-pack HS hardener, extra slow-drying - LHA 009 048 A3-
Complete or partial refinish (large areas)	++	++
Partial refinish (small repairs)	+	--
High temperatures above +25 °C	+	++
Very high temperatures +30 °C to +35 °C	+	++
Normal temperature +20 °C to +25 °C	++	+
Low temperature +15 °C to +20 °C	-	--
Low baking	++	++
Air drying	+	+

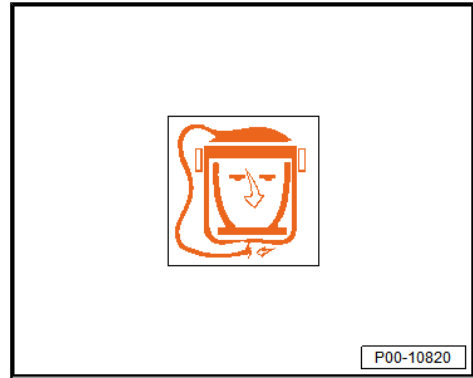


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

	2-pack HS hardener, extra fast-drying - LHA 009 046 A2-	All other 2-pack HS hardeners
Flash point:	below +21 °C	above +23 °C



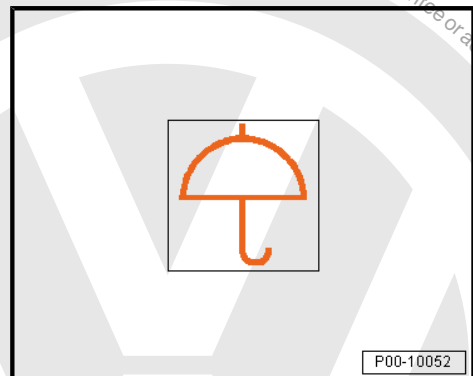
Storage

Guaranteed storage time of all 2-pack HS hardeners is 36 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

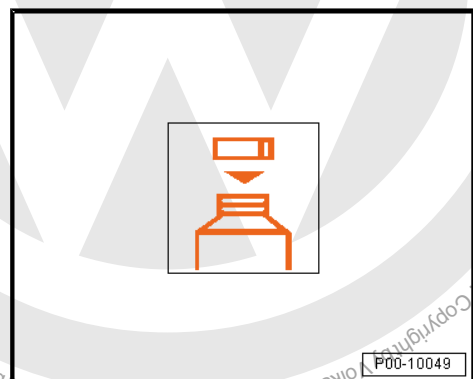


Storage conditions

- Do not store in damp conditions.



- After use, replace container lid immediately, ensuring an airtight seal.



3.9.2 2-pack VHS hardeners and 2-pack VHS Performance hardeners

Designation:

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-



- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ 2-pack VHS performance hardener - LVM 009 038 A2-
- ◆ 2-pack VHS performance hardener, slow-drying - LVM 009 039 A2-

Issue 10.2014

Product description

2-pack VHS hardeners as well as VHS Performance hardeners are highly suitable for our High-Solid products.

Properties:

- ◆ Their high solids content allows for economical and environmentally friendly application.
- ◆ Available in different types, these VHS and Performance hardeners are suitable for all painting conditions and ensure very reliable application.

Technical data sheet

Application

Possible base materials:



Note

The 2-pack HS Performance surfacer may only be applied together with a 2-pack VHS Performance hardener.

- ◆ 2-pack HS Vario surfacer ⇒ [page 104](#)
- ◆ 2-pack HS premium surfacer ⇒ [page 113](#)
- ◆ 2-pack HS Performance surfacer ⇒ [page 119](#)
- ◆ 2-pack HS wet-on-wet surfacer ⇒ [page 130](#)
- ◆ 2-pack HS top coat ⇒ [page 151](#)
- ◆ 2-pack HS clear coat ⇒ [page 196](#)
- ◆ 2-pack HS Vario clear coat ⇒ [page 206](#)
- ◆ 2-pack HS optimum plus clear coat ⇒ [page 216](#)
- ◆ 2-pack HS brilliant plus clear coat ⇒ [page 224](#)
- ◆ 2-pack HS Performance clear coat ⇒ [page 229](#)

Area of application



Note

2-pack VHS Performance hardeners may only be applied together with a 2-pack HS Performance surfacer.

- 1 - 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- is suitable for full and partial refinishes at normal temperatures.
- 2 - 2-pack VHS hardener, fast-drying - LHA 009 050 A2- is suitable for partial refinishes and low exhaust air volume in the spray booth.



- 3 - 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3- is suitable for all full and partial refinishes, even at high temperatures.
- 4 - 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2- is suitable for all full and partial refinishes, even at high temperatures.
- 5 - 2-pack VHS Performance hardener - LVM 009 038 A2- is suitable for all full and partial refinishes at normal temperatures.
- 6 - 2-pack VHS Performance hardener, slow-drying - LVM 009 039 A2- is suitable for all full and partial refinishes, even at high temperatures.



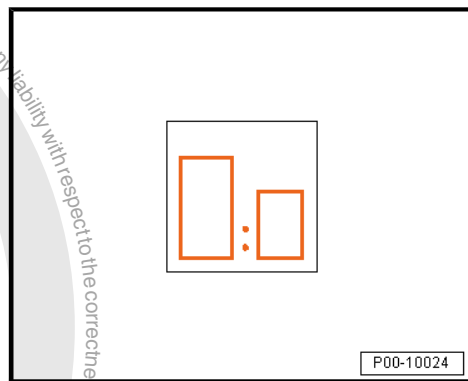


Mixing ratio

- Refer to the technical data sheet for the respective base material.

Hardener selection table

- + + - Ideal
- + - Suitable
- - Suitable to a limited extent
- - - Not suitable



Hardener selection	2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-	2-pack VHS hardener, fast-drying - LHA 009 050 A2-
Complete or partial refinish (large areas)	+	- -
Partial refinish (small repairs)	+	+ +
High temperatures above +25 °C	+	- -
Very high temperatures +30 °C to +35 °C	-	- -
Normal temperature +20 °C to +25 °C	+ +	- -
Low temperature +15 °C to +20 °C	-	+ +
Low baking	+ +	+
Air drying	+ +	+ +

Hardener selection	2-pack VHS hardener, slow-drying - LHA 009 052 A2- / - LHA 009 052 A3-	2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
Complete or partial refinish (large areas)	+	+ +
Partial refinish (small repairs)	+	+
High temperatures above +25 °C	+	+ +
Very high temperatures +30 °C to +35 °C	-	+ +
Normal temperature +20 °C to +25 °C	+ +	+ +
Low temperature +15 °C to +20 °C	-	-
Low baking	+ +	+ +
Air drying	+ +	+



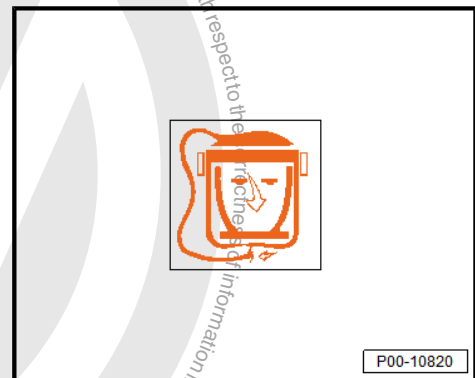
Hardener selection	2-pack VHS performance hardener - LVM 009 038 A2-	2-pack VHS performance hardener, slow-drying - LVM 009 039 A2-
Complete or partial refinish (large areas)	+	++
Partial refinish (small repairs)	+	+
High temperatures above +25 °C	+	++
Very high temperatures +30 °C to +35 °C	-	++
Normal temperature +20 °C to +25 °C	++	++
Low temperature +15 °C to +20 °C	-	-
Low baking	++	++
Air drying	++	+

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

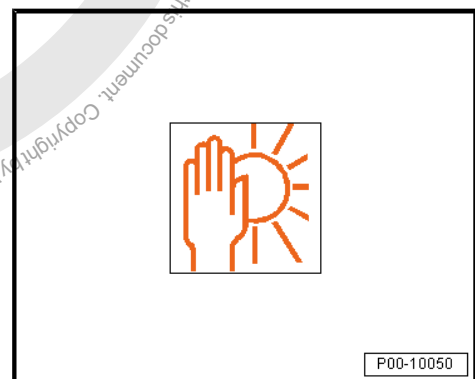
Data

	All VHS hardeners
Flash point:	+24°C



Storage

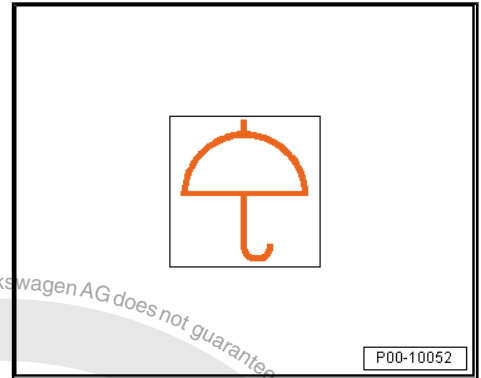
The guaranteed shelf life of VHS hardeners is 36 months as of production date. The guaranteed shelf life of VHS Performance hardeners is 12 months. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



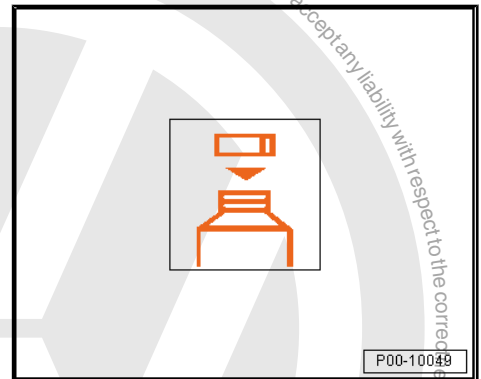


Storage conditions

- Do not store in damp conditions.



- After use, replace container lid immediately, ensuring an airtight seal.



3.9.3 Hardener for 2-pack primer surfacer

Designation:

- ◆ Hardener for 2-pack primer surfacer - LHA 005 000 A2-



Note

Information on preparing and applying the hardener for 2-pack primer surfacer may be found in the documentation for the respective base material

⇒ "3.6.4 2-pack primer surfacer for plastics", page 126

3.9.4 Aqua Premium hardener

Designation:

- ◆ Aqua Premium hardener - LVM 045 000 A1-



Note

Information on preparing and applying the hardener for 2-pack primer surfacer may be found in the documentation for the respective base material

⇒ "3.7.5 Aqua Premium system", page 174 .



3.10 Thinners

⇒ [“3.10.1 2-pack thinner”, page 246](#)

⇒ [“3.10.2 HS spot thinner”, page 249](#)

⇒ [“3.10.3 Demineralised water”, page 251](#)

3.10.1 2-pack thinner

Designation:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, plus - LHA 014 000 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-
- ◆ Nitrocellulose thinner - LVE 856 000 A3-

Issue 04.2013

Product description

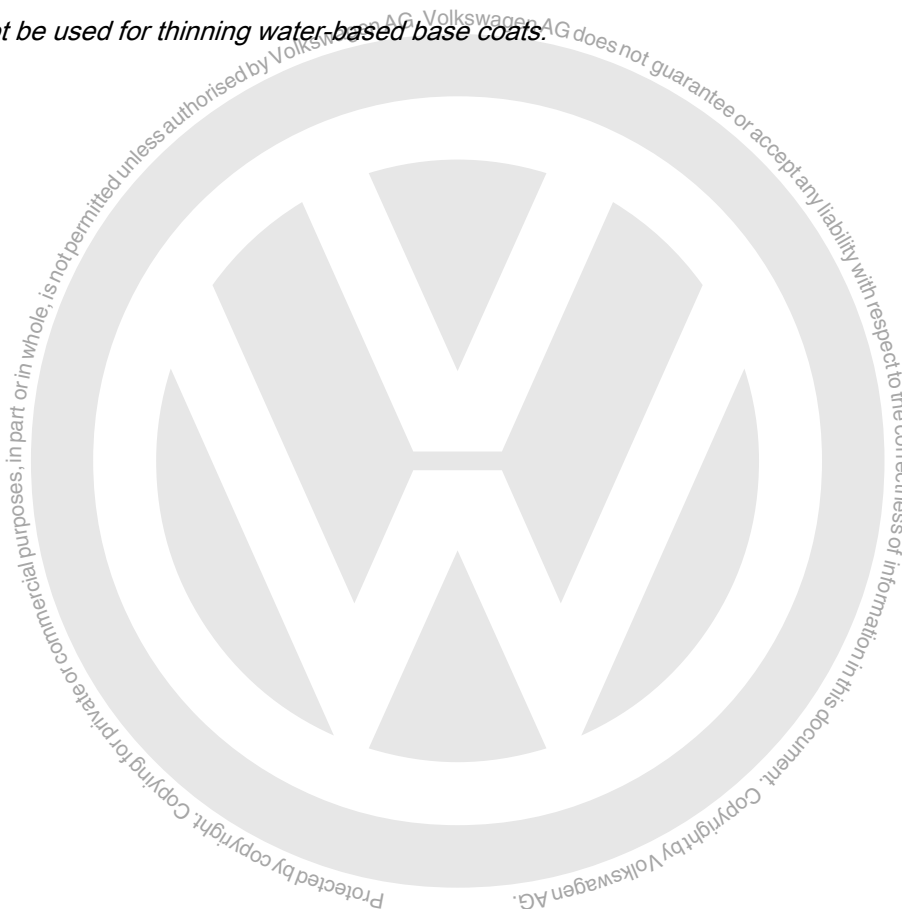
The following section describes the VW thinners which are ideally suited to car finish repairs.

These thinners can be used to alter the viscosity of the base products to achieve the best application under all conditions.



Note

They are not be used for thinning water-based base coats.





Technical data sheet

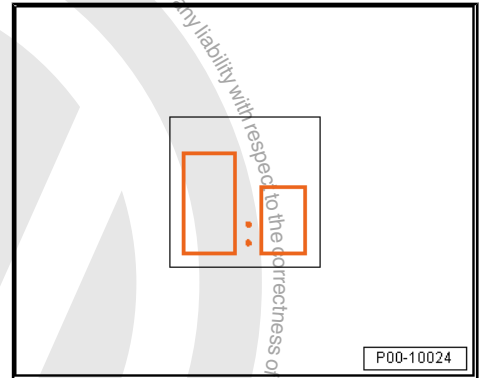
Area of application

Mixing ratio:

- Refer to the technical data sheet for the respective base material.

Selection of thinners

- ++ - Ideal
- + - Suitable
- Suitable to a limited extent
- Not suitable



Note

This table gives a general overview of the options for using the thinners listed here. Any additional information in the technical data sheet for the base material in question takes precedence.

2-pack thinner	2-pack thinner - LVE 009 001 A5-	2-pack slow-drying thinner - LVM 009 300 A2-	2-pack thinner, plus - LHA 014 000 A5-	2-pack thinner, special - LVM 009 200 A2- / - LVM 009 200 A5-
2-pack HS top coat	+	++*	+	++
2-pack HS clear coats**	--	--	--	++
2-pack acrylic primer/surfacer	++	+	++	++
Wash primer	++	-*	++	++
* only for high temperatures above +25 °C				
** 2-pack HS clear coats used in a 3:1 mixing ratio with 2-pack VHS hardeners plus thinner				



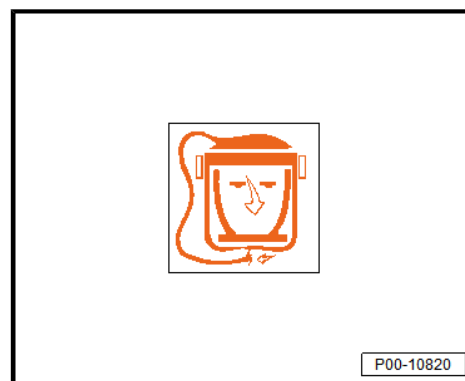
Main fields of application and uses of the thinners

2-pack thinner	2-pack thinner - LVE 009 001 A5-	2-pack slow-drying thinner - LVM 009 300 A2-	2-pack thinner, plus - LHA 014 000 A5-	2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-	Nitrocellulose thinner - LVE 856 000 A3-
Main area of application	Universal thinner for all two-pack acrylic products	The specially developed viscosity thinner is particularly suitable for 2-pack HS top coats and 2-pack acrylic surfacers.	Thinner for all two-pack acrylic products with drying accelerator	Specially developed viscosity thinner particularly suitable for 2-pack HS top coats, 2-pack acrylic fillers and 2-pack HS clear coats used in a 3:1 mixing ratio with 2-pack VHS hardeners plus thinner	Equipment cleaners and degreasers
Application	Adjusts the viscosity of priming materials and top coats at low and medium temperatures	For optimising flow properties and improving spray mist characteristics at spray booth temperatures above +25 °C and on large-volume objects.	Adjusts the viscosity of priming materials and top coats at low and medium temperatures	Adjusts the viscosity of priming materials and top coats at low and medium temperatures	The EU limit value for this product (product category IIB.a) in ready-to-spray form is max. 850 g/l of volatile organic compounds. VOC content: 2004/42/ IIB(a) (850)840
Data	Flash point: above +23°C	Flash point: above +23°C	Flash point: above +23°C	Flash point: above +23°C	Flash point: above +23°C



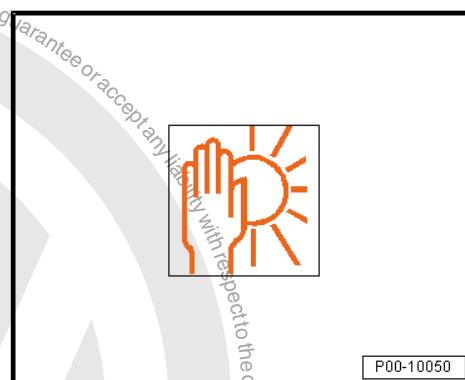
Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.



Storage

The guaranteed shelf life of all thinners is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.10.2 HS spot thinner

Designation:

- ◆ HS spot thinner - LVM 006 000 A2-

Issue 06.2013

Product description

HS spot thinner - LVM 006 000 A2- is a special drying accelerator for small repairs with 2-pack HS top coats and certain 2-pack HS clear coats . In the given mixtures, clear coats and top coats remain VOC compliant.

Application:

- ◆ Field of application: Clever Repair
- ◆ For small areas only
- ◆ Do not apply to horizontal surfaces

Technical data sheet

Substrate

See the technical data sheet of the respective base product.

Suitable base coats:

- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5-
- ◆ HS Vario clear coat - L2K 769 K01 A5-
- ◆ 2-pack HS performance clear coat - LZK 769 K06 A5-
- ◆ 2-pack HS optimum plus clear coat - LZK 769 K07 A5-
- ◆ 2-pack HS uni (solid-colour top) coat - L2K 073 ... -
- ◆ 2-pack HS mixture paint - L2K 074 ... -



Application

Mixing ratio:

- 3:1 ratio by volume with:
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, fast-drying - LHA 009 050 A2-

Thinner:

- ◆ HS spot thinner - LVM 006 000 A2- (HS spot thinner is added instead of 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-)
- ◆ +5% for 2-pack HS brilliant plus clear coat - LZK 769 K05 A5-
- ◆ +12.5% for HS Vario clear coat - L2K 769 K01 A5-
- ◆ +5% for 2-pack HS Performance clear coat - LZK 769 K06 A5-
- ◆ +10 % for 2-pack HS optimum plus clear coat - LZK 769 K07 A5-
- ◆ +12.5% for 2-pack HS uni top coat - L2K 073 ... - / 2-pack HS mixing paint - L2K 074 ... -

Application time/pot life:

- Mixed for spraying, 35-45 minutes at +20 °C (clear coat with 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-)
- Mixed for spraying, 50-60 minutes at +20°C for 2-pack HS uni (solid-colour) top coat - L2K 073 ... - / 2-pack HS mixing paint - L2K 074 ... -

Application:

- Refer to respective technical data sheets for information on using clear coats and 2-pack HS mixing paint and top coats.



Note

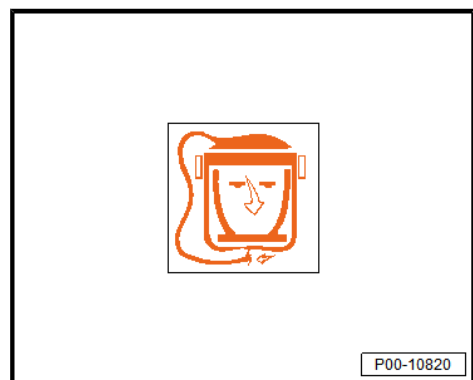
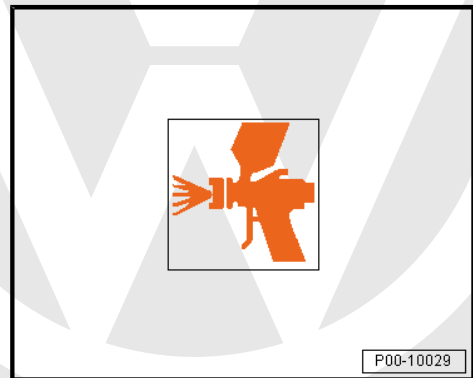
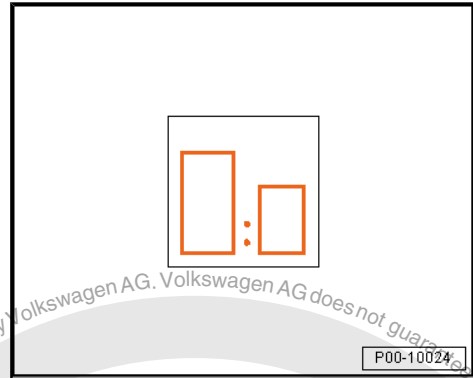
- ◆ *Application to large areas or horizontal surfaces (e.g. bonnet) can result in technical disadvantages.*
- ◆ *A "fast" hardener system is preferable for use with the Clever Repair system*

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

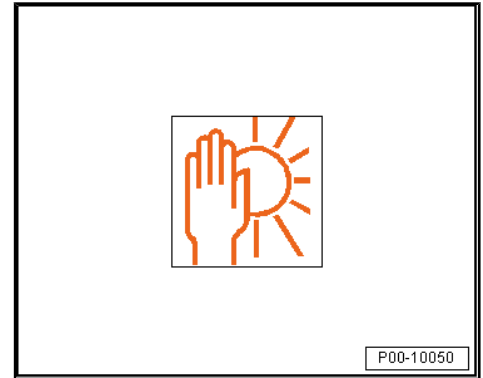
Flash point:	+21°C
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Storage

Guaranteed storage time of all 2-pack HS spot thinners is 24 months from production date. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.10.3 Demineralised water

Designation:

- ◆ Aquaplus demineralised water - LVW 010 000 A5-



Note

No technical data sheet is necessary for this product.

3.11 Anti-corrosion materials

⇒ ["3.11.1 Anti-corrosion wax", page 251](#)

⇒ ["3.11.2 Cavity sealant", page 252](#)

⇒ ["3.11.3 Anti-corrosion wax \(in aerosol can\)", page 255](#)

3.11.1 Anti-corrosion wax

Designation:

- ◆ Anti-corrosion wax - AKR 321 M15 4-
- ◆ Anti-corrosion wax - AKR 321 M16 10-

Issue 04.2009

Product description

Anti-corrosion wax - AKR 321 M15 4- and anti-corrosion wax - AKR 321 M16 10- are aerosol wax-based rust-protection agents.

The film which remains after drying is strongly adhesive, tough, plastic, water-repellent and nearly colourless.

Because the drip point of the dried material is above +100 °C, no running or dripping is to be anticipated, even within the engine compartment.

The dry film adheres well to untreated and painted surfaces.

Technical data sheet

Application

- ◆ Used for preserving seams, surfaces and cavities of vehicles.
- ◆ Its light colour makes it especially suitable for protecting seams on the bonnet and in the boot.
- ◆ The material is also preferred for preserving the cleaned engine compartment.



Application



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*
- The parts to be treated with anti-corrosion wax should be cleaned and dried thoroughly beforehand, and any rust must be removed.
- Shake the can well before use. Spray on anti-corrosion wax and allow it to dry. Do not apply to visible exterior surfaces because the dry film has a flat appearance.



Caution

If engine compartments of vehicles or other equipment are treated with sealant, the engines should not be switched on until the protective wax film has been allowed to dry thoroughly. (Danger of explosion due to evaporating solvents)

Technical data

Colour	Transparent in thin coat
Odour	Mild odour
Viscosity (DIN 53211, 4 mm)	12-14 seconds
Dropping point	approx. 100°C
Cleaning	With mineral spirits, cold cleaner or kerosene
Working temperature	+15 °C to +30 °C

3.11.2 Cavity sealant

Designation:

- ◆ Cavity sealant - D 330 KD1 A2-
- ◆ Cavity sealant - D 330 KD2 A1-

Issue 04.2010

Product description

Cavity sealant - D 330 KD1 A2- and cavity sealant - D 330 KD2 A1- are solvent-based, high solid-content corrosion inhibitors for sealing cavities.

It is a thixotropic solution with good atomizing properties, ideal for protecting areas that are difficult to access such as narrow gaps between panels.

This cavity sealant infiltrates and displaces moisture and contains a high proportion of rust inhibitors.

The cavity sealant is very finely atomized during spraying, has outstanding creep properties, penetrates well into narrow gaps (such as welded seams) which need protection but does not run significantly out of seams.



Although this material can be applied at any temperature above 10 °C, the penetrating ability is improved if both product and body are allowed to stabilise at room temperature.

When completely dry, this product forms a waxy film which is plastic, water-repellent and nearly transparent beige.

Technical data sheet

Application

- ◆ Mostly used in the workshop for spraying the interior of cavities to supplement the cavity sealing of new vehicles and to restore cavity sealing after 2-3 years as well as after accident repair.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application of cavity-protection agent - D 330 KD1 A2-

- ◆ The cavity-protection agent - D 330 KD1 A2- can be easily applied using the pressure-feed spray gun and the appropriate probes.
- ◆ The operating pressure of the pressure-feed spray gun is 5-6 bar. The material pressure governor should be set to 5 bar.
- ◆ The material responds to extended storage and to temperatures below +10 °C by becoming additionally thixotropic. However, this will be reduced again during spraying at working temperature. The product also displays its normal properties after spraying.



Note

Depending on the type of cavity to be treated, the drying phase can last several days. Ensure that the vehicle is well ventilated during the drying process.

Application of cavity-protection agent - D 330 KD2 A1-

- ◆ All trim parts are to be removed. Any existing rust is to be removed as completely as possible.
- ◆ The tube-equipped spray attachment in the cap is installed to reach areas where access is difficult (in doors, etc.).
- ◆ The material should be at ambient temperature during application.
- ◆ The material responds to extended storage and to temperatures below +10 °C by becoming additionally thixotropic. Therefore, the can must be vigorously shaken before use so that the rattling of the ball can be heard.
- ◆ The body parts should be cleaned of dust and grease and then sprayed evenly. The can should be held vertically when spraying.
- ◆ When working with the "spray tube", it can be slowly guided in circles in all directions.



- ◆ The spray head with the round spray nozzle enables the application of a fine, even coat on surfaces such as vehicle underbodies, giving these a perfect appearance.



Note

Cavity-protection agent - D 330 KD2 A1- contains flammable propellant. Ensure that cavities as well as the entire vehicle are well ventilated during the drying period before they are closed again, for example, with door trim. Depending on the type of cavity to be treated, the drying phase can last several days.



Caution

Functional components such as brake and exhaust systems are not to be sprayed.

In addition, rubber and plastic parts are not to be sprayed.

Cleaning

- ◆ Preservative which drips out can be easily wiped away.
- ◆ Plastic cleaner - D 195 850 A1- is suitable for removing dried material.
- ◆ Larger areas may be cleaned with a high-pressure steam cleaner. Splashes on painted surfaces should be removed immediately.

Technical data, cavity-protection agent - D 330 KD1 A2-

Colour	Transparent beige
Odour	Typical unique odour
Solids content	approximately 60 % (active ingredient)
Consistency	Thixotropic
Stability	At least 100 µm
Top coat compatibility	No permanent change to the paint
Can be removed after 24 hours	Dry material can be easily removed
Properties in drying oven (1.5 h at 90 °C)	Does not drip
Frost resistance	Does not crack
Corrosion resistance	Does not corrode
Working temperature	+10 °C to +25 °C
Use temperature	-40 °C to +90 °C

Technical data, cavity-protection agent - D 330 KD2 A1-

Colour	Transparent beige (nearly transparent)
Odour	Typical unique odour
Solids content	approximately 60 % (active ingredient)



Dropping point of solid matter	approx. 150 °C
Consistency	Thixotropic
Stability	At least 100 µm
Penetration	>16 cm
Top coat compatibility	No permanent change to the paint
Can be removed after 24 hours	Dry material can be easily removed
Properties in drying oven (1.5 h at 90 °C)	Does not drip
Frost resistance	Does not crack
Corrosion resistance	Does not corrode
Working temperature	+10 °C to +25 °C
Use temperature	-40°C to +90°C (+120°C briefly up to 1 hour)

3.11.3 Anti-corrosion wax (in aerosol can)

Designation:

- ◆ Anti-corrosion wax - D 308 SP5 A1

Issue 04.2009

Product description

Anti-corrosion wax - D 308 SP5 A1- offers ideal corrosion protection for areas of the body threatened by corrosion such as double layers of sheet metal (seams, gaps and flanges), edges and surfaces.

Long-term corrosion protection is assured by the very good penetration as well as excellent adhesion to metallic surfaces.

The product is compatible with and easy to remove from top coat as well as rubber and plastic add-on components.

Technical data sheet

Application

- ◆ The recommended dry coat thickness is about 30 µm.

Technical data

Propane and butane content	45-49 %
Active ingredient content	22-26 %
Solvent content	27-31 %
Viscosity (DIN 53211, 4 mm)	16-22 seconds
Dropping point of solid material	>150 °C



Cleaning	With mineral spirits
Working temperature	+18 °C to +25 °C
Flashpoint PMCC (DIN EN 22719)	+27 to +33 °C
Colour	Light beige
Use temperature	+10 °C to +30 °C
Frost resistance	to -30 °C

3.12 Underseal

⇒ ["3.12.1 Permanent underseal D 314 D36 M2 , grey", page 256](#)

⇒ ["3.12.2 Permanent underseal D 314 D37 M2 , black", page 259](#)

⇒ ["3.12.3 Permanent underseal D 314 D38 M2 , light", page 262](#)

⇒ ["3.12.4 Underseal D 314 D39 A3 , black", page 265](#)

3.12.1 Permanent underseal - D 314 D36 M2- , grey

Designation:

- ◆ Permanent underseal - D 314 D36 M2- , grey

Issue 02.2010

Product description, permanent underseal - D 314 D36 M2- , grey

Permanent underseal - D 314 D36 M2- is a grey coating compound based on an aqueous synthetic resin dispersion which can be sprayed on using a underseal spray-gun - VAG 1379- .

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to sheet metal, which is galvanised or coated with electrophoretic primer, as well as to painted substrates. Due to the great resistance to abrasion and flexibility under cold conditions, permanent underseal exhibits excellent stone-chipping protection.

Permanent underseal can be quickly overpainted with water-based paints.

After air drying (about 2 to 3 hours), the material can be overpainted with conventional solvent-based paint systems as well.

The dried coating is easy to sand after thorough hardening.

Permanent underseal is suitable for reproducing the original structure following repairs.

The material is only temporarily resistant to naphtha and cold cleaners.

Application

- ◆ Permanent underseal - D 314 D36 M2- is suitable for repairing underbodies, wheel housings, and front end and rear ends and can be applied to visible parts such as door sills as paintable protection against stone chipping, road salt and corrosion due to moisture.



- ◆ The material is suitable for repairing various surface structures following repairs to all sorts of vehicles.
- ◆ Permanent underseal is suitable for deadening noise from boots, bonnets, wheel housings and side panels as well as covering and sealing repaired surfaces, welded joints and overlaps.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- ◆ The surfaces must be dry and free of dirt, dust and grease.
- ◆ Surfaces which are not to be coated should be covered with paper.
- ◆ Bare steel surfaces are to be primed before application of permanent underseal.
- ◆ Permanent underseal is applied from the 1-litre can using the underseal spray-gun - VAG 1379- . The application pressure is 4-5 bar.
- ◆ Shake the can vigorously for one minute before use.



Caution

Do not spray onto joints, engine, propshaft, exhaust, catalytic converter or brake system.

Blow out the underseal spray-gun - VAG 1379- immediately after use and then clean it with plastic cleaner - D 195 850 A1- .

If the UBS gun becomes blocked, the can may burst.

Observe the operating instructions of the underseal spray-gun - VAG 1379- .

Overpainting



Note

Permanent underseal can be overpainted with both water-based and solvent-based paints. Due to the large number of systems available in the market, test spraying is necessary.

- 1 - Overpainting with water-based paints:
 - After drying to a matt surface and up to 72 hours following application, permanent underseal can be overpainted using water-based paints.
- 2 - Overpainting with conventional solvent-based paints:
 - After drying thoroughly and up to 72 hours following application, permanent underseal can be overpainted using solvent-based paints. The material is a fast-drying thick-coat system.



When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This can cause cracking in the finish.

Cleaning

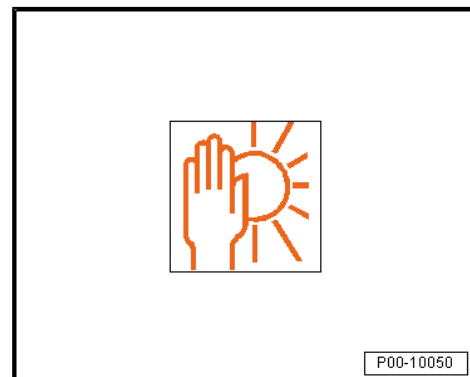
- ◆ Splashes on painted surfaces should be removed immediately using plastic cleaner - D 195 850 A1- .
- ◆ Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based cleaning agent. Do not use any solvent-based cleaning agents, for these cause coagulation. After drying, permanent underseal can only be removed mechanically.

Technical data

Technical data:	
Colour	Grey
Odour	Slight ammonia odour
Density	approx. 1.22 g/cm ³
Solids content	approx. 67%
Viscosity: Test equipment Test method	0.5 Pas Physical Z 4
Wet application thickness	1 mm
Thinner/ cleanser	Distilled water
Working temperature	+10 °C to +25 °C
Use temperature	-25°C to +80°C (briefly up to 1 hour 100°C)
Acoustic data:	
Loss factor DIN 53440	approx. 0.10
Temperature:	20°C
Frequency	200 Hz
Material	Sheet steel 1 mm
Relative thickness of coating to sheet metal	2:1

Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

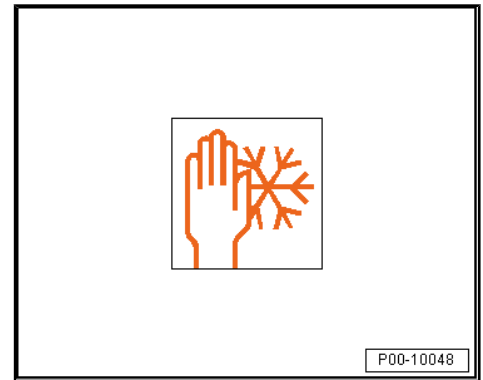




Storage conditions

The recommended storage temperature for permanent underseal is +10 °C to 25 °C.

Permanent underseal is sensitive to freezing; storage temperature must not drop below +5 °C.



3.12.2 Permanent underseal - D 314 D37 M2- , black

Designation:

- ◆ Permanent underseal - D 314 D37 M2- , black

Issue 02.2010

Product description, permanent underseal - D 314 D37 M2- , black

Permanent underseal - D 314 D367 M2- is a black coating compound based on an aqueous synthetic resin dispersion which can be sprayed on using a UBS gun.

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to sheet metal, which is galvanised or coated with electrophoretic primer, as well as to painted substrates. Due to the great resistance to abrasion and flexibility under cold conditions, permanent underseal exhibits excellent stone-chipping protection.

Permanent underseal can be quickly overpainted with water-based paints.

After air drying (about 2 to 3 hours), the material can be overpainted with conventional solvent-based paint systems as well.

The dried coating is easy to sand after thorough hardening.

Permanent underseal is suitable for reproducing the original structure following repairs.

The material is only temporarily resistant to naphtha and cold cleaners.

Application

- ◆ Permanent underseal - D 314 D37 M2- is suitable for repairing underbodies, wheel housings, and front end and rear ends and can be applied to visible parts such as door sills as paintable protection against stone chipping, road salt and corrosion due to moisture.
- ◆ The material is suitable for repairing various surface structures following repairs to all sorts of vehicles.
- ◆ Permanent underseal is suitable for deadening noise from boots, bonnets, wheel housings and side panels as well as covering and sealing repaired surfaces, welded joints and overlaps.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- ◆ The surfaces must be dry and free of dirt, dust and grease.
- ◆ Surfaces which are not to be coated should be covered with paper.
- ◆ Bare steel surfaces are to be primed before application of permanent underseal.
- ◆ Permanent underseal is applied from the 1-litre can using the UBS gun. The application pressure is 4-5 bar.
- ◆ Shake the can vigorously for one minute before use.



Caution

Do not spray onto joints, engine, propshaft, exhaust, catalytic converter or brake system.

Blow out the UBS gun immediately after use and then clean it with plastic cleaner - D 195 850 A1- D 195 850 A1.

If the UBS gun becomes blocked, the can may burst.

Observe the operating instructions of the UBS gun.

Overpainting



Note

Permanent underseal can be overpainted with both water-based and solvent-based paints. Due to the large number of systems available in the market, test spraying is necessary.

- 1 - Overpainting with water-based paints:
 - After drying to a matt surface and up to 72 hours following application, permanent underseal can be overpainted using water-based paints.
- 2 - Overpainting with conventional solvent-based paints:
 - After drying thoroughly and up to 72 hours following application, permanent underseal can be overpainted using solvent-based paints. The material is a fast-drying thick-coat system. When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This can cause cracking in the finish.

Cleaning

- ◆ Splashes on painted surfaces should be removed immediately using plastic cleaner - D 195 850 A1- .
- ◆ Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based



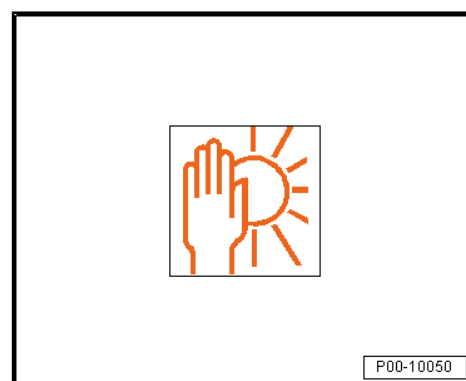
cleaning agent. Do not use any solvent-based cleaning agents, for these cause coagulation. After drying, permanent underseal can only be removed mechanically.

Technical data

Technical data:	
Colour	Black
Odour	Slight ammonia odour
Density	approx. 1.22 g/cm ³
Solids content	approx. 67%
Viscosity:	0.5 Pas
Test equip- ment	Physica
Test method	Z 4
Wet applica- tion thickness	1 mm
Thinner/ cleanser	Distilled water
Working tem- perature	+10 °C to +25 °C
Use tempera- ture	-25 °C to +80 °C (briefly up to 1 hour 100 °C)
Acoustic data:	
Loss factor DIN 53440	approx. 0.10
Temperature:	20 °C
Frequency	200 Hz
Material	Sheet steel 1 mm
Relative thick- ness of coat- ing to sheet metal	2:1

Storage

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

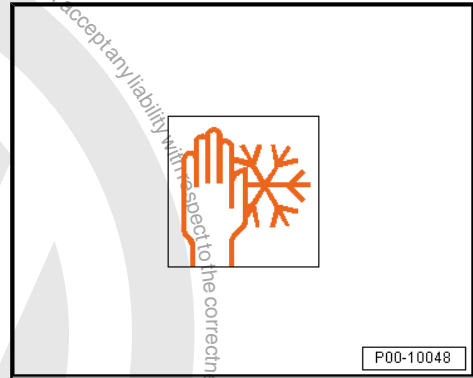




Storage conditions

The recommended storage temperature for permanent underseal is +10 °C to 25 °C.

Permanent underseal is sensitive to freezing; storage temperature must not drop below +5 °C.



3.12.3 Permanent underseal - D 314 D38 M2- , light

Designation:

- ◆ Permanent underseal - D 314 D38 M2- , light

Issue 02.2010

Product description

Permanent underseal - D 314 D38 M2- is a light, transparent, non-hiding compound based on an aqueous synthetic resin dispersion which can be sprayed on using a UBS, paint or filler gun.

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to sheet metal, which is galvanised or coated with electrophoretic primer, as well as to painted substrates. Due to the great resistance to abrasion and flexibility under cold conditions, permanent underseal exhibits excellent stone-chipping protection.

The permanent underseal can be quickly worked on or overpainted with water-based paints.

After air drying (about 2 to 3 hours), the material can be overpainted with conventional solvent-based paint systems as well.

The permanent underseal may be pigmented and mixed with water-based paints and may be thinned with demineralised water. When adding pigment, up to 30% by volume ready-to-spray water-based paint may be added.

The mixing ratio, spray pressure and spray distance may be varied to achieve smooth surfaces or fine or coarse structures.

The material is only temporarily resistant to naphtha and cold cleaners.

Application

- ◆ Permanent underseal - D 314 D38 M2- is suitable for repairing underbodies, wheel housings, and front end and rear ends and can be applied to visible parts such as door sills as paintable protection against stone chipping, road salt and corrosion due to moisture.
- ◆ The material is suitable for repairing various surface structures following repairs to all sorts of vehicles.
- ◆ The variable options for pigmentation offer a special advantage. Any scratches and stone chipping are thus rendered as inconspicuous as possible.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- ◆ The surfaces must be dry and free of dirt, dust and grease.
- ◆ Surfaces which are not to be coated should be covered with paper.
- ◆ Bare steel surfaces are to be primed before application of permanent underseal.
- ◆ Permanent underseal may be applied to all common sealing materials except silicone and exhibits good adhesion.
- ◆ Sealants containing softeners may cause the surface of permanent underseal to soften or exhibit slight stickiness. However, the material will not lose its adhesive property as a result.
- ◆ Shake the can thoroughly before use.
- ◆ Permanent underseal must not be applied with rusty filler guns or paint guns. The material may be thinned with up to 10% by volume distilled or demineralised water to achieve the required viscosity.
- ◆ The first coat should not be applied too heavily (12).
- ◆ The Permanent underseal can be mixed with up to 30% by volume ready-to-spray water-based paints.
- ◆ To recreate common structures, best results will be achieved with 10-15% ready-to-spray paint mixture.
- ◆ The material should be filtered through a paint sieve before application.



Caution

Do not spray onto joints, engine, propshaft, exhaust, catalytic converter or brake system.

Blow out the UBS gun immediately after use and then clean it with plastic cleaner - D 195 850 A1- D 195 850 A1.

If the UBS gun becomes blocked, the can may burst.

Observe the operating instructions of the UBS gun.

Overpainting



Note

Permanent underseal can be overpainted with both water-based and solvent-based paints. Due to the large number of systems available in the market, test spraying is necessary.

- 1 - Overpainting with water-based paints:



- After drying to a matt surface and up to 72 hours following application, permanent underseal can be overpainted using water-based paints.
- 2 - Overpainting with conventional solvent-based paints:
- After drying thoroughly and up to 72 hours following application, permanent underseal can be overpainted using solvent-based paints. The material is a fast-drying thick-coat system. When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This can cause cracking in the finish.

Cleaning

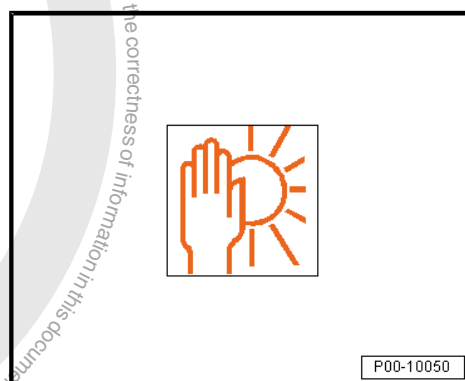
- ◆ Splashes on painted surfaces should be removed immediately using plastic cleaner - D 195 850 A1- .
- ◆ Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based cleaning agent. Do not use any solvent-based cleaning agents, for these cause coagulation. After drying, permanent underseal can only be removed mechanically.

Technical data

Technical data:	
Colour	White, non-hiding
Odour	Slight ammonia odour
Density	approx. 1.25 g/cm ³
Solids content	approx. 70%
Viscosity:	1 Pas
Test equipment	Rheomat STV
Test method	Rotor 30
Speed	200 rpm
Stability	Up to 1 mm wet
Working temperature	+10 °C to +25 °C
Use temperature	-25°C to +80°C (briefly up to 1 hour 100°C)

Storage

Guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

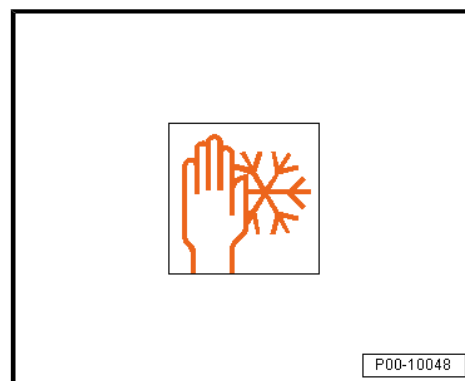




Storage conditions

The recommended storage temperature for permanent underseal is +10 °C to 25 °C.

Permanent underseal is sensitive to freezing; storage temperature must not drop below +5 °C.



3.12.4 Underseal - D 314 D39 A3-, black

Designation:

◆ Underseal - D 314 D39 A3-, black

Issue 08.2015

Product description:

This underseal is distinguished by active corrosion protection, high adhesion, good edge protection, optimum substrate wetting, high concealing capacity, easy to use as well as other properties. It can also be used successfully on substrates with surface rust from which the rust has been manually removed. These are penetrated and continued rusting is prevented.

It is supplied ready to apply with a brush or roller, and it can also be sprayed with any system provided thinner is added. Can be processed at between +5-30°C, one-pack. Air drying, do not apply heat to force dry. Dust-dry after about 30 minutes, can be re-worked at any time using the same material.

Can be used directly on steel, aluminium, stainless steel, galvanised panels as well as other materials (especially suited for composite construction), adheres well to intact old paint and primer coats. The rust on corroded surfaces or components must be thoroughly removed (by hand) so that the substrate is completely intact; make sure that a sufficiently thick coat is applied to rough surfaces.

Application:

Underseal - D 314 D39 A3- is substrate-tolerant and processing-tolerant and is therefore especially suitable for touching up/repairs. This high solid material is solvent-based (VOC-conform) and must not be thinned with water.

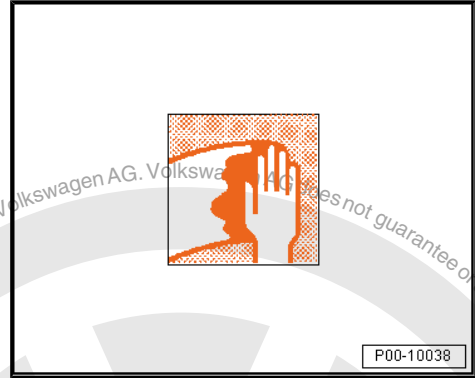


WARNING

Find out about the precautionary measures (keep away from sources of ignition, ensure adequate ventilation) from the warning notices on the label (and the safety data sheet if necessary)



Application:



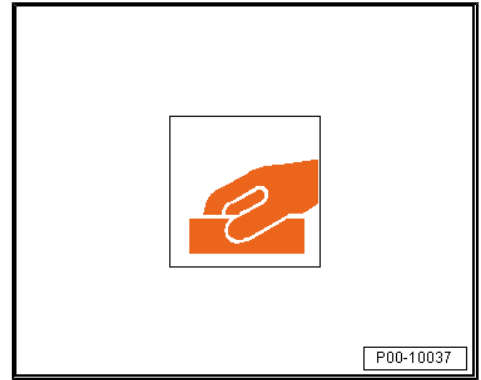
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- Clean the surfaces to be treated.
 - Remove rust as well as possible. Mask off any areas that are not to be coated. Apply underseal.
- Apply underseal. Ensure that critical areas (angles, edges, holes, weld seams etc.) are coated with sufficient material.

If necessary, precoat critical areas or go over them again (at any time).

Can be used on any conventional sealants (apart from silicone). The surface of the underseal can adhere to sealants containing plasticizers (which are specifically not to be treated with 1-pack materials). Generally, it is better to apply the underseal (corrosion protection, good adhesion) first and then the sealants.



i Note

- ◆ *Stir tin contents thoroughly before use. This is important as it is not easy to see with black paint if the product is mixed well.*
- ◆ *Apply with a brush/roller as delivered. To spray, thin with 0-10% depending on process.*
- ◆ *It is not possible to sand down this coating long after application (thermoplastic). If necessary, cut off any undesirable drips using a sharp knife.*

Overpainting:

After drying, can be painted over if required with 1-pack or 2-pack paints. The solvents (also those in water-based paint) etch the surface slightly to make a perfect bond. In case of doubt, test it in a few areas.

Cleaning:

Standard workshop cleaners are suitable.

Storage:

Frost does not pose a problem. Permanently high temperatures impair the storage stability.

In the event of the shelf life being exceeded (label under can), it may be necessary to stir it more carefully as the material becomes slightly thicker over time (and should only be thinned minimally), which extends the drying time. Only if the material is inhomogeneous after stirring should it be rendered unusable.

If a skin forms, remove the skin - do not stir it in.

Technical data:

Solids content:	approx. 70% (weight)
Odour:	Aromatic smell
VOC:	< 400 g/l
Free of lead, chromate, zinc, aromatic compounds/xylol; silk shine	
Dust-dry ^{*)}	20-30 minutes
Touch-proof ^{*)}	1-2 hours
Dry ^{*)}	8 hours
Set ^{*)}	3 days



*) These values depend very much on the layer thickness and have little to do with the temperature. Air circulation helps while the introduction of heat has a negative effect.

3.13 Stone deflector

⇒ ["3.13.1 Stone chip guard AKR 311 KD1 05", page 268](#)

⇒ ["3.13.2 Stone chip guard AKR 311 KD1 10", page 269](#)

3.13.1 Stone chip guard - AKR 311 KD1 05-

Designation:

- ◆ Stone chip guard - AKR 311 KD1 05- , black

Issue 04.2009

Product description

Stone chip guard - AKR 311 KD1 05- is a finely atomising coating material on a synthetic resin basis.

The dried film adheres well on clean substrates as well as bare and painted sheet metal.

It exhibits good hiding power, good corrosion protection, high resistance to abrasion and, consequently, good stone-chipping protection.

The fast-drying stone chip protection spray can be painted over after only 7 minutes with commercially available vehicle paint systems.

It can be dried without problems in a drying oven at 60 °C.

Unusual mechanical stress (e.g. automatic car washes) should be generally avoided in the first few weeks.

The mechanical durability of the painted surfaces can be found in the manufacturer's product specifications.

Technical data sheet

Application

- ◆ Stone chip guard - AKR 311 KD1 05- may be used on all visible parts, such as front and rear spoilers and door sills to protect against stone chipping, road salt and moisture corrosion. It can be quickly painted over.
- ◆ The material may also be used to supplement stone chip protection film or for spot repair and accident repair.



Note


- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated with stone chip protection must be cleaned thoroughly beforehand, and any rust must be removed.
- ◆ The surfaces must be dry and free of grease, dirt and, as far as possible, dust.



- ◆ The material should be at ambient temperature during application.
- ◆ Shake the can vigorously, continuing for approximately 1 minute after the agitator ball starts to rattle.
- ◆ To spray, hold the can upright and apply from a distance of approximately 20 to 30 cm.
- ◆ If the surrounding area was masked off before spraying, the masking should be removed before drying.
- ◆ Abrasion and corrosion protection increases with the thickness of the coating. Therefore, one or two additional coats should be applied after short flash-off periods.
- ◆ To prevent spraying shadows, spray on the material with cross pattern.
- ◆ After use, hold the can upside down and clear the valve by spraying until only propellant exits the nozzle.



Caution

Do not spray onto moving parts or parts exposed to heat such as joints, engine, gearbox, propshaft, exhaust, catalytic converter and brake system.

Cleaning

- ◆ Splashes and spray mist can be removed immediately with naphtha.
- ◆ Dry material can only be removed with thinner D or thinner R. Be careful of fresh paint.

Technical data

Colour	Light or black
Odour	Solvent
Coat thickness after 2 - 3 cross-spray passes	250-300 µm dry film
Drying time	Dust-dry in approx. 2 hours
Working temperature	+15 °C to +25 °C
Use temperature	-29 °C to +70 °C (briefly up to 1 hour 100°C)

3.13.2 Stone chip guard - AKR 311 KD1 10-

Designation:

- ◆ Stone chip guard - AKR 311 KD1 10- , black

Issue 02.2014

Product description

Stone chip guard - AKR 311 KD1 10- , black may be thinned with water.

Properties:

- ◆ High elasticity
- ◆ May be overpainted with all top coats



- ◆ Is suitable for protection of areas of cars and trucks which are in danger of stone chipping, such as front bumpers and door sills.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Well-sanded factory paint or old paint (including thermoplastic paint)
- ◆ Surfaces treated with primer or surfacer



Caution

Stone chip guard - AKR 311 KD1 10- must not be applied to PVB (acid-curing) surfaces.

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



P00-10038

- Then lightly sand.



P00-10037

- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



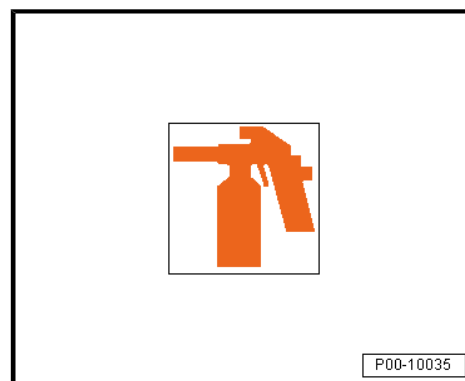
P00-10038



Application

Spray equipment:

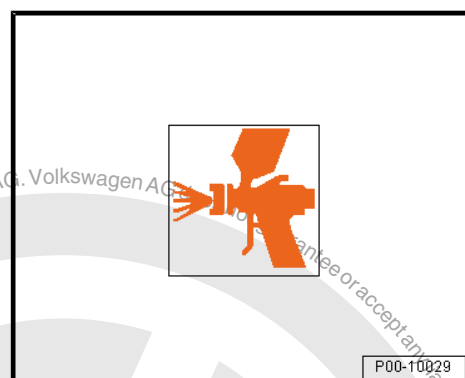
- Underseal spray gun (UBS gun) with thread for disposable cans.



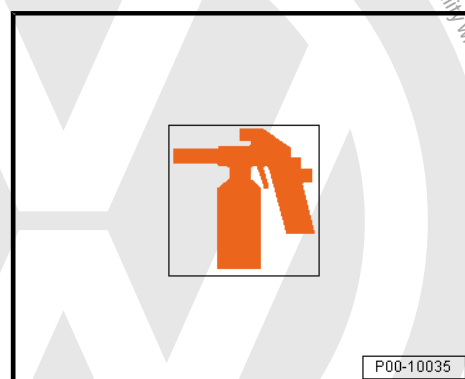
- If a smoother surface is desired, stone chip guard - AKR 311 KD1 10- applied with a gravity-feed gun if it is first appropriately thinned.

Thinner:

- May be thinned with demineralised water - LVW 010 000 A5-



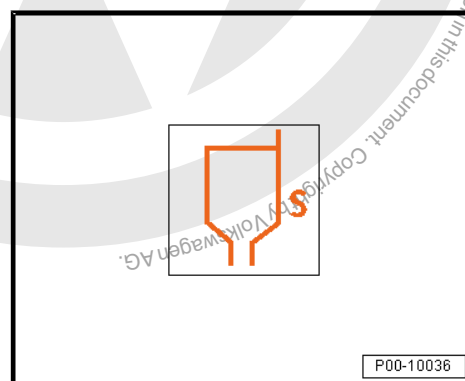
Method of application: "high-pressure spray".



- Application viscosity 4 mm, +20°C, DIN 53211
- Adjust spray pressure following manufacturer's instructions to 3-4 bar.

Note

Do not thin for high-pressure spraying. The viscosity as supplied is correct for application.





Method of application: "spray"

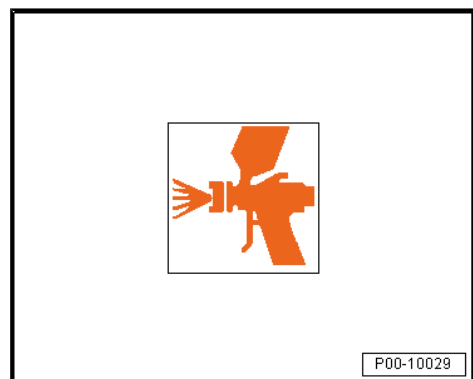
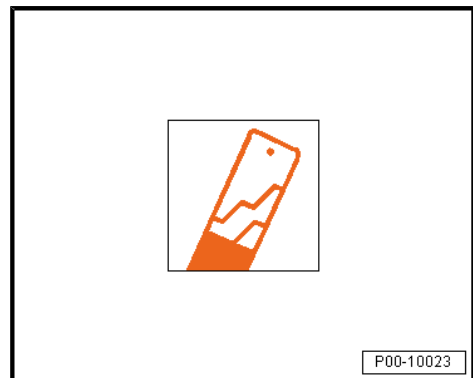
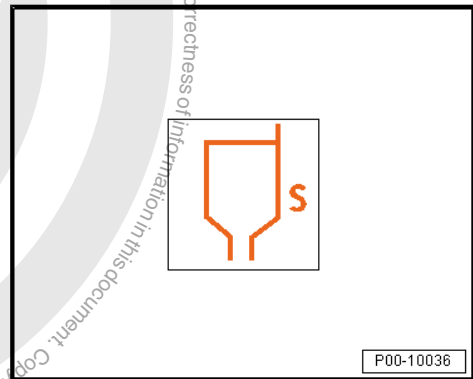
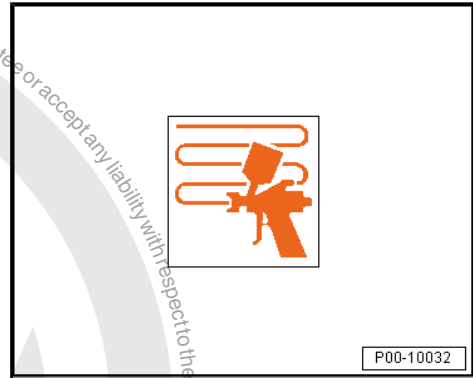
Application viscosity 4 mm, gravity-feed spray gun "Compliant":

- Depending on addition of demineralised water - LVW 010 000 A5-

Add 10 % thinner at a material temperature of +20°C.

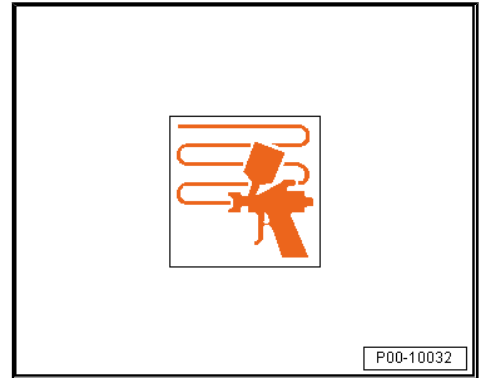
- If thinner is added, use measuring stick to mix.

- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.5-2.0 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".



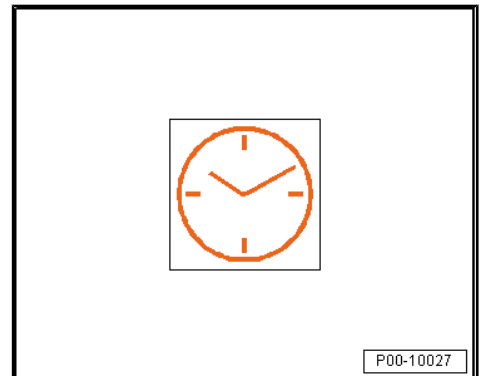


- Apply 2-3 spray coats.
- Recommended dry film thickness is 150-300 µm.

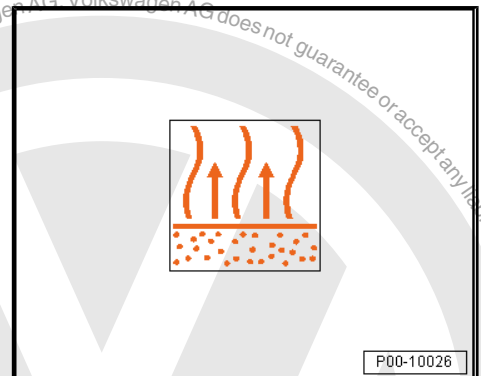


Drying

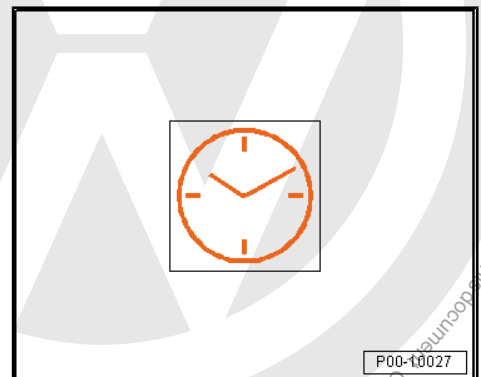
Air drying at +20 °C room temperature, up to 150 µm for 2 to 2.5 hours and up to 300 µm overnight.



Final flash-off time with force drying is at least 35-40 minutes.



Force drying at +60 °C material temperature, 150-300 µm 30 minutes.





Recoating

Recoat with:

- ◆ Waterborne base coat and 2-pack HS clear coat
- ◆ 2-pack HS top coat

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Data

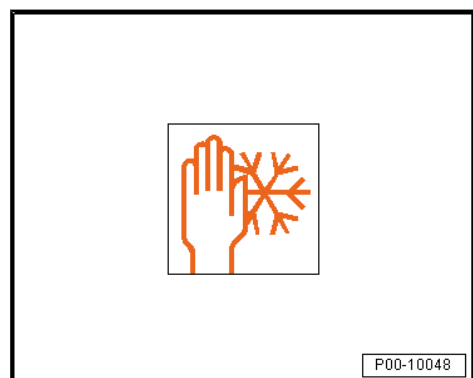
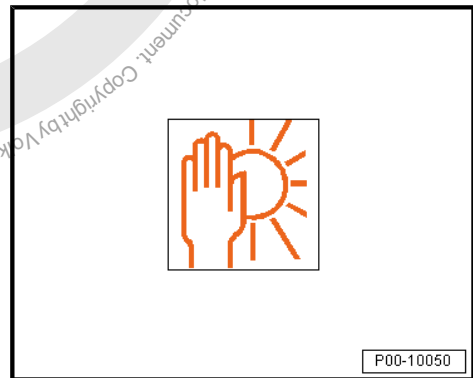
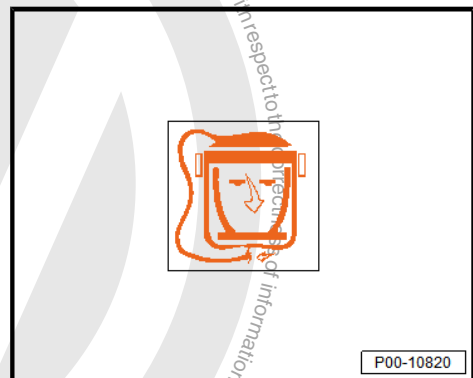
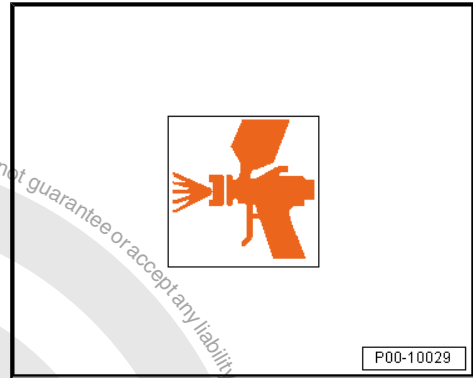
Viscosity as supplied	Thixotropic
Flash point:	non-flammable
VOC content: 2004/42/II B (e)(840) 130	The EU limit for this product (product category IIB:e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 130 g/l.

Storage

The guaranteed shelf life is 48 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.

Storage conditions

The prescribed storage temperature is +20 °C. (Do not store at temperatures below +5 °C.)





3.14 Wax-based underseal

⇒ ["3.14.1 Wax-based underseal D 316 D38 A2", page 275](#)

⇒ ["3.14.2 Wax-based underseal D 316 000 A1", page 277](#)

⇒ ["3.14.3 Spray wax D 322 100 M2", page 278](#)

3.14.1 Wax-based underseal - D 316 D38 A2-

Designation:

- ◆ Wax-based underseal - D 316 D38 A2-

Issue 04.2009

Product description

Wax underseal - D 316 D38 A2- is a solution of an anti-corrosion agent based on wax and lanolin with polymer and rust-protection additives.

This results in high viscosity and, for wax, relatively high abrasion resistance.

The material seeps into the pores of the PVC coating, pushes out moisture, closes the pores and is water repellent, highly adhesive and dry to the touch.

When dry, it forms a light-beige, transparent, non-sticking, water-repellent film.

Its transparency permits the inspection of the underbody in conformance with the German technical inspection association (TÜV).

The dry film has good adhesion and corrosion-protection properties and is very durable due to its toughness and resistance.

Technical data sheet, wax underseal - D 316 D38 A2-

Application

- ◆ The material is used primarily on the underbody, especially for treatment and maintenance of all protective coats of materials based on, for example, PVC, PVC/wax or bitumen/natural-rubber/resin.
- ◆ It can also be used to treat shafts as well as suspension components including links and springs. These parts become grey with age and often display incipient rust. The treatment refreshes the paint, which improves the appearance substantially. At the same time, the parts are protected against corrosion.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated with wax underseal must be cleaned thoroughly beforehand, and any rust must be removed.
- ◆ The surfaces must be dry and free of grease, dirt and, as far as possible, dust.



- ◆ Wax underseal must be applied only to dry surfaces. Inspect older vehicles for incipient rust.
- ◆ Any rust must be removed with a wire brush.
- ◆ Before beginning work, cover the vehicle, especially the door windows.
- ◆ Wax underseal can be applied to vertical surfaces in one step. To obtain thorough coverage, it is recommended to spray in a cross pattern.
- ◆ After drying overnight, the vehicle can be used again. Between 24 and 48 hours are required for hard drying.
- ◆ The product is applied from the 1-litre can using the undercoating gun. The can must be shaken before use.
- ◆ Recommended wet-film thickness, approx. 200 µm; application air pressure approx. 3-5 bar.
- ◆ Wax underseal can also be applied with a pressure-feed spray gun if the Venturi hook probe (16139 SATA) is used. The application pressure is 3-4 bar. A flexible hose approximately 750 mm in length provides excellent guidance for the hook with the 7 mm venturi nozzle.



Caution

Do not spray onto joints, engine, propshaft, exhaust, catalytic converter or brake system.

Blow out the UBS gun immediately after use and then clean it with plastic cleaner - D 195 850 A1- D 195 850 A1.

If the UBS gun becomes blocked, the can may burst.

Observe the operating instructions of the UBS gun.

Cleaning

- ◆ Splashes and spray mist should be removed immediately using plastic cleaner - D 195 850 A1- . Residual material can also be easily removed with mineral spirits or kerosene.
- ◆ Larger surfaces can also be cleaned with a steam cleaner.
- ◆ For this reason, an underbody that has been treated with wax underseal cannot be cleaned with steam cleaning devices unless it is to remove the old layer before beginning a new treatment.

Technical data

Colour	Transparent light beige
Odour	Mild odour
Solids content	approx. 47%
Consistency	Fluid, slightly thixotropic
Heat resistance of the dry film	> 100 °C
Complete drying	24-48 hours
Working temperature	+10 °C to +25 °C
Use temperature	-25°C to +80°C (briefly up to 1 hour 100°C)



3.14.2 Wax-based underseal - D 316 000 A1-

Designation:

- ◆ Wax-based underseal - D 316 000 A1-

Issue 01.2008

Product description

Wax underseal - D 316 000 A1- offers excellent long-term underbody corrosion protection.

Wax underseal is based on a solvent-free, oxidative-drying system and offers excellent underbody corrosion protection.

This corrosion protection is the result of very good adhesion to metal surfaces at both very low and high temperatures.

The product creates a light-brown, elastic coating which is firm to the touch.

It is not necessary to raise the temperature to produce a film coating.

Technical data sheet, wax underseal - D 316 000 A1-

Application

- ◆ The material is used primarily in automotive applications.
- ◆ Ensure that the substrates are dry.
- ◆ The ready-to-use product is applied by brush at a material temperature between 20 and 35 °C.
- ◆ When required by the application method, the material can be gently heated to maximum 45°C directly (< 5 minutes) before application.
- ◆ The oxidative curing product may already develop a skin on the surface after only a short time. This has no influence on its anti-corrosion protection or other properties

Properties

- ◆ Solvent-free
- ◆ Active ingredient content 100 %
- ◆ Excellent long-term anti-corrosion protection
- ◆ Good adhesion
- ◆ Low tendency to drip
- ◆ Low-temperature flexibility
- ◆ Long storage life



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ The surfaces to be treated must be dry and free of grease or dust.



- ◆ Bring wax-based underseal to application temperature (20-35 °C).
- ◆ Apply material to body parts which are to be protected and spread with a brush.

Technical data

Base	Mixture of anti-corrosion additives on sulfonate basis, alkyd resin, special mineral oil raffinates, pigments, thickeners, drying accelerators and fluorescent pigments.
Form and colour as supplied	light-brown, viscous liquid
Rheomat viscosity	1850 ± 350 mPas (PP50 system, d= 760 1/s)
Density at 15 °C DIN EN ISO 12185	0.995 ± 0.015 g/ml
Solids content	99 ± 1 %
Flashpoint DIN EN ISO 2719	approx. 150 °C
Recommended coat thicknesses	100-400 µm
Working temperature	+20 °C to +35 °C
Storage	Approx. 12 months at temperatures between +10 °C and 30 °C
Container	310 ml

3.14.3 Spray wax - D 322 100 M2-

Designation:

- ◆ Spray wax - D 322 100 M2-

Issue 01.2011

Product description

Spray wax (spraying wax) - D 322 100 M2- is a long-term anti-corrosion agent. The product forms a light-brown, waxy film when dry. Due to its hardness, spray wax offers good protection against mechanical stress.

Technical data sheet, spray wax - D 322 100 M2-

Application

- ◆ The material is used primarily in automotive applications but may be used as temporary anti-corrosion protection for tools and machines.
- ◆ Spray wax does not attack car finishes and adheres to nearly all substrates.



i Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application

- ◆ Bring spray wax to room temperature (16-20°C).
- ◆ Shake the aerosol can briefly before using.
- ◆ The surfaces to be treated (underbody, wheel housings, insides of doors) must be dry and free of grease or dust.
- ◆ Apply spray wax at a distance of 20-30 cm evenly in a cross pattern.

	Caution
<i>Do not spray onto joints, engine, propshaft, exhaust, catalytic converter or brake system.</i>	

Technical data

Base	Wax mixture
Colour	light brown/transparent
Type of film	hard, waxy
Density	0.735 g/cm ³
Solids content	35.4%
Flashpoint of active ingredient	29°C
Flashpoint of spray	< -20
Recommended coat thicknesses	50 µm/wet
Drying time	approx. 30 min
Thermal stability	105°C
Remove with	Mineral spirits
Working temperature	+16 °C to +20 °C
Propellant (aerosol)	Propane, butane
Aerosol storage	Cool and dry < 50°C
Warning	Highly flammable
Container	500 ml



3.15 Sealing materials

⇒ [“3.15.1 Polyurethane adhesive sealant \(bonding compound\)”](#),
[page 280](#)

⇒ [“3.15.2 Sprayable sealant”](#), [page 282](#)

⇒ [“3.15.3 Adhesive sealant”](#), [page 285](#)

3.15.1 Polyurethane adhesive sealant (bonding compound)

Designation:

- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05-

Issue 04.2009

Product description

Polyurethane adhesive sealant - AKD 476 KD5 05- is a one-pack adhesive sealing paste on polyurethane basis which, when exposed to air humidity, hardens into a rubbery-elastic material.

The time required to form a skin or to cure completely depends on the air humidity and the temperature. The curing time also depends on the depth of joints.

Increasing the temperature and air humidity can reduce these times. Low temperatures and low air humidity, on the other hand, increase them.

Properties:

- ◆ Can be overpainted, even “wet-on-wet”
- ◆ Very fast-drying
- ◆ Levels out slightly on the surface
- ◆ Excellent elasticity
- ◆ High resistance to ageing
- ◆ Can be sanded
- ◆ Can be spread

Technical data sheet

Application

- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05- is used for elastic seals and bonds, especially for sealing seams and very narrow gaps where the lack of durability is not a problem, in the field of body and vehicle construction as well as add-on structures, especially when the seam sealant is to be painted over. To avoid yellowing or cracking, the sealant should always be painted over when applied to vehicle exterior.
- ◆ When polyurethane adhesive sealant - AKD 476 KD5 05- is used, mechanical attachment by means such as bolting, welding and clamping can, in some cases, be omitted. Until the adhesive sealant has cured, parts should be temporarily fixed in position with adhesive tape strips and spacers.
- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05- has the major advantage of being both an adhesive and a sealant.
- ◆ The material is not suitable, or only conditionally suitable, for the bonding of load-bearing joints.

Bonding properties

- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05- offers good adhesion without glass or paint primer on primed or painted metal bodywork, on wood (untreated, varnished or painted),



some plastics such as PBTP, polyurethane hard foam or fibreglass-reinforced polyester.

- ◆ Depending on the substrate, it may be necessary to apply glass or paint primer to achieve the best possible adhesion.
- ◆ Due to the large number of primers, paints and differing plastic surfaces etc., we recommend conducting an application-specific test beforehand.
- ◆ Careful cleaning of plastic and metal surfaces with a suitable solvent often results in significantly better adhesion.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application



Note

Areas of the body to be sealed and adhesion surfaces must be isolated using 2-pack surfacer before the material is applied.

- ◆ The adhesion surfaces must be dry, free of oil, dust, grease and any other impurities. Cleanser A, cleanser D and plastic cleaner - D 195 850 A1- are all suitable for cleaning purposes.
- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05- is applied from 310 mm cartridges using a hand cartridge gun or a pneumatic cartridge gun. The 310 ml soft plastic cartridges can be used with hand-cartridge gun - V.A.G 1628- or with pneumatic cartridge gun - V.A.G 1761/1- . 2 to 5 bar is required for processing with compressed air.
- ◆ Low sealant temperatures increase its viscosity, which results in a lower spraying rate. To prevent this, the sealant should be brought to the correct temperature in an appropriate manner before beginning application.
- ◆ If the substrate is too cold, condensation can form if the temperature is lower than the dew point. This is to be avoided by warming the substrate beforehand.
- ◆ After application, polyurethane adhesive sealant - AKD 476 KD5 05- can be smoothed with a jointing iron or a filling knife which has been moistened with low surface-tension water. If the edges of the joint have been masked, simply pull off the tape with a filling knife.
- ◆ Cleanser D is recommended for removing fresh adhesive sealant from equipment.

Overpainting properties

- ◆ Polyurethane adhesive sealant - AKD 476 KD5 05- can be overpainted "wet-on-wet" with one-pack and two-pack alkyd resin-acrylic-base repair paints as well as with all Genuine repair paints.
- ◆ Nitrocellulose repair paint in an aerosol can and paint, paint thinner and catalysts containing alcohol are not compatible with the adhesive sealant (no hardening).



- ◆ Corrosion protection primers may be applied only to fully cured material because they generally severely impede water vapour diffusion.
- ◆ If drying is accelerated by the use of a drying oven or an IR radiant drier, a pre-reaction and waiting time of at least 30 minutes must be adhered to. Only then may the overpainted adhesive sealant be warmed. The maximum permitted heat exposure for unhardened material is 1 hour at +90°C.

Incompatibility

- ◆ Polyurethane adhesive bonding compound - AKD 476 KD5 05- will not adhere to sealants on MX polymer or silane-modified polymer basis.
- ◆ On the other hand, good adhesion will be achieved when applying materials based on MS polymers or silane-modified polymers to fully cured polyurethane adhesive bonding compound - AKD 476 KD5 05-

Technical data

Colour	white, grey, black
Odour	Aromatics (odourless when fully cured)
Consistency	Paste, can be applied with brush or filling knife
Stability	Levels out slightly on the surface
Skin formation time (standard climate conditions DIN 50014)	15-45 minutes at +23 °C and 50% relative humidity
Curing rate (standard climate conditions DIN 50014)	approx. 5.5 mm/24 hours at +23°C and 50% relative humidity
Volume change	approx. -6%
Working temperature	+5 °C to +35 °C
Use temperature	-40°C to +70°C (limited 24 hours +80°C, briefly up to 1 hour +120°C)

3.15.2 Sprayable sealant

Designation:

- ◆ Sprayable sealant - D 476 KD1 M2- , grey
- ◆ Sprayable sealant - D 476 KD2 M2- , black

Issue 08.2012

Product description

Sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- is a spray-on sealant on MS polymer basis which, by absorbing atmospheric moisture, hardens into a rubbery, elastic material with good abrasion resistance.

The time required to form a skin or to cure completely depends on the air humidity and the temperature. The curing time also depends on the coat thickness.

Increasing the temperature and air humidity can reduce these times. Low temperatures and low air humidity, on the other hand, increase them.



Properties:

- ◆ Sealant and seam sealant in one
- ◆ High stability
- ◆ Can be sprayed or brushed on
- ◆ May be overpainted with conventional or water-based paints for up to 3 days after application
- ◆ Broad range of adhesion without glass or paint primer
- ◆ High initial stability
- ◆ May be spot welded
- ◆ Silicone free
- ◆ No strong odour
- ◆ Isocyanate free
- ◆ Fast complete drying
- ◆ UV resistant
- ◆ High resistance to ageing
- ◆ Sound-dampening properties

Technical data sheet

Application

- ◆ Sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- is used in automotive applications following repairs to seal seams which are sealed during production, e.g. in the engine, luggage and passenger compartments. The Multi-Press telescopic gun or pneumatic cartridge gun - V.A.G 1761/1- can be used to reach the required load-bearing seam.
- ◆ The material is also used as a surface coating to repair or supplement PVC underseal or stone chip guard.

Pretreatment

- ◆ The adhesion surfaces must be dry, free of oil, dust, grease and any other impurities. Cleanser FL is good for cleaning.
- ◆ Adhesion will be improved if the contact surfaces are slightly roughened using an emery pad.
- ◆ If the material is not oversprayed before complete curing, then proceed with paint pretreatment as for plastic pretreatment.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application



Note

Areas of the body to be sealed and adhesion surfaces must be isolated using 2-pack surfacer before the material is applied.



- ◆ Sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- in 310 ml cartridges can be applied only with the Multi-Press telescopic gun or pneumatic cartridge gun - V.A.G 1761/1- . With these applicators, it is possible to apply the material as a bead of sealant or to spray it, using the dual-circuit air system.
- ◆ The material may be sprayed as well as brushed on, so that both load-bearing seams and structures obtained by brush can be produced.
- ◆ New sealing seams may be overpainted after just 15-30 minutes.
- ◆ With appropriate adjustments to the application equipment, the operator can quickly and easily reproduce all structures as specified by the manufacturer. The spraying distance can be used to vary the width and limit of the seam. Refer to the operating instructions for details on adjusting and using the spray gun.
- ◆ Cleanser FL is recommended for removing fresh sealant from equipment. Cured material can be removed only mechanically.

Overpainting properties

- ◆ After a skin has formed, sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- can be overpainted with 1-pack and 2-pack repair paints, including alcohol-based paints.
- ◆ Early overpainting does not prevent curing but does delay it. Do not wait longer than 3 days before overpainting.
- ◆ Phosphate and epoxy resin primers are especially suitable as corrosion protection primers before sealing and coating. It is important to ensure that primer coats are dry before being applying.
- ◆ If, following accident repairs, the areas of the body to be painted must be treated with a surfacer, a primer surfacer or spray filler, these materials must be coated with sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- before further sealing or coating.
- ◆ If additional filler must be applied after the sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- has been further sealed or coated, the sprayable sealant must be at least 6 hours old, and the filler must be suitable for coating plastics.

Incompatibility

- ◆ Sprayable sealant - D 476 KD1 M2- / -D 476 KD2 M2- is not compatible with fresh 1-pack polyurethane material. Polyurethane products must be solidified before being oversprayed with sealant.
- ◆ The material must not be treated with aromatic solvent systems. This may cause the sealant to partially dissolve or swell.

Technical data

Colour	Grey, black
Odour	Barely perceptible
Consistency	Paste-like
Density	approx. 1.6 g/cm ³
Stability	Excellent
Curing type	Moisture curing

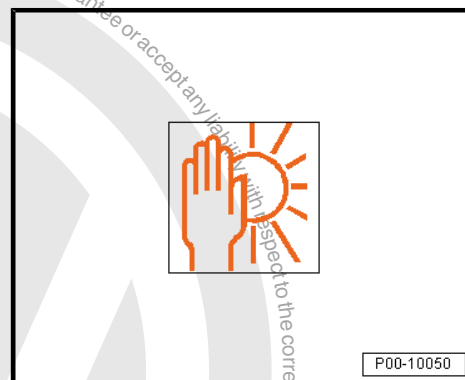


Skin formation time (standard climate conditions DIN 50014)	8-20 minutes at +23 °C and 50% relative humidity
Curing rate (standard climate conditions DIN 50014)	approx. 4 mm/24 hours, approx. 6 mm/48 hours at +23°C and 50% relative humidity
Shore A hardness	approx. 65
Overpainting compatibility	May be overpainted after 20 minutes with 1-pack or 2-pack paints
Adhesive properties	Raw sheet metal, galvanised metal, EC paint, top coat, metallic paint, PVC underseal, GFK, PP/EPDM (testing recommended)
Chemical resistance	Resistant to light and weather, softening agents of PVC softeners and, briefly, fuel
Working temperature	+5 °C to +35 °C
Use temperature	-40°C to +90°C (briefly up to 1 hour +130°C)

Storage

The material is not sensitive to freezing.

The guaranteed shelf life is 12 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +10°C to +25 °C.



3.15.3 Adhesive sealant

Designation:

- ◆ Adhesive sealer - D 511 500 A2- , grey
- ◆ Adhesive sealer - D 511 510 A2- , black

Issue 04.2009

Product description

Adhesive sealant - D 511 500 A2- / -D 511 510 A2- is used in vehicle repair to protect the bodywork repairs against corrosion and also as a fast-hardening sealant for all visible and invisible joints and dents and also to patch PVC sealing welds.

Adhesive sealant is highly suitable as for preventing corrosion between spot welded flanges

Properties:

- ◆ Strongly adhesive to bare, primed and painted metal, galvanised surfaces, aluminium, wood, glass and all plastics commonly used in vehicles.
- ◆ May be overpainted immediately
- ◆ May be dried with an IR radiant drier



- ◆ Dries quickly under paint
- ◆ May be welded or spot-welded through
- ◆ Does not form bubbles
- ◆ No contact corrosion on zinc or aluminium
- ◆ Excellent corrosion protection
- ◆ Solvent-free and contains no isocyanate or PVC
- ◆ Excellent UV and ageing resistance

Technical data sheet

Application

- ◆ Adhesive sealant - D 511 500 A2- / -D 511 510 A2- is used to seal seams following accident repairs to vehicles.

Pretreatment

- ◆ The adhesion surfaces must be dry, free of oil, dust, grease and any other impurities.
- ◆ Adhesion will be improved if the contact surfaces are slightly roughened using an emery pad.



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application



Note

Areas of the body to be sealed and adhesion surfaces must be isolated using 2-pack surfacer before the material is applied.

- ◆ Adhesive sealant - D 511 500 A2- / -D 511 510 A2- may be applied to seams and joints using pneumatic cartridge gun - V.A.G 1761/1- or hand cartridge gun - V.A.G 1628- . Then, depending on appearance, leave as sealant bead or smooth it with a brush or filling knife (this must be done before a skin forms, in less than 10 minutes). After a skin has formed, the material can still be smoothed further with a moist filling knife.
- ◆ Adhesive sealant may be overpainted with all repair paints. Overpainting must ensue within 48 hours of the sealant being applied. Drying the paint with an IR radiant dryer does not hinder the curing of the sealant.
- ◆ If adhesive sealant is to be used in conjunction with spot welding, apply a bead of sealant (2-3 mm diameter) to the flange before setting repair part in place. The repair part must be spot welded before skin formation begins (< 10 minutes).
- ◆ The material may be spot welded within 30 minutes. After welding, sealant that has escaped can be smoothed.

Incompatibility

- ◆ Never apply sealants on MS polymer or silane-modified polymer basis to unhardened polyurethane adhesive sealants.



The curing of the polyurethane adhesive sealant will be hindered, or will not be complete.

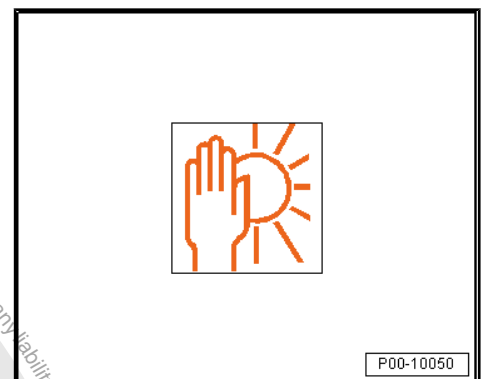
- ◆ On the other hand, the adhesion of fresh, sprayable sealants on MS polymer or silane-modified polymer basis to fully cured polyurethane adhesive sealant is good.

Technical data

Colour	Grey, black
Base	Silane-modified polymer (SMP)
Volume difference after hardening	- 3 %
Skin formation	Approx. 20 minutes
Not sticky	4 hours at +20 °C
Curing rate	3-4 mm/4 h at +20 °C
Solvent content	0%
Isocyanate content	0%
Temperature resistance	-40°C to +120°C (briefly up to max. 30 minutes +180°C)
Working temperature	+5 °C to +35 °C
UV and weather resistance	Excellent

Storage

The guaranteed shelf life is 18 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +5 °C to +30 °C.



3.16 Cleaning agents

- ⇒ ["3.16.1 Silicone remover", page 287](#)
- ⇒ ["3.16.2 Cleaner for plastics", page 289](#)
- ⇒ ["3.16.3 Cleaner for plastics, anti-static", page 290](#)
- ⇒ ["3.16.4 Industrial dirt remover", page 291](#)

3.16.1 Silicone remover

Designation:

- ◆ Aqueous silicone remover - LSW 019 000 A5-
- ◆ Silicone remover - LVM 020 000 A5-
- ◆ Slow-drying silicone remover - LVM 020 100 A5-



Issue 02.2012

Product description - silicone remover - LSW 019 000 A5-

The silicone remover - LSW 019 000 A5- is an aqueous cleaner with no special labelling requirements, containing a small proportion of organic solvents and special cleaning additives.

Product description - silicone remover - LVM 020 000 A5- and silicone remover, slow-drying - LVM 020 100 A5-

Silicone remover - LVM 020 000 A5- is a quick-evaporating mixture. Silicone remover, slow-drying - LVM 020 100 A5- is a mixture of slow-evaporating organic solvents. Both are used primarily to remove oil and grease residues.

Technical data sheet

Application

- ◆ The above-named silicone removers are used for cleaning sanded old or factory finishes, and surfaces coated with primer and surfacer which has been subsequently sanded, before these are treated further.

Application

- ◆ Apply silicone remover using a spray bottle or a clean non-woven cloth.
- ◆ Dry the surface with a dry non-woven cloth before the silicone remover evaporates.
- ◆ Allow cleaned surfaces to dry completely or blow dry before recoating.



Note

- ◆ *Allow cleaned surface to dry completely before recoating.*
- ◆ *Do not allow silicone remover to dry on the surface.*
- ◆ *The product is not suitable for cleaning spray guns or tools.*
- ◆ *Always use a clean cloth, and be sure to renew it early enough if dirty or worn out.*
- ◆ *Heavily soiled parts must be cleaned twice.*
- ◆ *Silicone remover - LSW 019 000 A5- is not suitable for removing release agent residues from UP-GF or other plastic surfaces.*



Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

Technical data - silicone remover - LSW 019 000 A5-

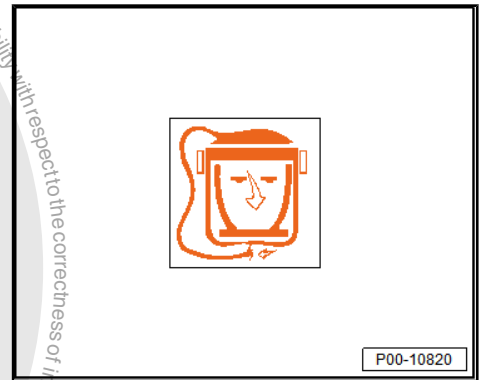
Flash point:	above +23 °C
VOC content: 2004/42/IIB (a) (200) 200	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 200 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 200 g/l.

Technical data - silicone remover - LVM 020 000 A5-

Flash point:	above +4 °C
VOC content: 2004/42/IIB (a) (850) 770	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 850 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 750 g/l.

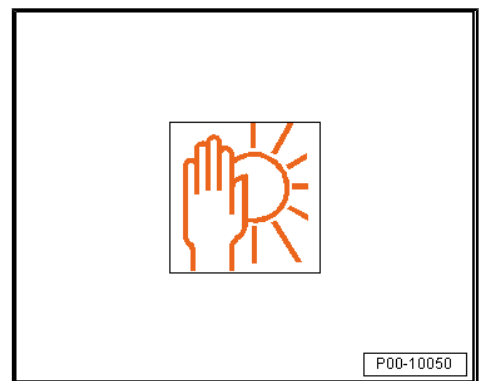
Technical data - silicone remover, slow-drying - LVM 020 100 A5-

Flash point:	above +26 °C
VOC content: 2004/42/IIB (a) (850) 770	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 850 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 770 g/l.



Storage

The guaranteed shelf life is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.16.2 Cleaner for plastics

Designation:

- ◆ Cleaner for plastics - D 195 850 A1-

Issue 04.2009

Product description

The cleaner for plastics - D 195 850 A1- is a liquid universal cleaner and thinner/reducer based on aromate-free benzines with a low n-hexane content. This product contains no chlorinated hydrocarbons, and does not corrode paint when used briefly.

Technical data sheet

Application

- ◆ The cleaner for plastics - D 195 850 A1- is mostly used to degrease and clean substrates prior to application of adhesives or sealants.
- ◆ Thorough cleaning of the surfaces to be bonded is essential for proper adhesion, with particular emphasis on removing dust, oil and grease.



- ◆ Depending on the base material of the products listed above, the cleaner may also be used to remove impurities, protruding excess material or underseals.
- ◆ In many applications, the cleaner for plastics - D 195 850 A1- can also be used as a thinner/reducer for certain adhesives, sealants and coating compounds. Note that these products are not usually diluted for application. Dilution with thinner/reducer is indicated only for certain procedures requiring a thinner consistency.

Application



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*
- ◆ The cleaner for plastics - D 195 850 A1- is applied either with a brush or a non-woven cleaning cloth, depending on the degree of soiling and the size/shape of the parts being cleaned.
- ◆ To prevent the contents of the original container from being contaminated, the cleanser should either be poured onto the gauze cleaning cloth (do not hold the cloth against the container's mouth and then pour) or the required amount should be transferred to another container (tin can, etc.).
- ◆ Pour out only the amount required for cleaning, then close the original container immediately.
- ◆ The cleaned surfaces should be allowed to dry completely (depending on circumstances 2 - 10 minutes) before the adhesive or sealant is applied.
- ◆ While application of compressed air can accelerate the drying process, under unfavourable conditions oil in the pneumatic lines might destroy the results of the cleaning process.
- ◆ If the substrate has an open-pore texture, at least 30 minutes should be allowed to elapse after cleaning. When cleaning residual material from sections that have been cut for removal (when installing permanently located glass panes, etc.) always observe the processing instructions for these materials.

Data

Colour	Water-bright, transparent
Odour	Petrol

3.16.3 Cleaner for plastics, anti-static

Designation:

- ◆ Cleaner for plastics, anti-static - LVM 001 001 A2-



Note

Information on preparing and applying the cleaner for plastics, antistatic - LVM 001 001 A2- may be found in the documentation for the respective base material.

Possible base materials:

- ◆ ⇒ ["3.5.1 Adhesion promoter \(transparent\)", page 101](#)



- ◆ ⇒ ["3.6.4 2-pack primer surfacer for plastics", page 126](#)

3.16.4 Industrial dirt remover


Designation:

- ◆ Industrial dirt remover - ABS 600 000 10-

Issue 05.2004

Product description

The industrial dirt remover - ABS 600 000 10- is used for the removal of surface rust (metal dust) from the vehicle body. The product is applied undiluted.



Caution

The product contains organic and inorganic acids.

Be sure to always wear protective gloves and goggles when working with the product!

Technical data sheet



Note

- ◆ *Before using, read the safety measures and recommendations in the safety data sheet.*
- ◆ *Even for products which are not required by law to be labelled, the usual safety measures for chemical products must be observed.*

Application:

When using the industrial dirt remover, observe the following:

- ◆ Neither the temperature of the cleaner nor that of the vehicle body must exceed 25 °C (do not expose the cleaner nor the vehicle to direct sunlight).
- ◆ Apply product to clean vehicle body (after car wash) using brush or sponge. Allow for a reaction time of approx. 10 minutes (the reaction time must not be exceeded to avoid damage to paintwork or plastic parts). Do not allow the product to dry on the surface.
- ◆ Rinse off vehicle body with plenty of water, then wash vehicle.
- ◆ Repeat the cleaning procedure if the vehicle is still not clean after the cleaner has been applied once.

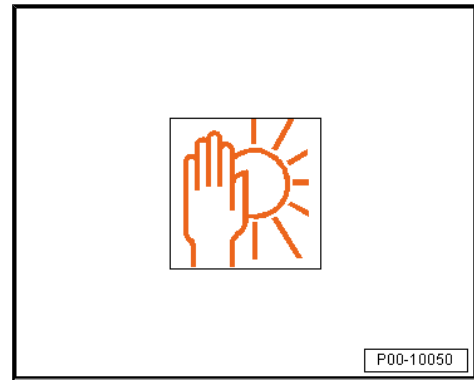
Data

Chemical composition	Highly effective cleaning combination of organic and inorganic acids, surfactants and water.
Colour	Transparent/clear, colourless fluid
pH value	1
Density at 15 °C	EN ISO 12185 1.076 ± 0.015 g/ml



Storage

The guaranteed shelf life is 36 months from date of production.
Can be processed on or before date indicated on label if stored
in unopened, original containers at +15 °C to +30 °C.



3.17 SprayMax system

- ⇒ ["3.17.1 1-pack anti-corrosion primer", page 292](#)
- ⇒ ["3.17.2 1-pack test paint", page 295](#)
- ⇒ ["3.17.3 1-pack clear coat", page 297](#)
- ⇒ ["3.17.4 1-pack wash primer", page 300](#)
- ⇒ ["3.17.5 1-pack Fill Clean spray can LLS MAX 099 / 1-pack Fill Clean spray can LLS MAX 100 – Aquaplus system", page 303](#)
- ⇒ ["3.17.6 1-pack fill clean spray can LLS MAX 112 , Aqua Premium system", page 309](#)
- ⇒ ["3.17.7 2-pack surfacer", page 316](#)
- ⇒ ["3.17.8 2-pack HS Performance surfacer", page 322](#)
- ⇒ ["3.17.9 2-pack clear coat", page 328](#)
- ⇒ ["3.17.10 2-pack epoxy primer surfacer", page 332](#)
- ⇒ ["3.17.11 2-pack wash primer", page 337](#)
- ⇒ ["3.17.12 Silicone remover LLS MAX 007 ", page 342](#)
- ⇒ ["3.17.13 Slow-drying silicone remover LLS MAX 008 ", page 344](#)
- ⇒ ["3.17.14 Blender", page 346](#)
- ⇒ ["3.17.15 Adhesion promoter", page 348](#)

3.17.1 1-pack anti-corrosion primer

Designation:

- ◆ 1-pack anti-corrosion primer - LLS MAX 003 M2- , red brown

Issue 03.2013

Product description

The 1-pack anti-corrosion primer - LLS MAX 003 M2- is a zinc chromate-free single-pack product from the PVB system.

The product can be used as a wash primer on all commonly found metallic substrates.

Protective garments and equipment in accordance with work safety regulations must be worn:

Properties:

- ◆ Good corrosion protection.
- ◆ Easy-to-use (1-pack material)



Technical data sheet

Substrate

Suitable substrates:

- ◆ Bare sheet steel, sanded
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Genuine replacement part primer, sanded
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

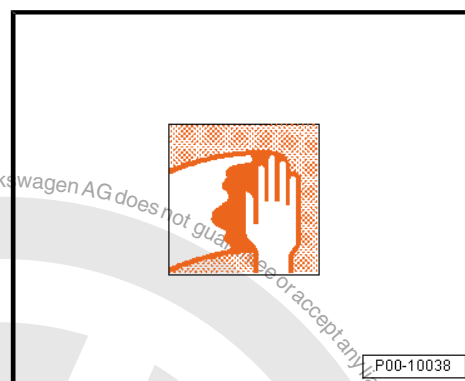


Note

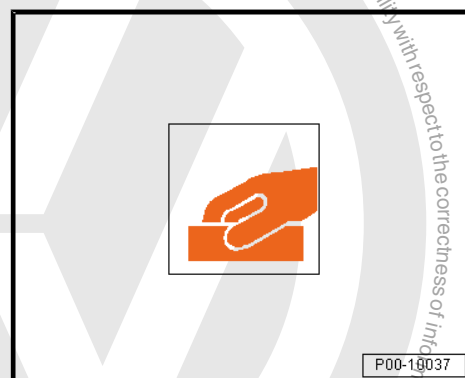
Owing to the wide variety of metal alloys and manufacturing processes, it is essential to carry out a preliminary test on the respective substrate to ensure that the pretreatment is sufficient to guarantee perfect adhesion.

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

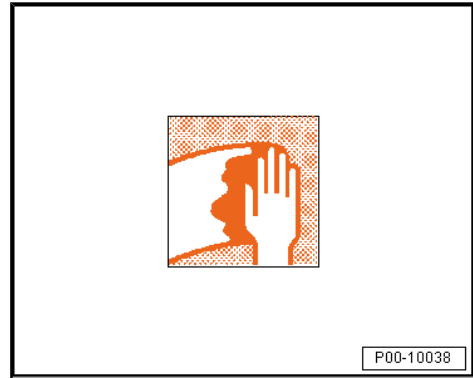


- Lightly sand old or factory paintwork.
- Completely remove any rust spots and sand feather edges to old paint.





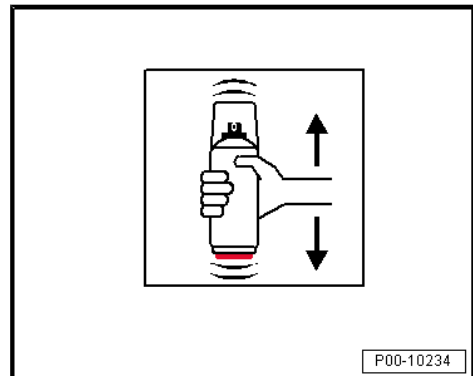
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

Application:

- Shake the can vigorously for at least two minutes.

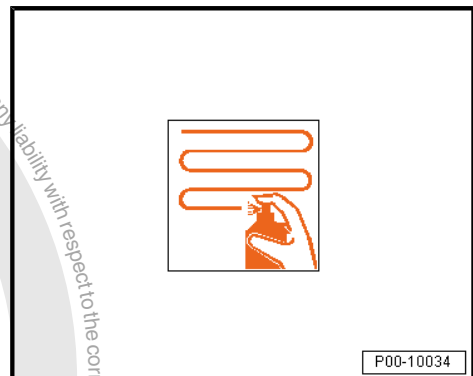


Method of application: "spray".

- Apply in 2 spray passes with 5-10 minutes intermediate flash-off time.

Spraying distance:

- A distance of 20-25 cm must be kept.
- Recommended dry film thickness is 15-20 µm.

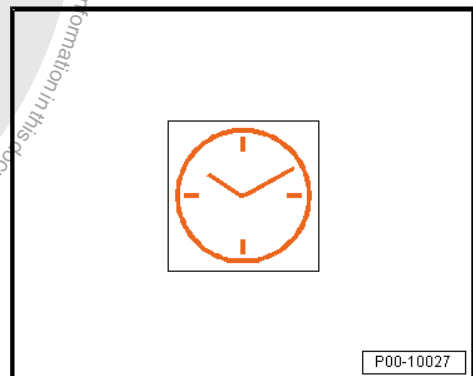


Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.

Drying

Flash-off time is 10 to 20 minutes at an ambient temperature of +20°C.





Recoating

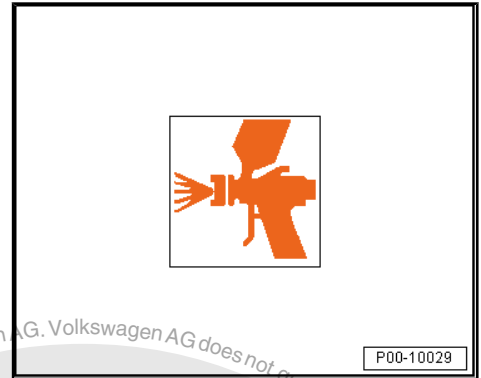
Recoat with:

- ◆ 2-pack HS surfacer (see relevant data sheet)
- ◆ 2-pack HS top coats
- ◆ Waterborne base coat and 2-pack HS clear coat



Note

- ◆ Do not recoat with polyester or epoxy products.
- ◆ Do not use on thermoplastic paint.
- ◆ Do not overpaint directly with water-based base coat.



P00-10029



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake again briefly before spraying each coat.

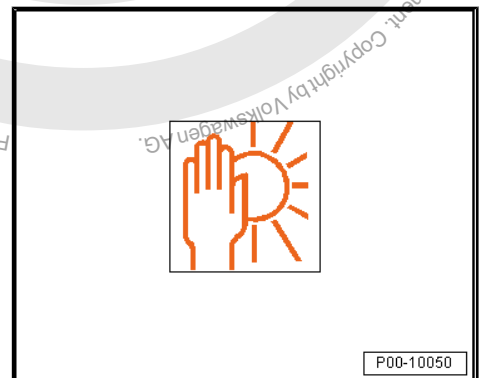
After fully emptying the spray can, dispose of as recycling material.

Data

VOC content: 2004/42/IIIB (e)(840) 690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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Storage

The guaranteed shelf life is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



P00-10050

3.17.2 1-pack test paint

Designation:

- ◆ 1-pack test paint - LLS MAX 005- , black

Issue 10.2008

Product description

The 1-pack test paint - LLS MAX 005- is a one-pack product based on special NC resin combinations.

Properties:

- ◆ Easy to handle (one-pack product).



- ◆ Fast-drying
- ◆ High coverage
- ◆ High concealing capacity
- ◆ Evenly distributed application
- ◆ Easy to sand

Technical data sheet

Application

Detection of surface roughness in primer and surfacer substrates.

Substrate

Suitable substrates:

- ◆ All primers, unsanded.
- ◆ All surfacers, unsanded.

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LLS MAX 007- or slow-drying silicone remover - LLS MAX 0008- .



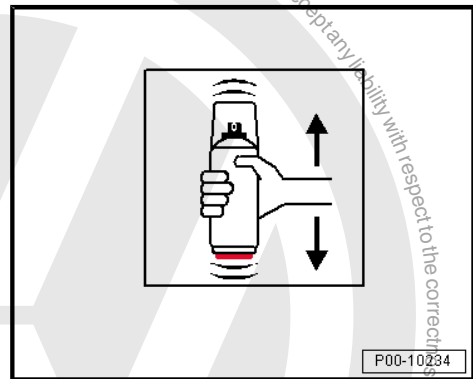
Application

Protective garments and equipment in accordance with work safety regulations must be worn:

- ◆ Protective gloves, e.g. latex or nitrile
- ◆ Respirator mask, e.g. of type A2/P2

Application:

- Shake can well for at least 2 minutes, then perform one brief "test spray".

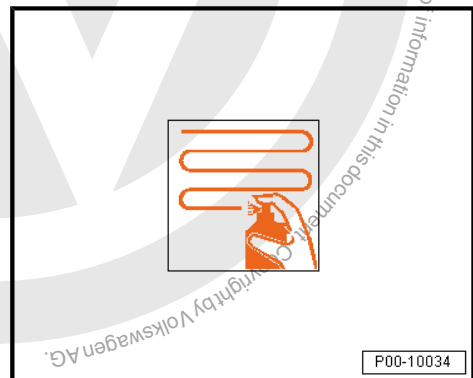


Method of application: "spray".

- Apply in one misted, thin, evenly distributed spray pass.
- The specified thickness for the dry film is 15 µm.

Spraying distance:

- A distance of 20-25 cm must be kept.



Note

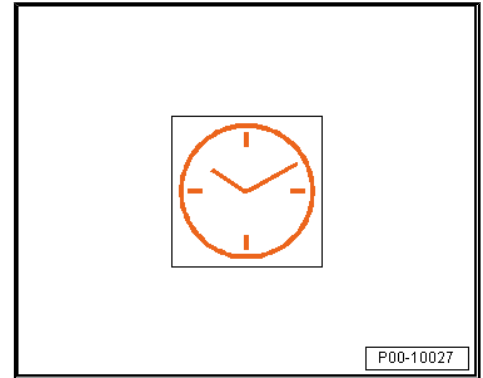
If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.



Drying

Flash-off time is 10 minutes at an ambient temperature of +20°C.
 This product is suitable for infrared drying.

	Caution
<i>Protective garments and equipment in accordance with work safety regulations must be worn:</i>	
<i>Observe safety information sheets as well as warnings on the label of the spray can.</i>	
<i>Shake again briefly before spraying each coat.</i>	
<i>After fully emptying the spray can, dispose of as recycling material.</i>	

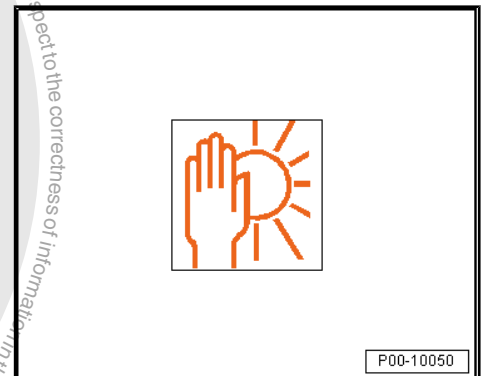


Data

Solids content	approx. 16%
Coverage	approx. 0.5 m ² /spray can at 30-40 µm dry layer thickness
Note	This product is for the professional painting of vehicles only.
VOC value	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 650-693 g/l volatile organic components. The VOC content of this product in ready-to-spray form is max. 260-277 g per spray can.

Storage

The guaranteed shelf life is 60 months from date of production.
 Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.17.3 1-pack clear coat

Designation:

- ◆ 1-pack clear coat - LLS MAX 010-

Issue 10.2008

Product description

The 1-pack clear coat - LLS MAX 010- is a one-pack product. The raw material basis is acrylic resins.

Properties:

- ◆ Easy to handle (one-pack product).
- ◆ Fast-drying
- ◆ High gloss.
- ◆ Universally applicable.



- ◆ Easy to polish.

Technical data sheet

Application

Spot repairs and partial refinishes.

Substrate

Suitable substrates:

- ◆ Solvent-based or water-based base coats.
- ◆ After a flash-off period of 30 minutes, the base coat can be recoated with 1-pack clear coat - LLS MAX 010- .

Substrate pre-treatment:

- Substrate must be free of dust and grease.



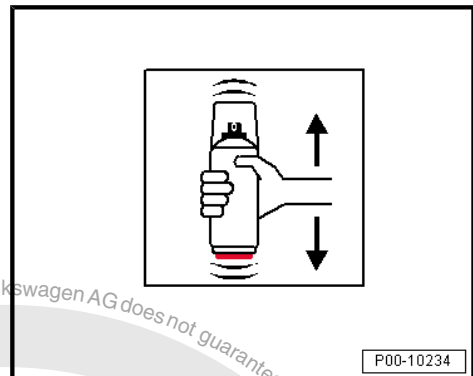
Application

Protective garments and equipment in accordance with work safety regulations must be worn:

- ◆ Protective gloves, e.g. latex or nitrile
- ◆ Respirator mask, e.g. of type A2/P2

Application:

- Shake can well for at least 2 minutes, then perform one brief "test spray".

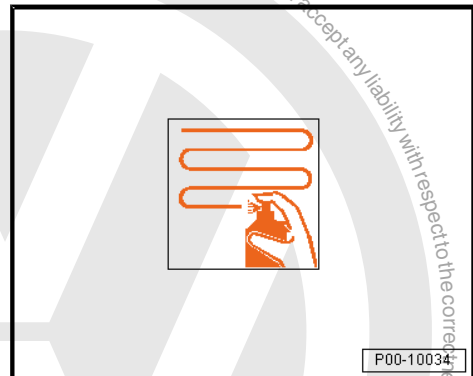


Method of application: "spray".

- Apply in 2-3 spray coats with 5-10 minutes intermediate flash-off time.
- Recommended dry film thickness is 30-40 µm.

Spraying distance:

- A distance of 20-25 cm must be kept.



Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.



Drying

Air drying at +20°C room temperature:

- ◆ Dust dry in 10 minutes.
- ◆ Dry to handle in 20 minutes
- ◆ Dry to polish in 12 hours

This product is suitable for infrared drying. The final flash-off time with infrared drying (short wave) is 7 minutes.

Finishing

After a flash-off period of 12 hours at an ambient temperature of +20 °C, the 1-pack clear coat - LLS MAX 010- can be polished using a commercially available polish.



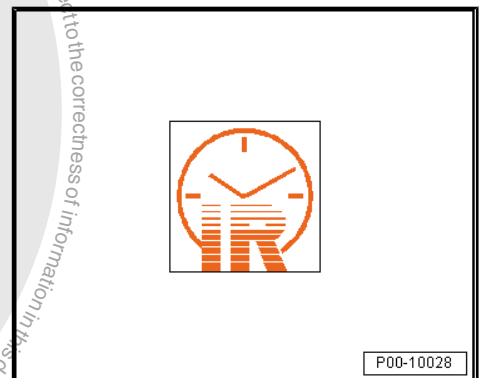
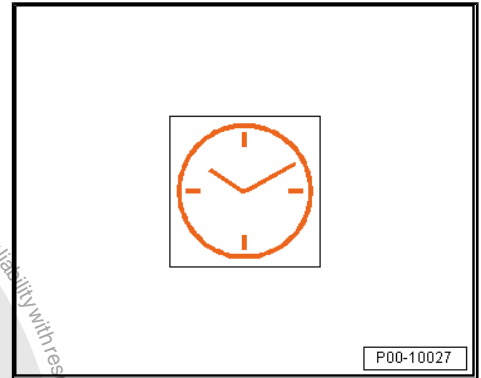
Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.



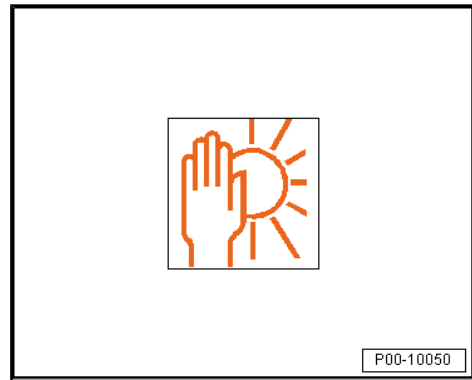
Data

Solids content	20% by weight
Coverage	approx. 0.5 m ² - 0.75 m ² /spray can at 30 - 40 µm dry layer thickness
Degree of gloss	90 units (60° geometric measurement)
Note	This product is for the professional painting of vehicles only.
VOC content:	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 629 g/l volatile organic components. The VOC content of this product in ready-to-spray form is max. 252 g per spray can.



Storage

The guaranteed shelf life is 60 months from date of production.
Can be processed on or before date indicated on label if stored
in unopened, original containers at +20 °C.



3.17.4 1-pack wash primer

Designation:

- ◆ 1-pack wash primer - LLS MAX 106 M2- , light grey
- ◆ 1-pack wash primer - LLS MAX 107 M2- , dark grey

Issue 03.2013

Product description

1-pack wash primer - LLS MAX 106/107 M2- is a zinc chromate-free single-pack product from the PVB system.

The product can be used as a wash primer on all commonly found metallic substrates.

Protective garments and equipment in accordance with work safety regulations must be worn:

Properties:

- ◆ Good corrosion protection.
- ◆ Easy-to-use (1-pack material)
- ◆ Available in two shades of grey.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Bare sheet steel, sanded
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded



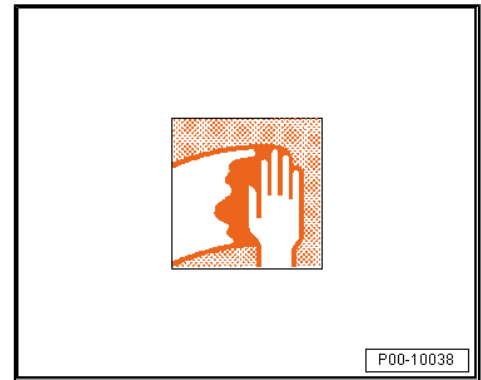
Note

Owing to the wide variety of metal alloys and manufacturing processes, it is essential to carry out a preliminary test on the respective substrate to ensure that the pretreatment is sufficient to guarantee perfect adhesion.

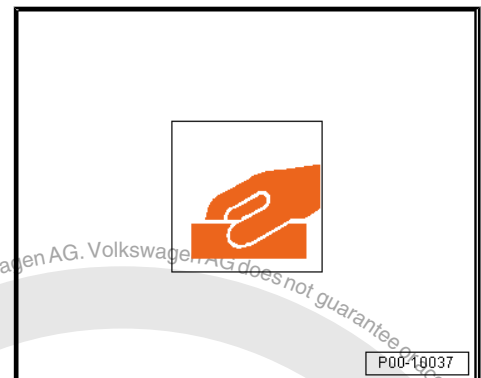


Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Lightly sand old or factory paintwork.
- Completely remove any rust spots and sand feather edges to old paint.



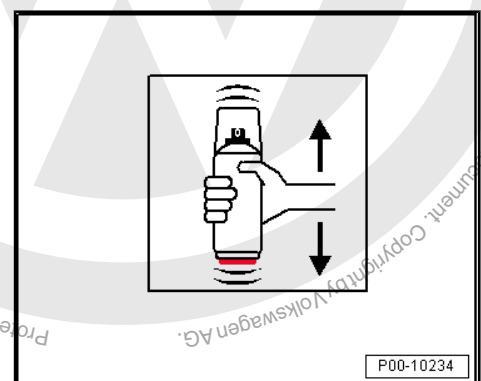
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

Application:

- Shake the can vigorously for at least two minutes.





Method of application: "spray".

- Apply in 1-3 spray coats with 5-10 minutes intermediate flash-off time.

When used as wash primer:

- Apply in 1-2 spray coats with 5-10 minutes intermediate flash-off time.

Spraying distance:

- A distance of 20-25 cm must be kept.
- Recommended dry film thickness is 10-20 µm.

Sealing of small bare metal spots (not greater than Ø 5.0 cm):



Note

- ◆ *Water-based base paints and 2-pack HS top coats may only be applied using the wet-on-wet and intermediate sanding methods to the 1-pack wash primer if the exposed spot is not more than 5.0 cm in diameter. Application can be performed in 1 to 3 spray passes. Dry film thickness: 10 to 40 µm.*
- ◆ *If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.*

Drying

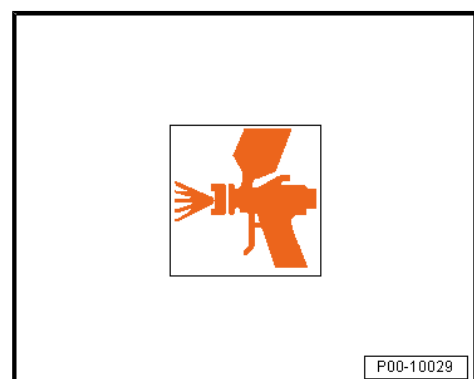
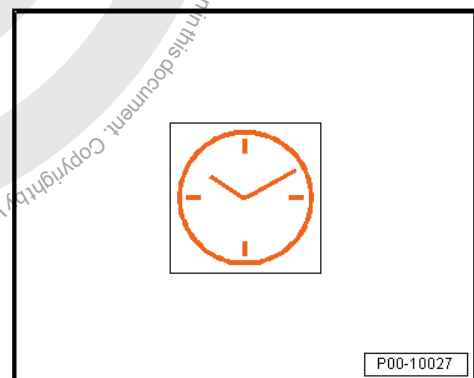
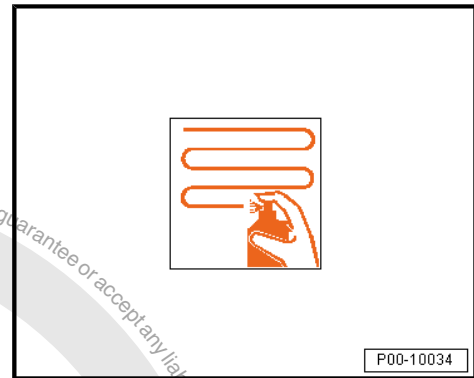
Flash-off time is 10 to 20 minutes at an ambient temperature of +20°C. The material is dry to polish after 45 to 60 minutes.

Recoat with:

- ◆ 2-pack acrylic surfacer, after 10 to 15 minutes.
- ◆ 2-pack HS top coat, after 10 to 15 minutes (only for small sand-through spots).
- ◆ Water-based base coat, after 20 to 30 minutes (only for small sand-through spots).

Recoating

1. - When used as wash primer, the product can be recoated with 2-pack HS surfacer.
2. - When used as a wash primer for isolating small sand-through spots:





– Wet sanding with sandpaper grit P 800–1000

Recoat with:

- ◆ 2-pack HS top coat (only for small bare-metal spots).
- ◆ Water-based base coat and 2-pack HS clear coat (only for small bare-metal spots).



Note

- ◆ Do not recoat with polyester or epoxy products.
- ◆ Do not use on thermoplastic paint.
- ◆ Cannot be dry sanded.



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake again briefly before spraying each coat.

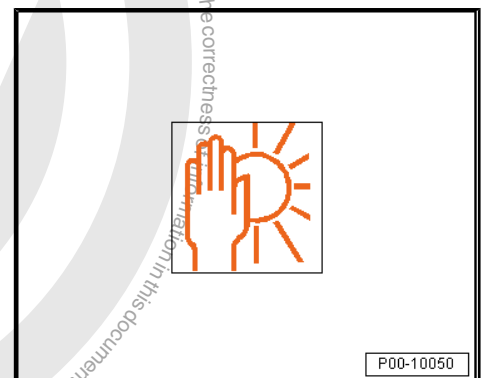
After fully emptying the spray can, dispose of as recycling material.

Data

VOC content: 2004/42/II B (e)(840) 690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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Storage

The guaranteed shelf life is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.17.5 1-pack Fill Clean spray can - LLS MAX 099- / 1-pack Fill Clean spray can - LLS MAX 100- – Aquaplus system

Designation:

- ◆ 1-pack FillClean spray can - LLS MAX 099- , 250 ml for water-based mixing paint “Aquaplus system”
- ◆ 1-pack FillClean spray can - LLS MAX 100- , 400 ml for water-based mixing paint “Aquaplus system”



Issue 09.2013

Product description

The product is an aerosol can, pre-filled with solvents and propellant, and especially designed for use with the "Aquaplus system" and the "Aqua Premium system".

For filling the aerosol can, only the special FillClean equipment may be used.

Field of application: Clever Repair only.

Usage notes

The product is an aerosol can, pre-filled with solvents and propellant, and especially designed for use with the "Aquaplus system" and the "Aqua Premium system".

The aerosol can does not contain any paint when delivered. It is a semi-finished product.

The ready-to-use end product is produced by filling the pre-filled aerosol can with 100 ml of undiluted Aquaplus or Aqua Premium base coat using the special FillClean equipment.

The ready-to-use (filled with paint) aerosol must always be labeled accordingly, prior to further use. For this purpose, a special label indicating the respective colour, generated and printed by the tinting system, can be used.

It is essential to ensure that all the data given in the example below is present on this label.

- ◆ The content of 316 ml (0.32 l) declared on the label refers to the final product (after filling with paint).
- ◆ The aerosol can, pre-filled with 216 ml propellant and solvents, is filled with additional 100 ml Aquaplus or Aqua Premium base coat, inc. additive for Aqua Premium - LVM 035 200- or additive for Aqua Premium - LVM 035 301- .



Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Set up the FillClean equipment in a well ventilated room.*
- ◆ *The maximum capacity of the aerosol can must not be exceeded when filling. Risk of explosion!*
- ◆ *No poisonous carcinogenic substances or halocarbons must be used for filling the aerosol cans.*
- ◆ *Warning: electrostatic discharge! Only use a damp cloth for cleaning of plastic parts.*
- ◆ *Any repairs must be performed by a qualified technician.*
- ◆ *Paint residues must be removed from the machine at regular intervals. Use a cloth and an appropriate solvent for this purpose.*
- ◆ *The pressure supply line must be checked at regular intervals.*

FillClean filling process

Observe the operating instructions of the filling equipment.



- Place filling pad on indenter.



- Fit FillClean filling cylinder onto spray can.



- Fit and push down the FillClean cap.



- Fill the aerosol can with paint.





- Set FillClean can and filled cylinder into upper groove -1- of the FillClean machine.



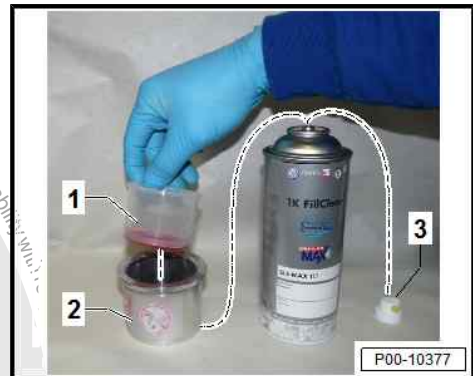
Note

When the FillClean can is inserted into the upper groove -1-, the lower rotating plate -2- must first be positioned at the very bottom. As soon as the FillClean can has been inserted into the upper groove -1-, turn the rotating plate -2- upwards to use it as a counterhold.

- Push the button to the right to trigger filling. Wait approx. 10 seconds.



- After filling, remove filling cylinder -2- from FillClean can.
- Remove FillClean cap -1- from filling cylinder -2-.
- Fit spray nozzle -3- onto FillClean can.



- Leave the pad in the cap to indicate the filled colour tone.
- The FillClean can is now ready to use.



Technical data sheet

Substrate

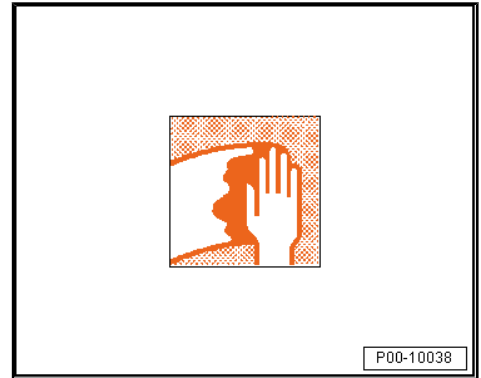
Suitable substrates:

- ◆ 2-pack HS surfacer
- ◆ Intact old paint
- ◆ 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2-
- ◆ 2-pack primer, surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ For plastic surfaces, refer to ²⁾.

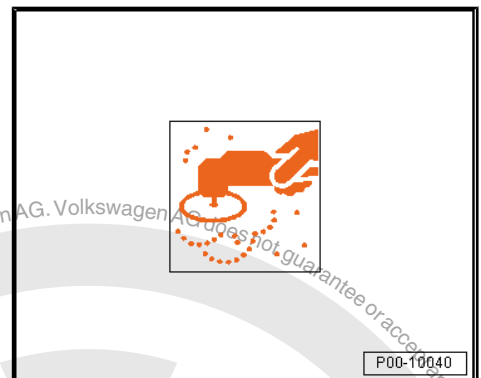


Substrate pre-treatment:

- Thoroughly clean factory or old paintwork and/or 2-pack HS surfacer using silicone remover - LSW 019 000 A5- . If severely soiled, pre-clean with slow-drying silicone remover - LVM 020 100 A5- .



- Dry sand using orbital sander (P400 to P500 grade) and dust collector.



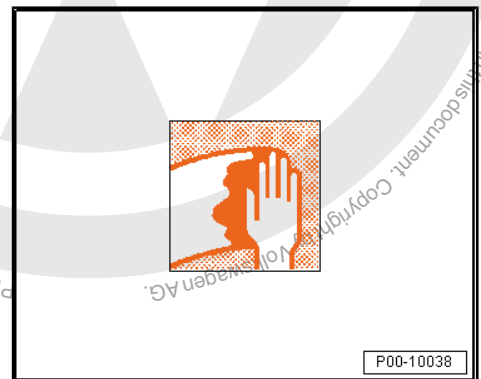
- Wet-sand with P800 to P1000-grit sandpaper.



- Before recoating the sanded substrates, thoroughly clean them of dust, sanding residue and other dirt using silicone remover - LSW 019 000 A5- .

2) Special notes:

- ◆ Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks. Observe technical data sheet.
⇒ ["3.16.1 Silicone remover", page 287](#) .
- ◆ Areas sanded to bare metal must be primed with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be primed with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ It is recommended to test the colour tone on a spray sample prior to application.

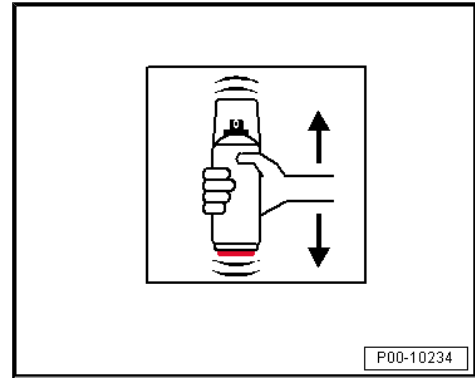




Application

Application:

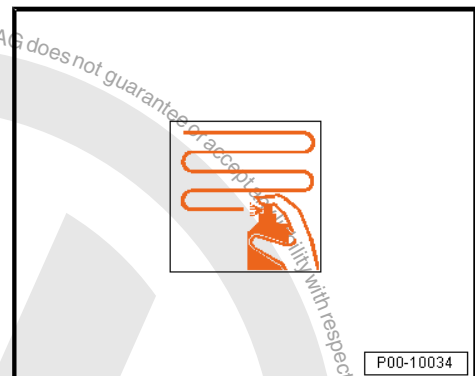
- Shake aerosol well (at least 2 minutes) to ensure proper mixing.



Method of application: "spray".

Spraying distance:

- A distance of 20-25 cm must be kept.
- Recommended dry film thickness is 15-20 µm.

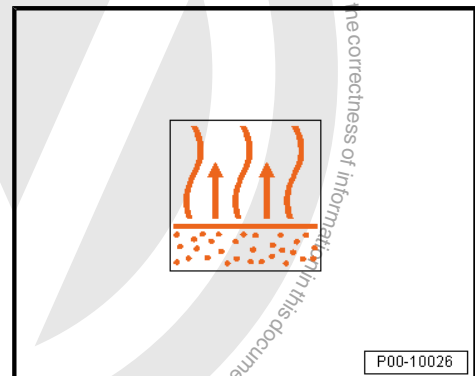


- Apply in 2 spray passes (1 normal coat followed by 1 finish coat) with 5-10 minutes intermediate flash-off time.



Note

- ◆ *With low opacity colours, it may be necessary to apply an additional spray coat (wet-on-wet).*
- ◆ *As an alternative, wait until the paint film appears matt prior to the application of the additional spray coat.*
- ◆ *To prevent clogging of the nozzle, after each use (or any interruption of the spray operation), hold the can upside down and press the spray button until the material flow stops (i.e. until the valve is empty).*





Drying

Flash-off time is 15-30 minutes at an ambient temperature of +20° C. Important note: Observe flash-off time (coated surface must appear matt).

Recoat with:

- ◆ 2-pack HS clear coat (see relevant data sheet).
- ◆ 2-pack clear coat - LLS MAX 210- (also recoatable with other 2-pack HS clear coats).



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

After filling the can, shake it for approx 2 minutes

Shake the contents of the can approx. 2 minutes prior to use.

Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.



P00-10027

Data

VOC content: 2004/42/IIIB (e)(840) 690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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Storage

The guaranteed shelf life of pre-filled aerosol (without paint) is 24 months.

After filling with paint, the shelf life of the aerosol is 4 weeks.



P00-10050

3.17.6 1-pack fill clean spray can - LLS MAX 112- , Aqua Premium system

- ◆ 1-pack fill clean spray can LLS MAX 112- , 400 ml for water-based mixing paint "Aquaplus premium system"

Issue 05.2014

Product description

The product is an aerosol can, pre-filled with solvents and propellant, and especially designed for use with the "Aquaplus system" and the "Aqua Premium system".

For filling the aerosol can, only the special FillClean equipment may be used.

Field of application: Clever Repair only.



Usage notes

The product is an aerosol can, pre-filled with solvents and propellant, and especially designed for use with the "Aquaplus system" and the "Aqua Premium system".

The aerosol can does not contain any paint when delivered. It is a semi-finished product.

The ready-to-use end product is produced by filling the pre-filled aerosol can with 100 ml of undiluted Aquaplus or Aqua Premium base coat using the special FillClean equipment.

The ready-to-use (filled with paint) aerosol must always be labeled accordingly, prior to further use. For this purpose, a special label indicating the respective colour, generated and printed by the tinting system, can be used.

It is essential to ensure that all the data given in the example below is present on this label.

Indicating content and pre-filling

- ◆ The content of 316 ml (0.32 l) declared on the label refers to the final product (after filling with paint).
- ◆ The aerosol can, pre-filled with 294 ml propellant and solvents, is filled with additional 100 ml of ready-to-use Aqua Premium base coat, inc. additive for Aqua Premium - LVM 035 200- or additive for Aqua Premium - LVM 035 301- .



Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Set up the FillClean equipment in a well ventilated room.*
- ◆ *The maximum capacity of the aerosol can must not be exceeded when filling. Risk of explosion!*
- ◆ *No poisonous carcinogenic substances or halocarbons must be used for filling the aerosol cans.*
- ◆ *Warning: electrostatic discharge! Only use a damp cloth for cleaning of plastic parts.*
- ◆ *Any repairs must be performed by a qualified technician.*
- ◆ *Paint residues must be removed from the machine at regular intervals. Use a cloth and an appropriate solvent for this purpose.*
- ◆ *The pressure supply line must be checked at regular intervals.*

Mixing instructions for "Aqua Premium system"

Mixing containers:	Plastic containers or tin plate containers with inner coating
Sieves:	Waterproof-glued or waterproof 125 µm strainers
Additive:	Additive for aqua-premium - LVM 035 200/300/301- (at normal or high temperatures and low humidity depending on size of object)
Pot life:	Should be processed within 24 hours after adding the additive for aqua-premium LVM 035 200/301, if possible.



Additive at +20 °C material temperature:	20% additive for Aqua Premium - LVM 035 200/300/301-
Special notes:	Recommendation for solid colours: for optimum application behaviour it is recommended to always use additive for Aqua Premium - LVM 035 301- .

FillClean filling process

Observe the operating instructions of the filling equipment.

- Place filling pad on indenter.
- Fit FillClean filling cylinder onto spray can.
- Fit and push down the FillClean cap.





- Fill with paint.



- Set FillClean can and filled cylinder into upper groove -1- of the FillClean machine.



Note

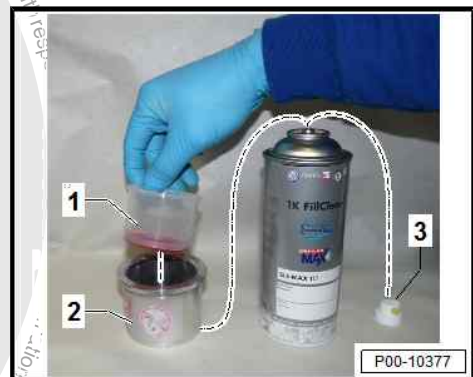
When the FillClean can is inserted into the upper groove -1-, the lower rotating plate -2- must first be positioned at the very bottom. As soon as the FillClean can has been inserted into the upper groove -1-, turn the rotating plate -2- upwards to use it as a counterhold.



- Push the button to the right to trigger filling. Wait approx. 10 seconds.



- After filling, remove filling cylinder -2- from FillClean can.
- Remove FillClean cap -1- from filling cylinder -2-.
- Fit spray nozzle -3- onto FillClean can.



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- Leave the pad in the cap to indicate the filled colour tone.
- The FillClean can is now ready to use.

Technical data sheet

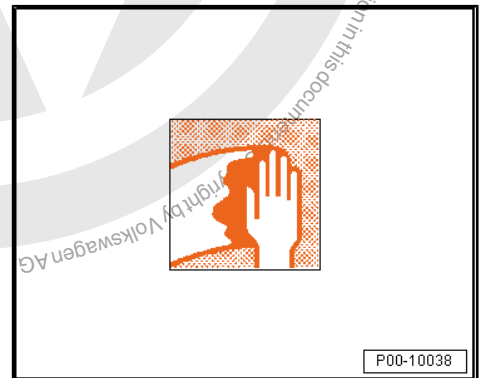
Substrate

Suitable substrates:

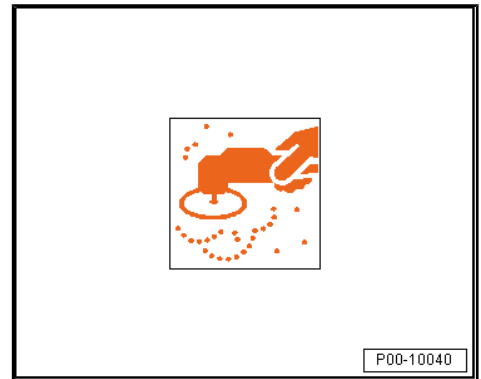
- ◆ 2-pack HS surfacer
- ◆ Intact old paint
- ◆ 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2-
- ◆ 2-pack primer surfacer for plastics - LKF 696 009 A2- / 2-pack primer surfacer for plastics - LKF 696 040 A2-
- ◆ For plastic surfaces, refer to ³⁾.

Substrate pre-treatment:

- Thoroughly clean factory or old paintwork and/or 2-pack HS surfacer using silicone remover - LSW 019 000 A5-. If severely soiled, pre-clean with slow-drying silicone remover - LVM 020 100 A5- .



- Dry-sand using orbital sander with P500-grit sandpaper and dust collector.



- Wet-sand with P800 to P1000-grit sandpaper.





- Before recoating the sanded substrates, thoroughly clean them of dust, sanding residue and other dirt using silicone remover - LSW 019 000 A5- .

3) Special notes:

- ◆ Wipe off any excess silicone remover with a lint-free cloth, leaving no streaks. Observe technical data sheet
⇒ ["3.16.1 Silicone remover", page 287](#) .
- ◆ Areas sanded to bare metal must be primed with 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ Bare metal spots must not be larger than 5.0 cm in diameter.
- ◆ If 2-pack HS surfacer is used, bare metal spots must be primed with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ It is recommended to test the colour tone on a spray sample prior to application.

Application

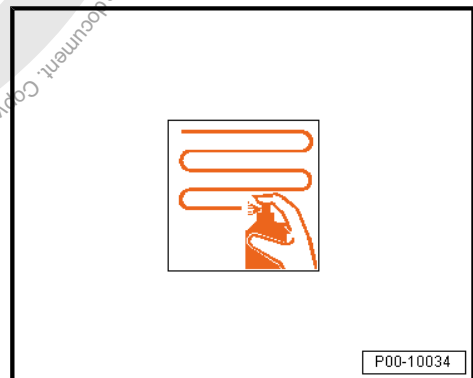
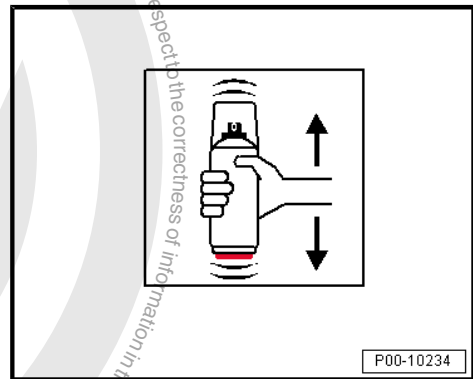
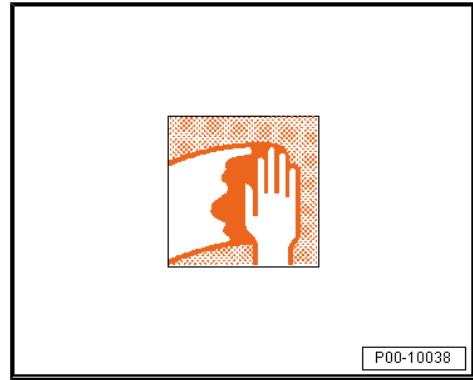
Application:

- Shake aerosol well (at least 2 minutes) to ensure proper mixing.

Method of application: "spray".

Spraying distance:

- A distance of 20-25 cm must be kept.
- Recommended dry film thickness is 15-20 µm.



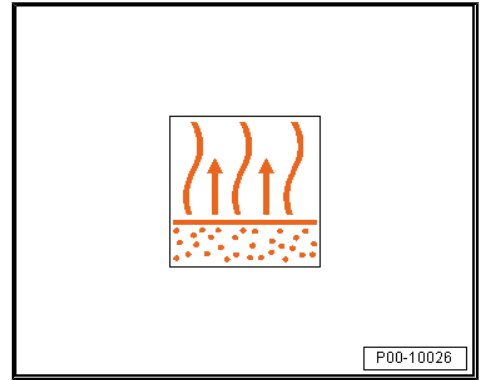


- Apply in 2 spray passes (1 normal coat followed by 1 finish coat) with 5-10 minutes intermediate flash-off time.
- The specified thickness for the dry film is approx. 15 to 20 µm.



Note

- ◆ *With low opacity colours, it may be necessary to apply an additional spray cote (wet-on-wet).*
- ◆ *As an alternative, wait until the paint film appears matt prior to the application of the additional spray coat.*
- ◆ *To prevent clogging of the nozzle, after each use (or any interruption of the spray operation), hold the can upside down and press the spray button until the material flow stops (i.e. until the valve is empty).*



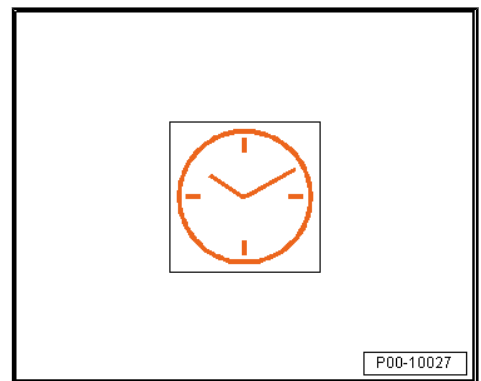
P00-10026

Drying /reworking

The drying time/flash-off time for clear coat application is 15 to 30 minutes at +20°C. Important note: Observe flash-off time (coated surface must appear matt).

Recoat with:

- ◆ 2-pack HS clear coat (see relevant data sheet).
- ◆ 2-pack clear coat - LLS MAX 210- (also recoatable with other 2-pack HS clear coats).



P00-10027



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

After filling the can, shake it for approx 2 minutes

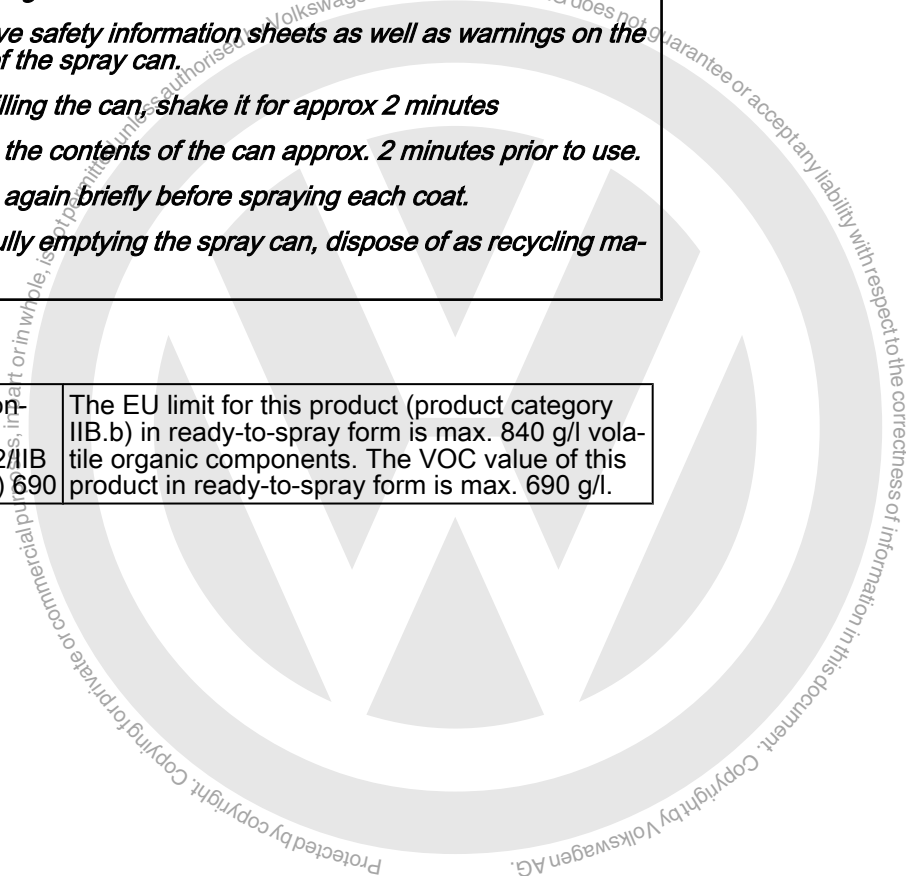
Shake the contents of the can approx. 2 minutes prior to use.

Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.

Data

VOC content: 2004/42/II B (e)(840) 690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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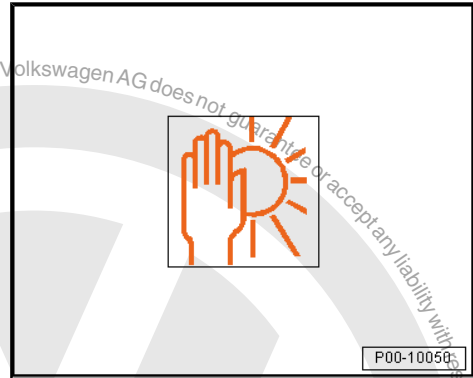




Storage

The guaranteed shelf life of pre-filled aerosol (without paint) is 24 months.

After filling with paint, the shelf life of the aerosol is 1 week.



3.17.7 2-pack surfacer

Designation:

- ◆ 2-pack surfacer - LLS MAX 202 M2- , medium grey

Issue 03.2013

Product description

The 2-pack surfacer - LLS MAX 202 M2- , medium grey, is a high-grade two-pack HS sanding surfacer. The raw material basis is acrylic resins.

Properties:

- ◆ Constant atomisation pressure
- ◆ Finest aerosol dispersion
- ◆ Long pot life
- ◆ Optimal, reliable application properties
- ◆ Excellent vertical stability
- ◆ Excellent sanding properties
- ◆ Very high coverage
- ◆ Excellent filling power
- ◆ Field of application: Clever Repair
- ◆ First-class painting results



Note

Protective garments and equipment in accordance with work safety regulations must be worn:

Technical data sheet

Substrate

Suitable substrates:

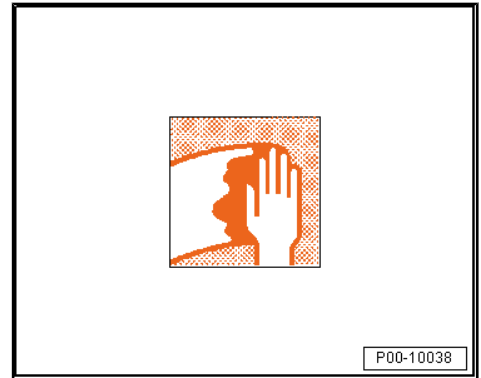
- ◆ Sheet steel, galvanised/zinc-plated sheet steel or soft aluminium, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ Finely sanded, thoroughly cleaned original factory primer.
- ◆ Lightly sanded factory paint or old paint (except TPAs, thermoplastic acrylics).
- ◆ Surfaces pre-treated with 2-pack polyester products and then finely sanded.



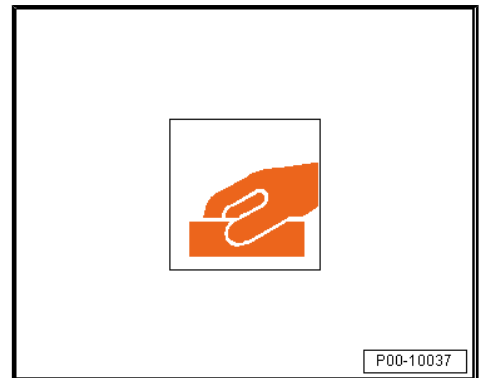
- ◆ Cleaned and sanded UP-GF surfaces, free of release agents.

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Lightly sand old or factory paintwork.
- Completely remove any rust spots and sand feather edges to old paint.



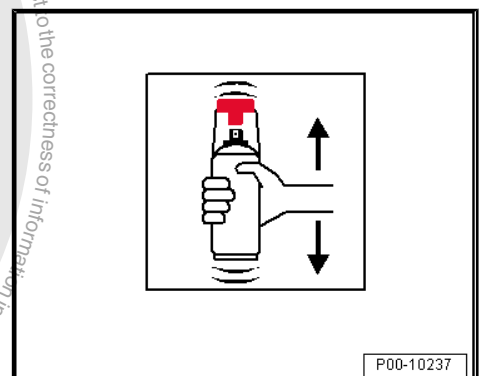
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

Activation of 2-pack aerosol can:

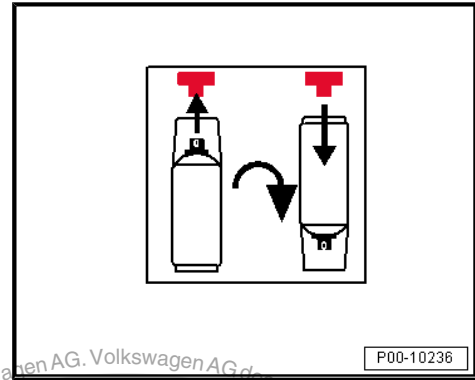
- Shake before using.



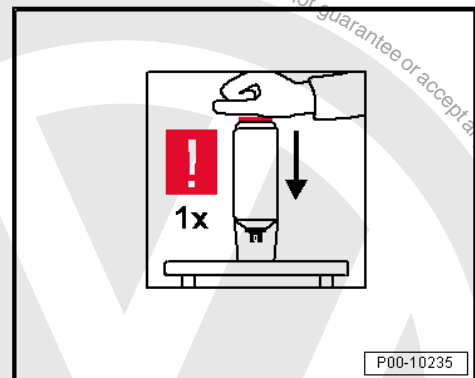
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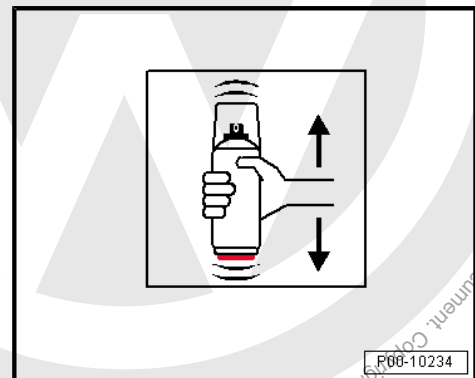
- Remove red push button from cap and place on hardener mixing valve on bottom of can.



- Press in hardener mixing valve. When pressing down hardener mixing valve, be sure that the can is inverted.

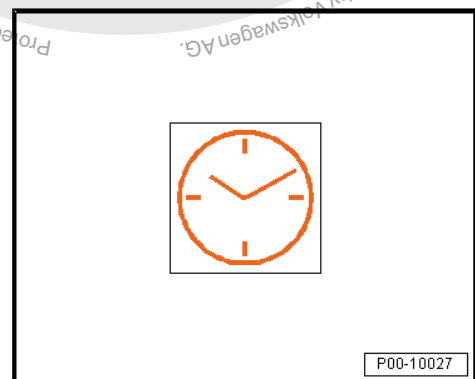


- Shake the can vigorously for at least two minutes.



Application time/pot life:

- 8 hours at +20 °C





Method of application: "spray".

- Apply in 2-3 full spray coats with 5-10 minutes intermediate flash-off time between individual coats.

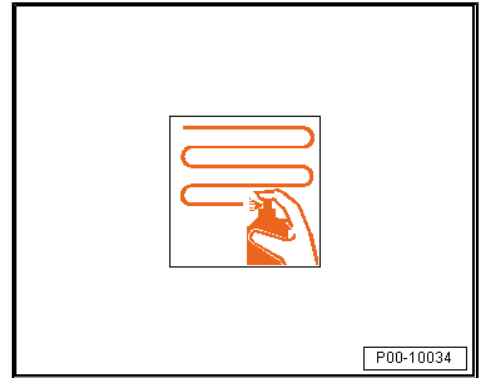
Spraying distance:

- A distance of 20-25 cm must be kept.
- The specified thickness for the dry film is approx. 80 to 120 µm.



Note

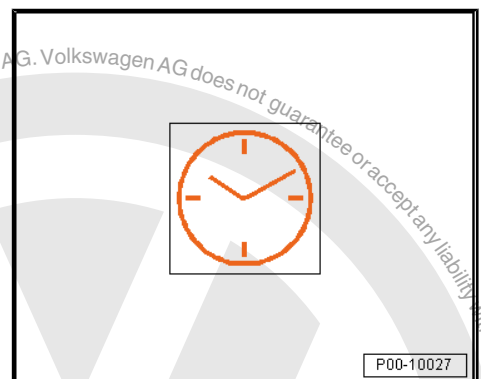
If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.



Drying

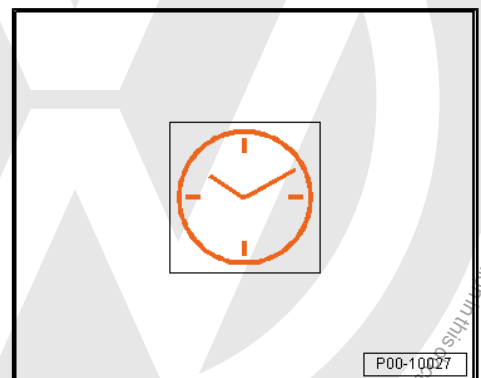
Air drying at +20°C room temperature:

- ◆ 3 to 4 hours for dry-film thickness of 80-120 µm.

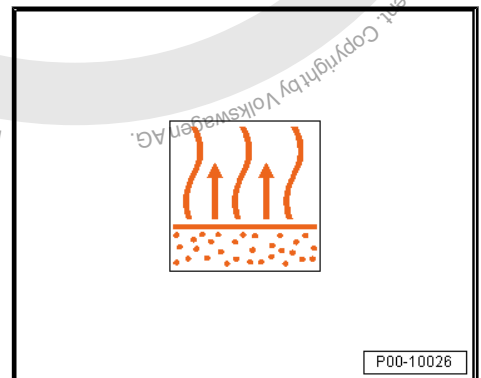


Flash-off time with force drying is at least 5-15 minutes.

Force drying period at object temperature of +60 °C is 30 to 40 minutes for a film thickness of 80 to 120 µm.



Flash-off time with IR drying is at least 5-10 minutes.





For a film thickness 80 to 120 µm, the final flash-off time with infrared drying is 10 minutes (short wave) or 15 minutes (medium wave).

Finishing

- Dry sand using orbital sander with P400 to P500-grit sandpaper and dust collector.
- Wet sand with P800 to P1000-grit sandpaper.



P00-10028



P00-10040



P00-10041



Recoating

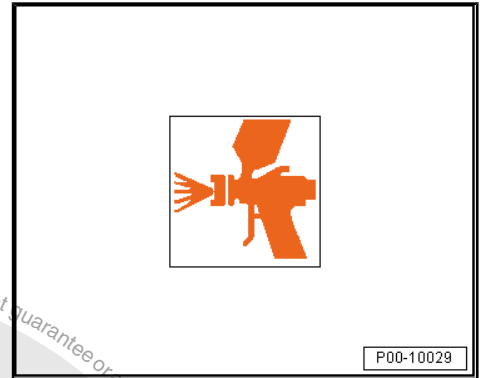
Recoat with:

- ◆ 2-pack HS top coats
- ◆ Waterborne base coat and 2-pack HS clear coat



Note

- ◆ Any defects in the substrate can be "treated" using 2-pack polyester filler.
- ◆ After drying and intermediate sanding, treated spots can be isolated again using 2-pack epoxy primer surfacer - LLS MAX 220 M1/M2- or a 2-pack HS premium surfacer.
- ◆ When isolating (even on problem substrates), the best results are achieved after 2 to 3 spray coats (medium film thickness of 80-120 µm), after either air drying overnight, force drying or infrared drying. With problem substrates, careful pretreatment is imperative, and the surfacer must be applied to the entire surface.
- ◆ For isolating thermoplastic paint, 2-pack HS Vario surfacer - LGF 786 004 A4- , grey, is recommended.



P00-10029



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.



WARNING

- ◆ **Coating materials ready for application which contain isocyanate may cause irritation to mucous membranes - especially the respiratory organs - and cause hypersensitive reactions.**
- ◆ **Sensitisation may occur if vapours or spray mist are inhaled.**
- ◆ **Carefully observe all rules for working with coating materials containing solvents when working with coating materials containing isocyanate. Particular care must be taken to prevent inhalation of spray mist and vapour.**
- ◆ **Persons suffering from allergies, asthma or other respiratory problems should not work with coating products containing isocyanate.**

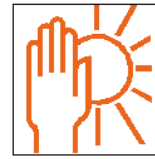
Data

VOC content: 2004/42/IIB (e)(840) 690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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Storage

The guaranteed shelf life is 36 months from date of production.
Can be processed on or before date indicated on label if stored
in unopened, original containers at +20 °C.



P00-10050

3.17.8 2-pack HS Performance surfacer

Designation

- ◆ 2-pack HS Performance surfacer - LLS MAX 973 M1- , medium grey

Issue 05.2018

Product description

The 2-pack HS Performance surfacer - LLS MAX 973 M1- , medium grey, is a high-quality 2-pack HS sanding surfacer. The raw material basis is acrylic resins.

Properties:

- ◆ Very easy to sand
- ◆ Field of application: Clever Repair
- ◆ Fast-drying
- ◆ Excellent vertical stability



Note

Protective garments and equipment in accordance with work safety regulations must be worn:

Technical data sheet

Substrate

Suitable substrates:

- ◆ Sheet steel, galvanised/zinc-plated sheet steel or soft aluminium, cleaned, sanded and coated with 2-pack wash primer - LHV 043 000 A2- or 1-pack wash primer - LVM 044 007 A2- / 1-pack wash primer - LVM 044 171 A2- .
- ◆ Fine sanded or non-sanded, thoroughly cleaned, original factory primer.
- ◆ Lightly sanded factory paint or old paint (except TPAs, thermoplastic acrylics).
- ◆ Surfaces pre-treated with 2-pack polyester products and then finely sanded.
- ◆ Cleaned and sanded UP-GF surfaces, free of release agents.

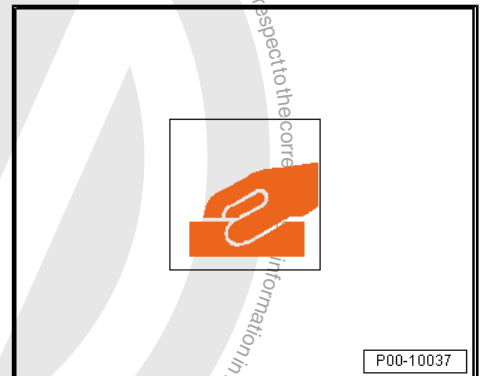


Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Lightly sand old or factory paintwork.
- Completely remove any rust spots and sand feather edges to old paint.



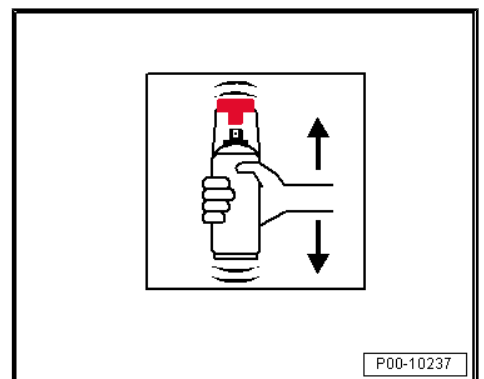
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



Application

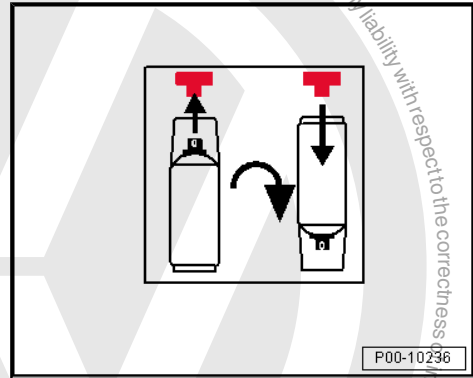
Activation of 2-pack aerosol can:

- Shake before using.

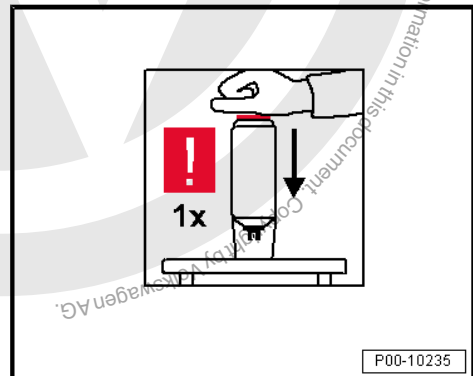




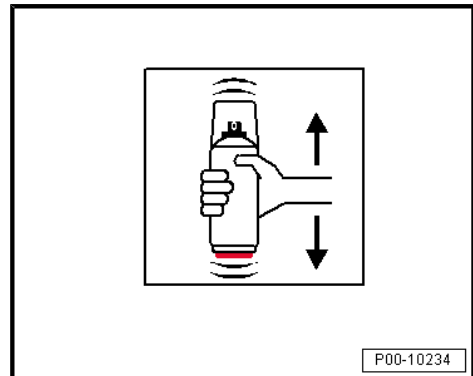
- Remove red push button from cap and place on hardener mixing valve on bottom of can.



- Press in hardener mixing valve. When pressing down hardener mixing valve, be sure that the can is inverted.

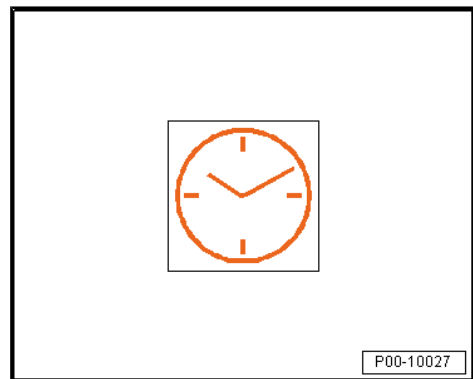


- Shake the can vigorously for at least two minutes.



Application time/pot life:

- 4 to 5 hours at +20 °C





Method of application: "spray".

- Apply 2 to 3 covering spray coats.

Spraying distance:

- A distance of 15-20 cm must be kept.
- The specified thickness for the dry film is approx. 40 to 65 µm.

i Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.

Drying

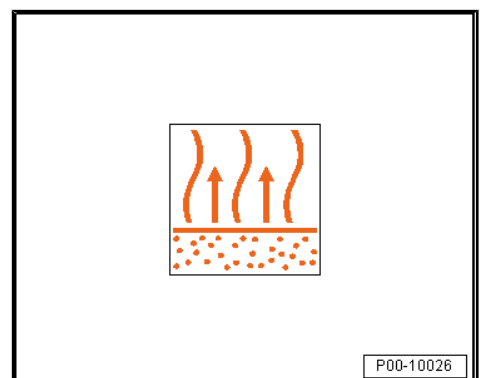
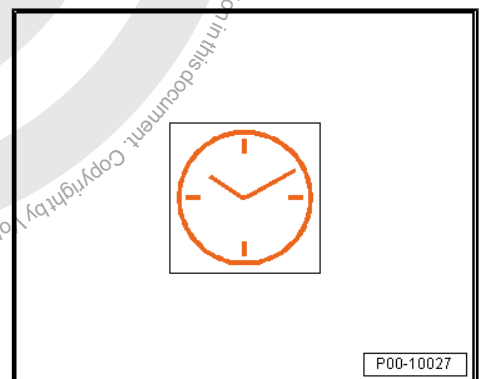
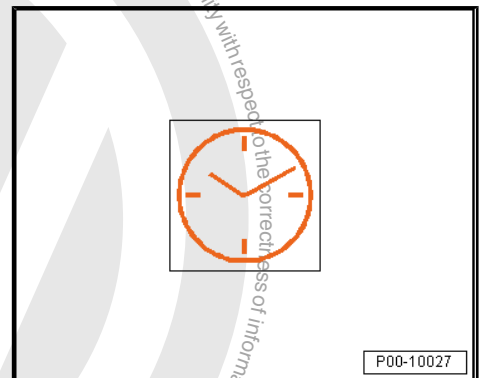
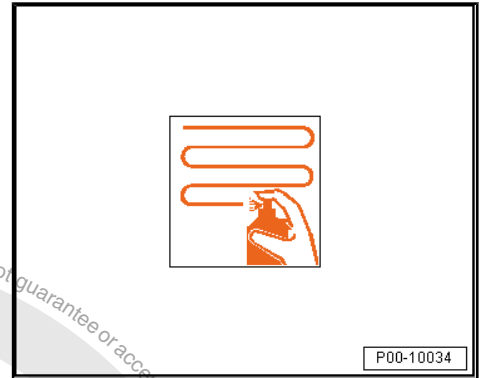
Air drying at +20°C room temperature:

- ◆ 2 to 3 hours for dry-film thickness of 40 to 65 µm.

Flash-off time with force drying is at least 5-10 minutes.

Force drying time at +60 °C to 65 °C material temperature for a coat thickness of 40 to 65 µm is 15 to 20 minutes.

Flash-off time with IR drying is at least 5-10 minutes.





Infrared drying time for a coat thickness of 40 to 65 µm using a short-wave radiant heater is 2 minutes at 70 °C and 8 minutes at 90 °C.



Note

If spray filler and/or other surfacer are used beforehand, it is necessary to reduce the output to a maximum of 90 °C or increase the distance to the substrate.

Drying time when used under filler

Forced drying under filler:

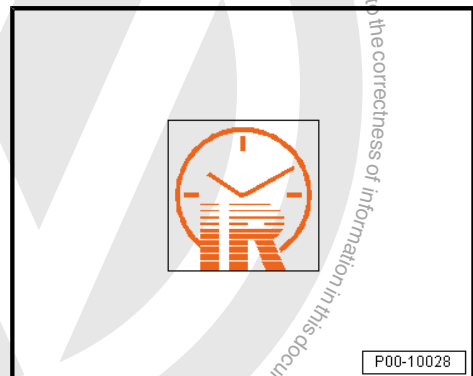
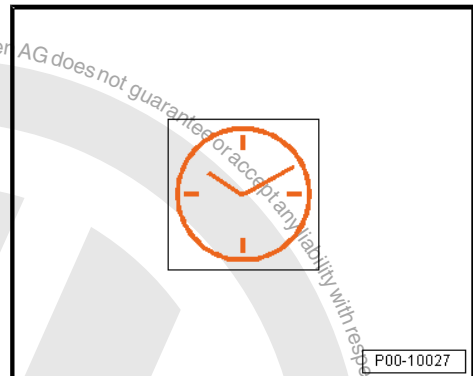
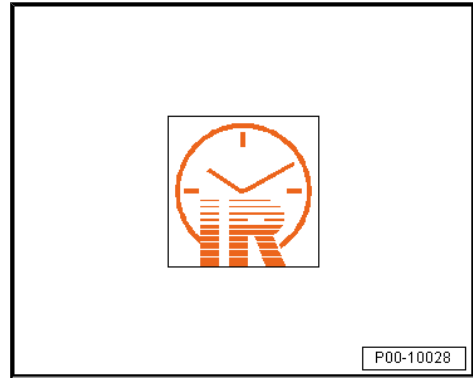
Force drying time at +60 °C material temperature is 45 minutes.

Infrared drying under filler:

- Infrared drying time for a coat thickness of 40 to 65 µm using a short-wave radiant heater is 2 minutes at 70 °C and 15 minutes at 90 °C.

Filler sanding under surfacer:

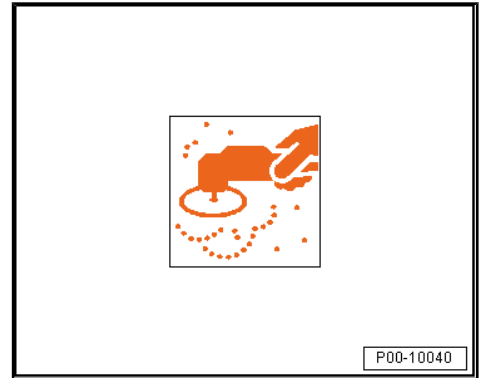
- Dry sanded with P220 - 280 grit sandpaper.





Finishing

- Dry sand using orbital sander with P400 to P500-grit sandpaper and dust collector.



Recoating

Recoat with:

- ◆ 2-pack HS top coats
- ◆ Waterborne base coat and 2-pack HS clear coat

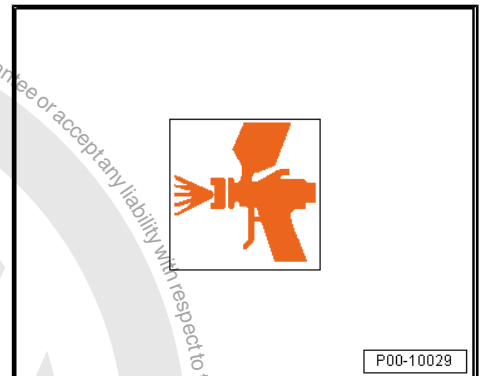
Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

The can must be shaken for approx. 2 minutes before using and before triggering the hardener cartridge. Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.

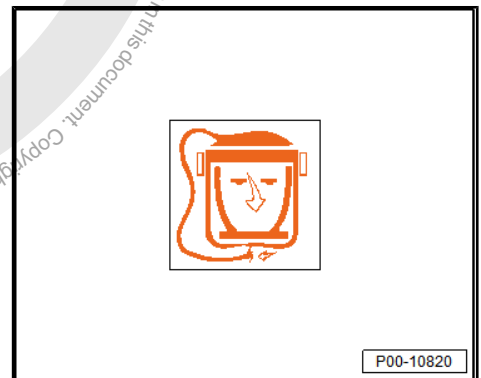


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

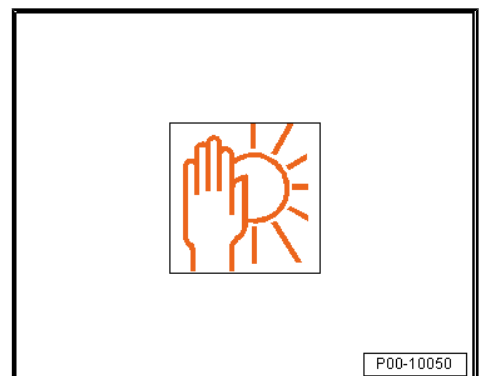
Data

VOC content: 2004/42/II B (e)(840)690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 690 g/l.
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Storage

The guaranteed shelf life is 36 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





3.17.9 2-pack clear coat

Designation:

- ◆ 2-pack clear coat - LLS MAX 210-

Issue 12.2010

Product description

The 2-pack clear coat - LLS MAX 210- is a high-gloss 2-component clear coat for the permanent sealing of coated surfaces. It was especially developed for partial repairs and refinishing jobs. This product has a long-lasting resistance to weathering and to chemicals, excellent petrol resistance, and it is very easy to polish. The 2-pack clear coat has a very smooth flow. It is especially used for larger surfaces (1 or 2 car parts). The raw material basis is acrylic resins. The hardener is based on isocyanate.

Properties:

- ◆ Constant atomisation pressure
- ◆ Finest aerosol dispersion
- ◆ Excellent filling power.
- ◆ Field of application: sport repairs and partial refinishes.
- ◆ First-class painting results



Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Respirator mask, type A2/P2.*
- ◆ *Protective gloves, e.g. latex or nitrile*

Technical data sheet

Substrate

Suitable substrates:

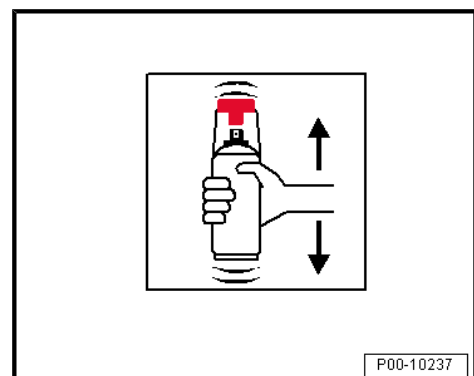
- ◆ Solvent-based or water-based base coats.
- ◆ Old paintwork, cleaned and sanded.

Substrate	Suitability
1-pack base coat	+++
1-pack water-based base coat	+++
2-pack top coat	++
Old paintwork	+++

Application

Activation of 2-pack aerosol can:

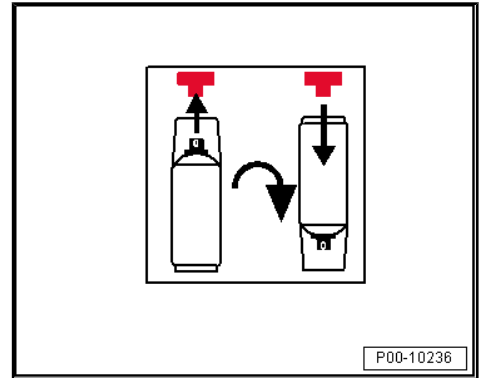
- Shake can vigorously for 2 minutes before activating.



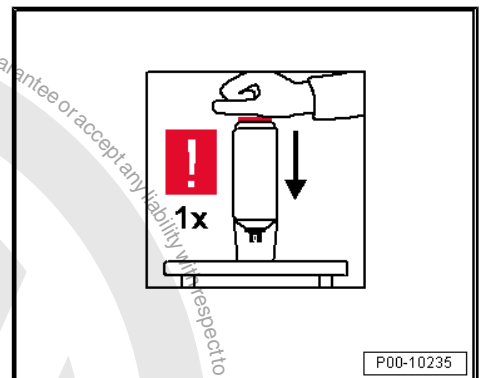
P00-10237



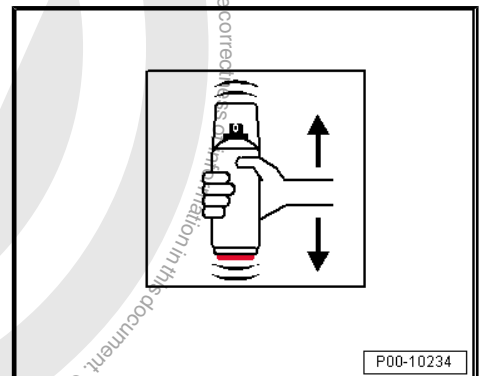
- Remove red push button from cap and place on hardener mixing valve on bottom of can.



- Press in hardener mixing valve. When pressing down hardener mixing valve, be sure that the can is turned upside down (with cap on).



- Shake can well at least 2 minutes again after activation.



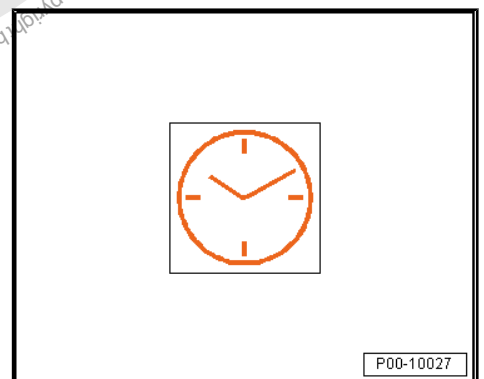
Application time/pot life:

- 48 hours at +20 °C



Note

The pot life depends on the ambient temperature. Higher temperatures lead to a shorter pot life, whereas lower temperatures result in a longer pot life.





Method of application: "spray".

- Apply 1-2 full spray passes (30 µm per spray pass) with 10 to 15 minutes intermediate flash-off time.

Spraying distance:

- A distance of 20-25 cm must be kept.



Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.

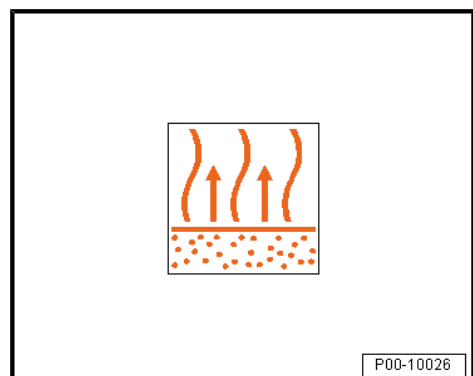
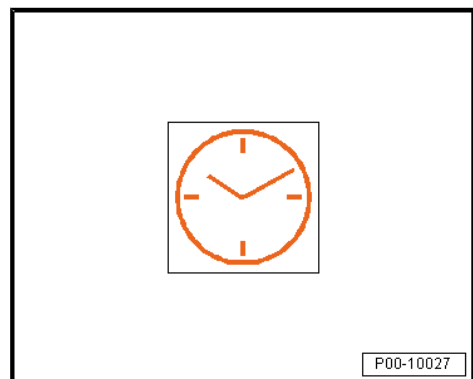
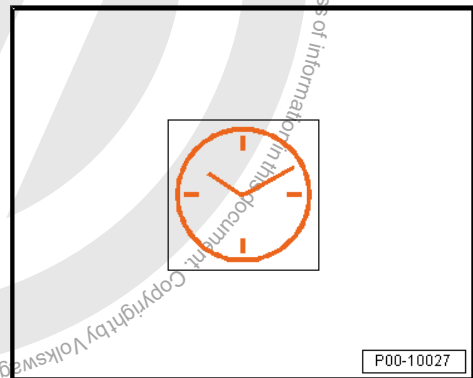
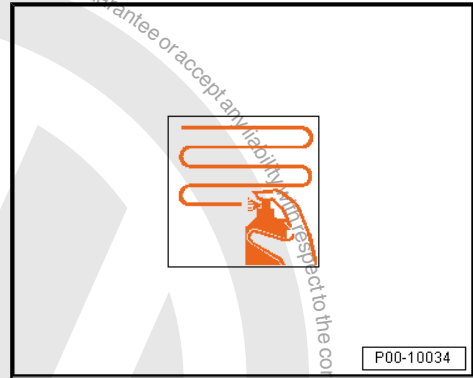
Drying

Air drying at ambient temperature of +20 °C: 12 hours.

Flash-off time with force drying is at least 10-15 minutes.


Force drying at +60°C material temperature in 35-40 minutes.

Flash-off time with IR drying is at least 10-15 minutes.





Infrared drying is recommended.

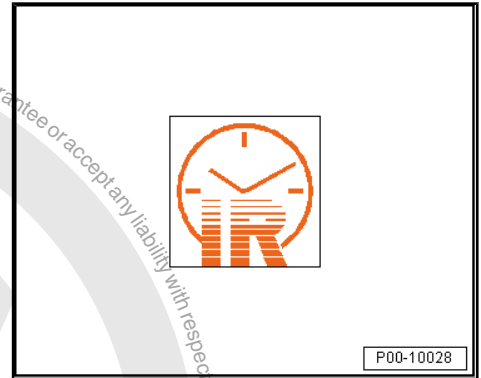
 **Caution**


Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.



 **WARNING**

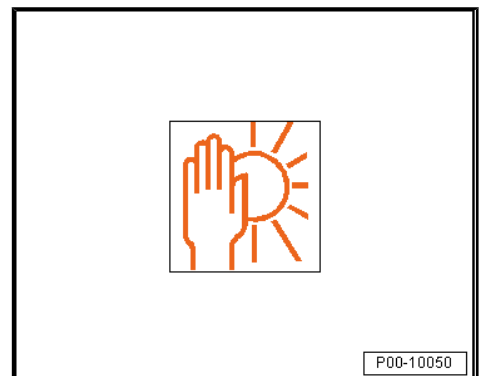
- ◆ *Coating materials ready for application which contain isocyanate may cause irritation to mucous membranes - especially the respiratory organs - and cause hypersensitive reactions.*
- ◆ *Sensitisation may occur if vapours or spray mist are inhaled.*
- ◆ *Carefully observe all rules for working with coating materials containing solvents when working with coating materials containing isocyanate. Particular care must be taken to prevent inhalation of spray mist and vapour.*
- ◆ *Persons suffering from allergies, asthma or other respiratory problems should not work with coating products containing isocyanate.*

Data

Solids content:	33.8 % thinned paint
Coverage:	Approx. 0.5 to 0.75 m ² per aerosol for dry film thickness of 30 to 50 µm.
Degree of gloss:	High-gloss finished
VOC content:	668 g/l, 258 g/can

Storage

The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





3.17.10 2-pack epoxy primer surfacer

Designation:

- ◆ 2-pack epoxy primer surfacer - LLS MAX 220 M1- , beige (250 ml)
- ◆ 2-pack epoxy primer surfacer - LLS MAX 220 M2- , beige (400 ml)

Issue 03.2013

Product description

2-pack epoxy primer surfacer - LLS MAX 220 M1/M2- is a two-pack epoxy spray can to be used for small repairs. Do not use in areas directly exposed to stone chipping.

When applied to the underbody, epoxy primer surfacer must be protected by trim, body cladding, wheel housings and so on as well as UBS material. All difficult-to-reach areas are to be sealed with wax underbody coating.

Protective garments and equipment in accordance with work safety regulations must be worn:

Properties:

- ◆ Flexible application
- ◆ Good corrosion protection

Technical data sheet

Substrate

Suitable substrates:

- ◆ Bare sheet steel, sanded
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Well-sanded old paint or factory paint
- ◆ Genuine replacement part primer, sanded
- ◆ Cleaned and sanded UP-GF (fibreglass) surfaces, free of release agents
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

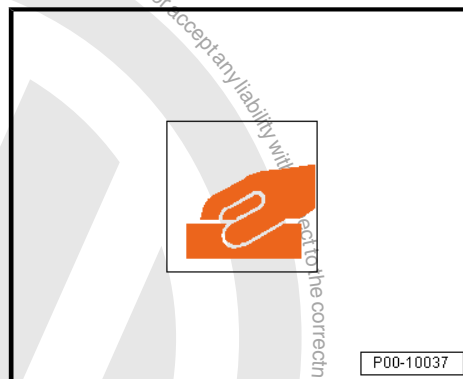
Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



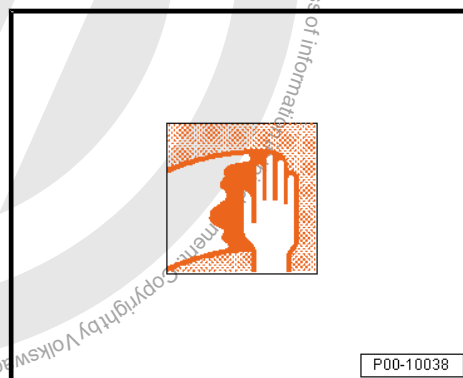


- Then lightly sand.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

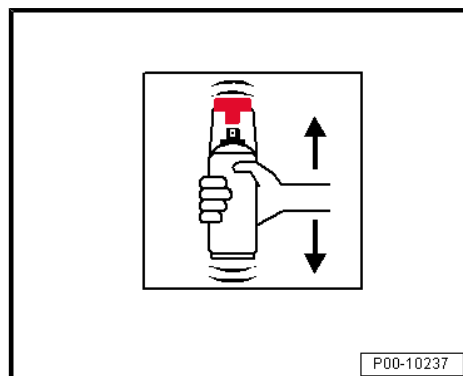
Caution
2-pack epoxy primer surfacer - LLS MAX 220 M1/M2- must not be applied to PVB (acid-curing) primer surfacers or 1-pack primers (e.g. synthetic resin).



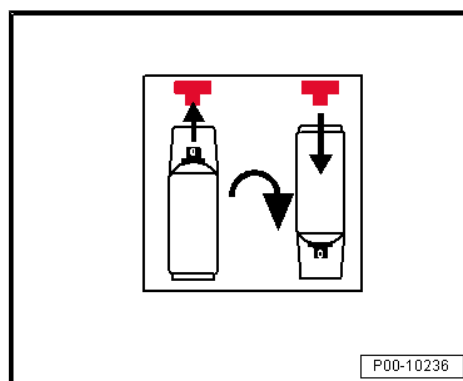
Application

Application:

- Shake before using.

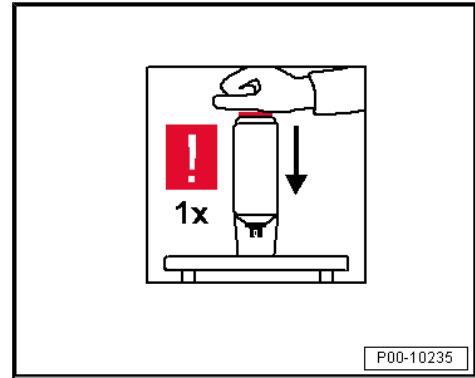


- Remove red push button from cap and place on hardener mixing valve on bottom of can.

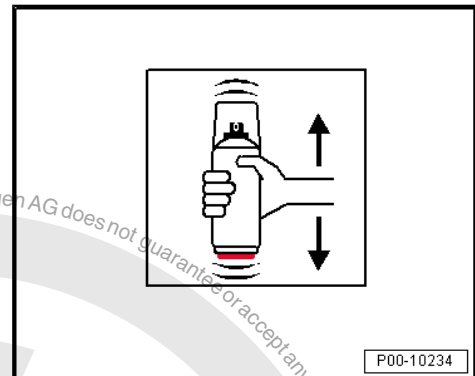




- Press in hardener mixing valve. When pressing down hardener mixing valve, be sure that the can is inverted.

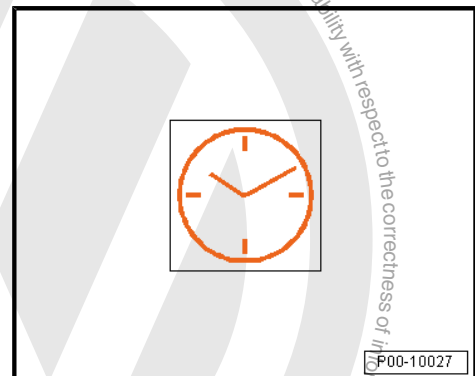


- Shake the can vigorously for at least two minutes.



Application time/pot life:

- 8 hours at +20 °C



Method of application: "spray"

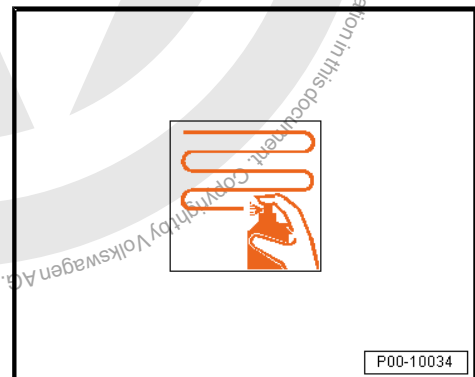
- Apply in 2-3 spray coats with 5-10 minutes intermediate flash-off time.

Spraying distance:

- A distance of 20-25 cm must be kept.

Reaction temperature:

- At least +15 °C
- Recommended dry film thickness is 50-70 µm.



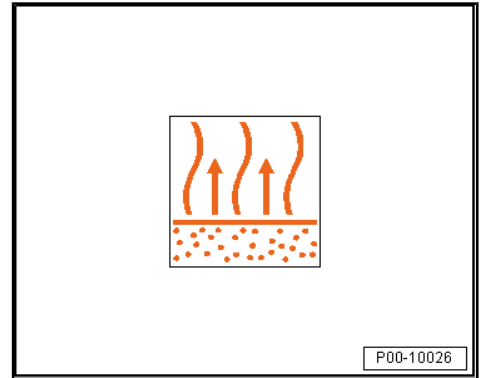
Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.

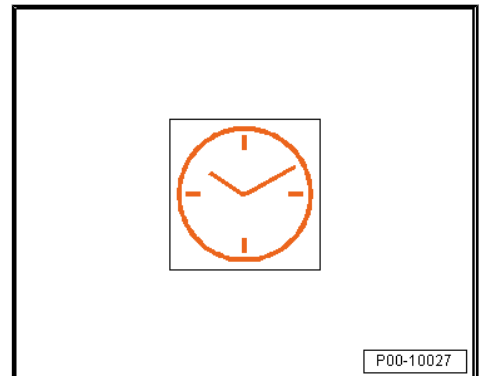


Drying

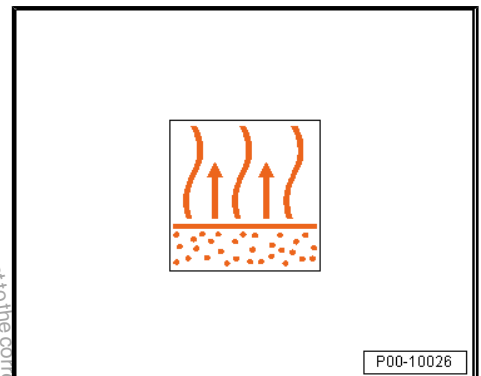
Flash-off time with force drying is at least 5-15 minutes.



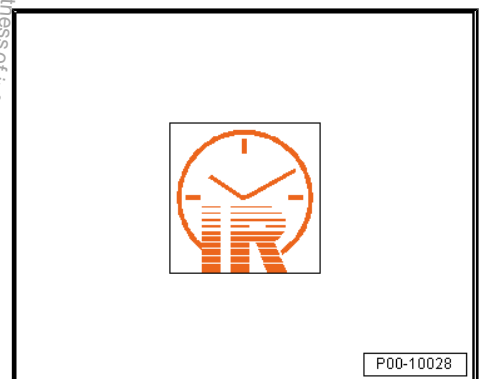
Force drying time at +60-65°C material temperature for a coat thickness of 50-70 µm is 40-45 minutes.



Flash-off time with IR drying is at least 10-20 minutes.



Infrared drying time for a coat thickness of 50-70 µm using a short-wave radiant heater is 3-5 minutes at 50% power and then 15-20 minutes at 100% power.

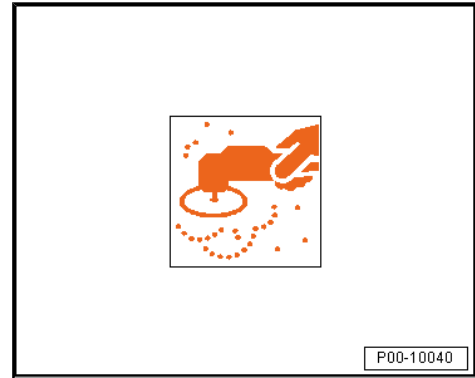


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Further steps

- Dry sand using orbital sander with P400 to P500-grit sandpaper and dust collector.



- Wet sand with P800 to P1000-grit sandpaper.





Recoating

Recoat with:

- ◆ 2-pack HS top coats
- ◆ Aquaplus waterborne base coat and 2-pack HS clear coat



Note

- ◆ Any defects in the substrate can be "treated" using 2-pack polyester filler.
- ◆ After drying and intermediate sanding, treated spots can be isolated again using 2-pack epoxy base filler - LLS MAX 220 M1/M2- .



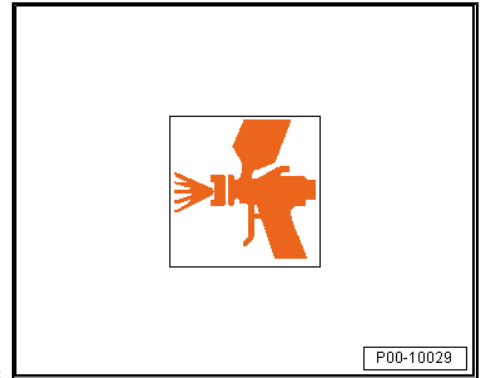
Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

The can must be shaken for approx. 2 minutes before using and before triggering the hardener cartridge. Shake again briefly before spraying each coat.

After fully emptying the spray can, dispose of as recycling material.

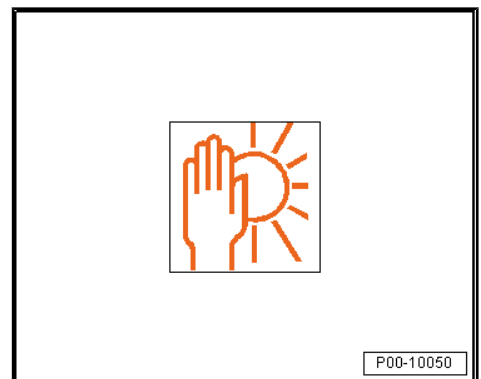


Data

VOC content: 2004/42/IIB (e)(840) 650	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 650 g/l.
---	--

Storage

The guaranteed shelf life is 36 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.17.11 2-pack wash primer

Designation:

- ◆ 2-pack wash primer - LLS MAX 230 M1- , olive-green (250 ml)

Issue 12.2013

Product description

The 2-pack wash primer - LLS MAX 230 M1- is a zinc chromate-free, phenol-free, acid-curing two-pack wash primer.



Protective garments and equipment in accordance with work safety regulations must be worn:

Properties:

- ◆ Easy to apply
- ◆ Passivation qualities provide excellent corrosion protection
- ◆ For metal substrates
- ◆ Short time to recoating
- ◆ Long pot life
- ◆ Field of application: only spot repairs and small repairs

Technical data sheet

Substrate

Suitable substrates:

- ◆ Bare sheet steel, sanded
- ◆ Cleaned and sanded electroplated or roller-galvanised steel panels or soft aluminium
- ◆ Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- ◆ Surfaces prepared with 2-pack polyester products and then finely sanded

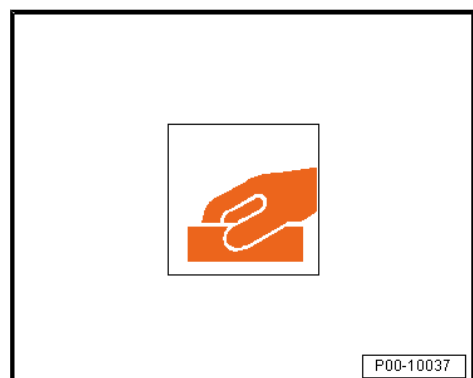


Note

Owing to the wide variety of metal alloys and manufacturing processes, it is essential to carry out a preliminary test on the respective substrate to ensure that the pretreatment is sufficient to guarantee perfect adhesion.

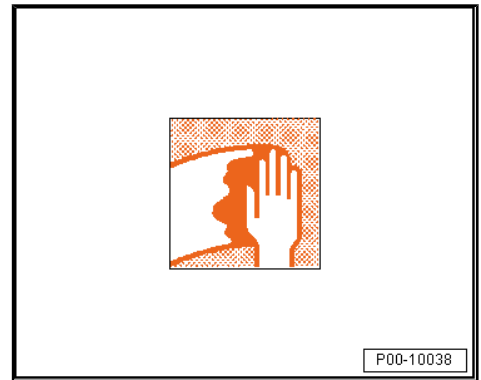
Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .
- Clean and lightly sand factory paint or old paint, completely remove any rust spots and sand feather edges to the old paint.





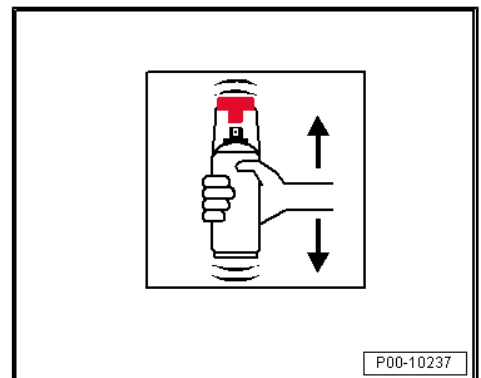
- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.



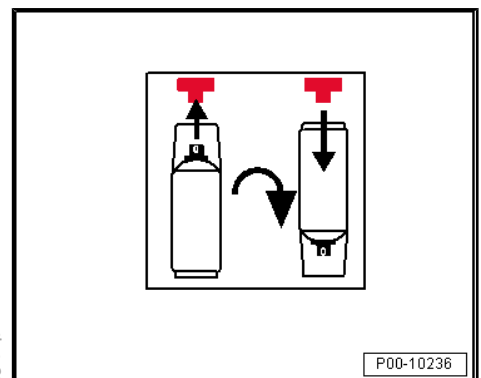
Application

Application:

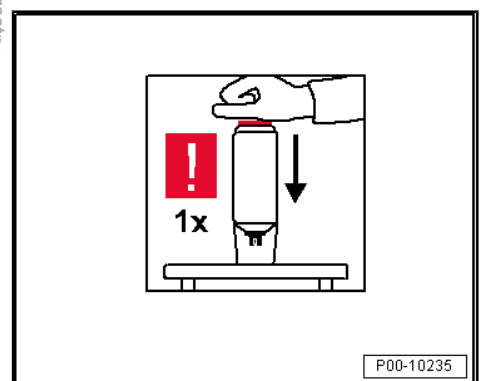
- Shake the spray can thoroughly prior to activation with hardener to ensure good cross-linkage.



- Remove red push button from cap and place on hardener mixing valve on bottom of can.



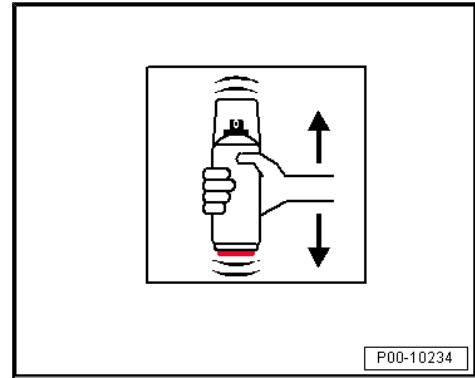
- Press in hardener mixing valve. When pressing down hardener mixing valve, be sure that the can is inverted.



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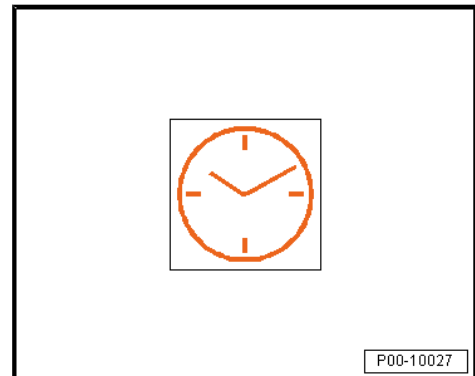


- Shake the can vigorously for at least two minutes.



Application time/pot life:

- 4 days at +20 °C



Method of application: "spray".

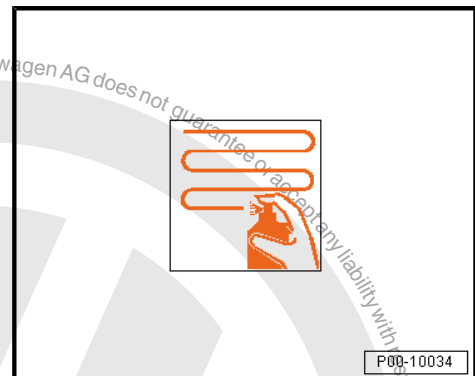
- Apply in 2 spray passes with 5-10 minutes intermediate flash-off time.

Spraying distance:

- A distance of 15-20 cm must be kept.

Reaction temperature:

- At least +15 °C
- Recommended dry film thickness is 8-12 µm.



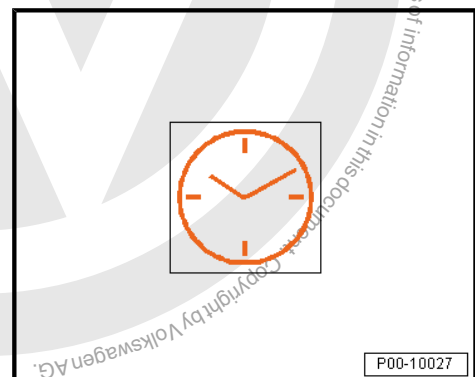
Note

If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.

Drying

Air drying at +20 °C room temperature:

- ◆ Recoatable after 20 to 30 minutes





Recoating

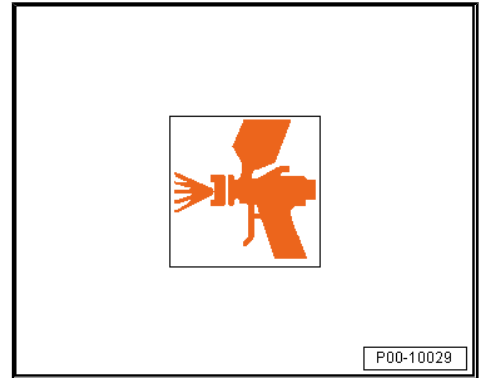
Recoat with:

- ◆ 2-pack HS surfacer



Note

- ◆ *The product is only suitable for recoating with a 2-pack HS surfacer in a three-layer application.*
- ◆ *Do not use polyester, epoxy or water-based products for subsequent processing.*
- ◆ *Do not use on thermoplastic paint.*
- ◆ *Do not directly overpaint with water-based base coat or 2-pack HS top coat.*



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

The can must be shaken for approx. 2 minutes before using and before triggering the hardener cartridge. Shake again briefly before spraying each coat.

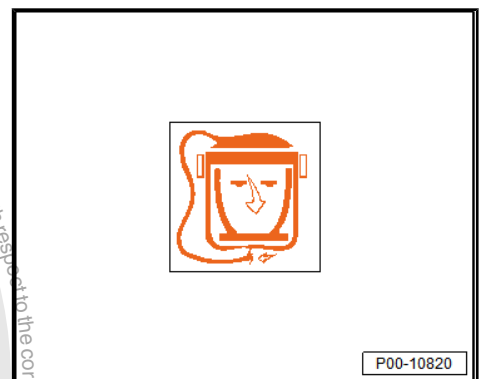
After fully emptying the spray can, dispose of as recycling material.

Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

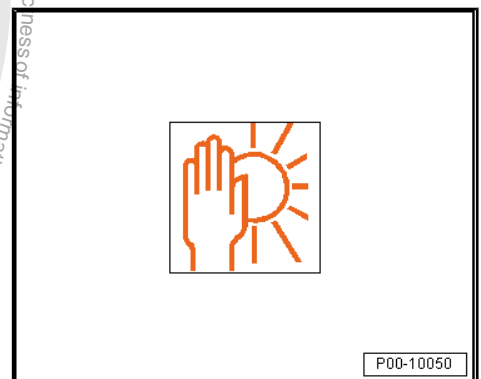
Data

VOC content: 2004/42/IIIB (e) (840) 703	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 703 g/l.
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Storage

The guaranteed shelf life is 36 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





3.17.12 Silicone remover - LLS MAX 007-

Designation:

- ◆ Silicone remover - LLS MAX 007-

Issue 10.2008

Product description

The silicone remover - LLS MAX 007- is a water-based cleaning agent, rich in active ingredients and with a reduced solvent content. The raw material basis is a combination of specific solvents.

Properties:

- ◆ Aerosol formulation made for this specific product for easy application
- ◆ Constant atomisation pressure
- ◆ Finest aerosol dispersion
- ◆ Very high coverage
- ◆ First-class painting results
- ◆ Great cleaning and degreasing action.
- ◆ Reinforces adhesion properties
- ◆ Very high coverage
- ◆ Uniform distribution

Technical data sheet

Application

Recommended for:

- ◆ Utility for parts painting and spot repairs
- ◆ Perfectly suitable for pre-treating surfaces to be coated with Aqua Plus water-based base coats.

Suitable substrates:

- ◆ Painted or unpainted metal, plastic or glass surfaces (old or factory paint jobs) which have been coated with a primer or surfacer.

Substrate	Suitability
Surfaces coated with primer or surfacer	+++
Old or factory paint jobs	+++
Plastic parts	+++
Metal/glass	+++

Properties:

- ◆ Non-aggressive to painted surfaces
- ◆ Removes all kinds of silicone and is an ideal cleaner of dirt and soot.
- ◆ Removes body cavity sealant or wax.
- ◆ Removes resin-hardened grease residues, such as on door hinges
- ◆ Eliminates oil and grease residues
- ◆ Ideal for dissolving tar.
- ◆ Removes adhesive residues, such as from labels



Application

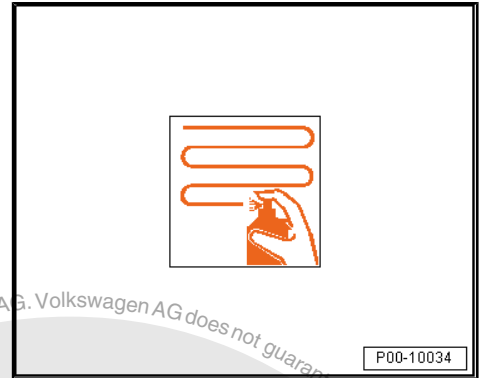


Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Respirator mask, type A2/P2.*
- ◆ *Protective gloves, e.g. latex or nitrile*

Method of application: "spray".

- Apply one light spray pass of silicone remover right before applying the subsequent paint coat, and immediately wipe dry with a clean, dry cloth.
- Do not allow the silicone remover to evaporate from the surface. Only small areas may be treated simultaneously.
- Heavily soiled parts must be cleaned twice.
- Replace clothes often - do not use dirty clothes.



Note

After any interruption of the spray operation, hold the aerosol upside down, and press the spray button until the valve is empty.



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

After fully emptying the spray can, dispose of as recycling material.

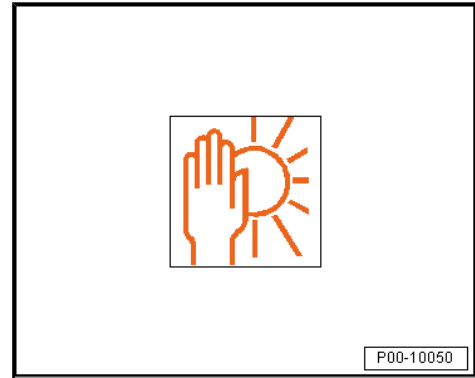
Data

Solids content:	0%
Coverage:	approx. 0.75-1.0 m ² / spray can
Degree of gloss:	Not applicable
VOC content:	620 g/l, 248 g/can



Storage

The guaranteed shelf life is 36 months from date of production.
 Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.17.13 Slow-drying silicone remover - LLS MAX 008-

Designation:

- ◆ Slow-drying silicone remover - LLS MAX 008-

Issue 10.2008

Product description

The silicone remover, slow drying - LLS MAX 008- is a cleaning agent which is rich in active ingredients and whose key features are the simple processing and complete evaporation. The raw material basis is a combination of specific solvents.

Properties:

- ◆ Aerosol formulation made for this specific product for easy application
- ◆ Constant atomisation pressure
- ◆ Finest aerosol dispersion
- ◆ Very high coverage
- ◆ First-class painting results
- ◆ Easy to apply
- ◆ Complete evaporation
- ◆ Removes silicone, grease, oil, wax, dirt, tar and soot
- ◆ Mild, non-aggressive solvent

Technical data sheet

Application

Recommended for:

- ◆ Utility for parts painting and spot repairs

Suitable substrates:

- ◆ Painted or unpainted metal, plastic or glass surfaces (old or factory paint jobs) which have been coated with a primer or surfacer.

Substrate	Suitability
Surfaces coated with primer or surfacer	+++
Old or factory paint jobs	+++
Plastic parts	+++
Metal/glass	+++



Properties:

- ◆ Non-aggressive to painted surfaces
- ◆ Removes all kinds of silicone and is an ideal cleaner of dirt and soot.
- ◆ Removes body cavity sealant or wax.
- ◆ Removes resin-hardened grease residues, such as on door hinges
- ◆ Eliminates oil and grease residues
- ◆ Ideal for dissolving tar.
- ◆ Removes adhesive residues, such as from labels

Application

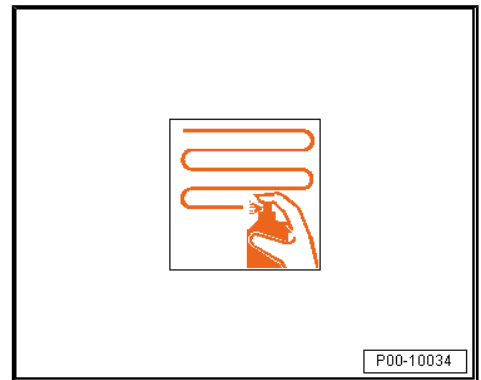


Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Respirator mask, type A2/P2.*
- ◆ *Protective gloves, e.g. latex or nitrile*

Method of application: "spray".

- Apply one light spray pass of silicone remover to the surface to be treated, and wipe dry with a clean, dry non-woven cloth.
- Allow clean surface to dry completely.
- Heavily soiled parts must be cleaned twice.
- Replace clothes often - do not use dirty clothes.



Note

After any interruption of the spray operation, hold the aerosol upside down, and press the spray button until the valve is empty.

	Caution
<i>Protective garments and equipment in accordance with work safety regulations must be worn:</i>	
<i>Observe safety information sheets as well as warnings on the label of the spray can.</i>	
<i>After fully emptying the spray can, dispose of as recycling material.</i>	

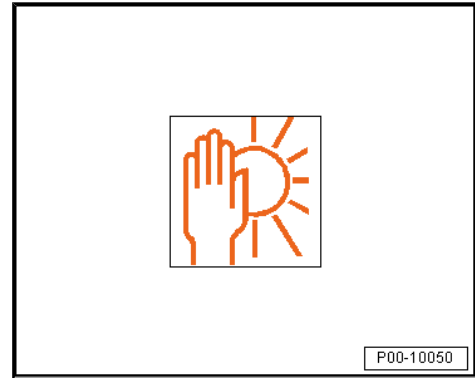
Data

Solids content:	0%
Coverage:	approx. 0.75-1.0 m ² / spray can
Degree of gloss:	Not applicable
VOC content:	620 g/l, 248 g/can



Storage

The guaranteed shelf life is 36 months from date of production.
Can be processed on or before date indicated on label if stored
in unopened, original containers at +20 °C.



3.17.14 Blender

Designation:

- ◆ Blender - LLS MAX 009-

Issue 10.2008

Product description

The blender - LLS MAX 009- is used to achieve homogeneous paint transitions in the blending/edge areas between the existing and newly applied paintwork. The raw material basis is a combination of specific resins and solvents.

Properties:

- ◆ Aerosol formulation made for this specific product for easy application
- ◆ Constant atomisation pressure
- ◆ Finest aerosol dispersion
- ◆ First-class painting results
- ◆ Ideal for spot repairs.
- ◆ Quick and easy to use.
- ◆ Especially suitable for blending-in of 2-coat paints and single-coat 2-pack paints
- ◆ Very good partial dissolving properties
- ◆ Easy to polish
- ◆ Smooth transitions in blend-in area

Technical data sheet

Application

Recommended for:

- ◆ Spot repairs, blending

Suitable substrates:

- ◆ Apply right after spraying with 2-pack clear coat - LLS MAX 210- or 2-pack top coat on the transition zones in the blend-in area.
- ◆ The substrate in the fading edge transition zone should be generously matted with an abrasive pad (P2000 to P4000 grade).

Pretreatment:

- ◆ No special work needed directly before applying the blender.



Application



Note

- ◆ *Protective garments and equipment in accordance with work safety regulations must be worn:*
- ◆ *Respirator mask, type A2/P2.*
- ◆ *Protective gloves, e.g. latex or nitrile*

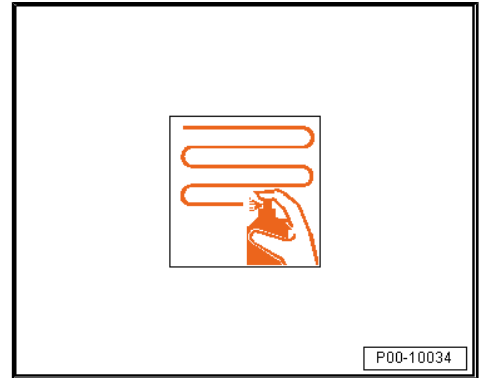
Method of application: "spray".

- Apply in multiple, light spray passes on the spray-mist edge zone of the 2-pack clear coat or 2-pack top coat until the transition is homogeneous.
- No flash-off time required for 2-pack clear coat or 2-pack top coat.



Note

After any interruption of the spray operation, hold the aerosol upside down, and press the spray button until the valve is empty.



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

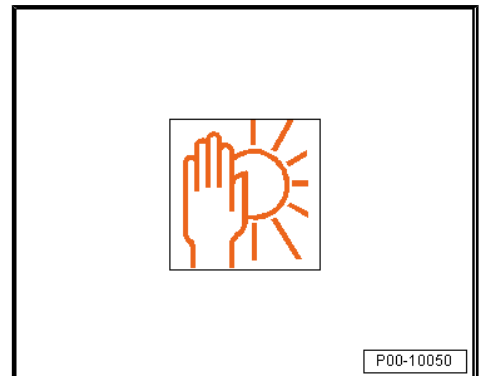
After fully emptying the spray can, dispose of as recycling material.

Data

Solids content:	4.8%
Coverage:	approx. 0.5 m ² / spray can
Degree of gloss:	Not applicable
VOC content:	766 g/l, 306 g/can

Storage

The guaranteed shelf life is 36 months from date of production.
 Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





3.17.15 Adhesion promoter

Designation:

- ◆ Adhesion promoter - LLS MAX 015- for plastics

Issue 10.2012

Product description

The adhesion promoter - LLS MAX 015- is a versatile single-pack product suitable for all plastic parts commonly found on vehicle exteriors.

Properties:

- ◆ Easy to apply
- ◆ Good adhesion
- ◆ High elasticity

Technical data sheet

Substrate

Suitable substrates:

- ◆ All plastic parts commonly found on vehicle exteriors (PP, EPDM, ABS, PC, PPO, PA, R-TPU, PBTP, PVC, PUR, PUR flexible foam, UP-GF).

Substrate pre-treatment:

The substrate must be free of release agents.

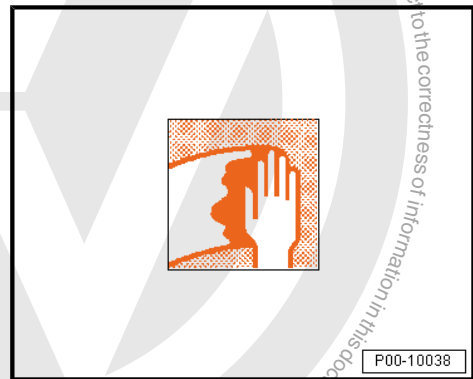
Before cleaning plastic part, temper for 60 minutes at +60°C to "sweat out" the separating agents.

- Clean with anti-static plastic cleaner - LVM 001 001 A2- or with the milder slow-drying silicone remover - LVM 020 100 A5- .



Note

- ◆ *The extent of the cleaning required will vary according to the type and quantity of separator used. We recommend using a sanding pad to help cleaning.*
- ◆ *Allow the thinner to evaporate well (e.g. air-dry overnight at room temperature or 30-40 minutes at +60°C).*
- Before priming, clean lightly once more with anti-static plastic cleaner - LVM 001 001 A2- or slow-drying silicone remover - LVM 020 100 A5- (with anti-static effect).

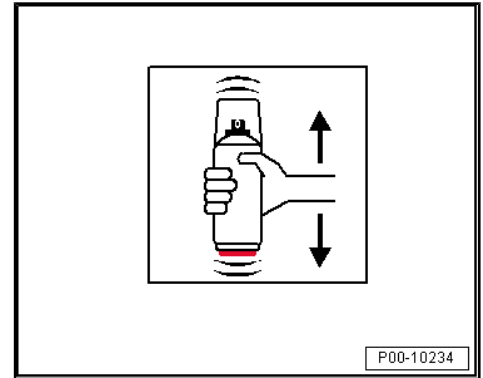




Application

Application:

- Shake the can vigorously for at least two minutes.

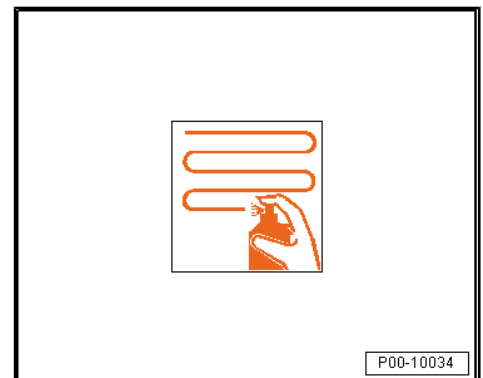


Method of application: "spray".

- Apply 1 full coat (1-2 μm).

Spraying distance:

- A distance of 20-25 cm must be kept.



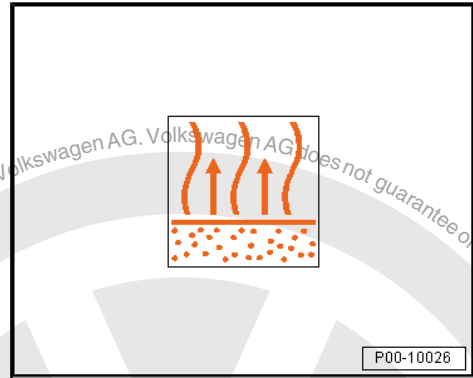


Flash-off time is 10-15 minutes and +20°C ambient temperature



Note

- ◆ If spray work must be interrupted, ensure that the nozzle is cleared to avoid clogging by inverting the can and spraying until the valve is empty.
- ◆ When treating small sand-through spots (max. 5.0 cm in diameter), the adhesion promoter - LLS MAX 015- can be recoated with top coat right away.



Finishing

Treat with:

- ◆ Plasticized 2-pack HS surfacer (for plasticizing, see relevant data sheet).

Recoat with:

- ◆ 2-pack HS top coat
- ◆ Water-based base coat and 2-pack HS clear coats



Caution

Protective garments and equipment in accordance with work safety regulations must be worn:

Observe safety information sheets as well as warnings on the label of the spray can.

Shake briefly before spraying each coat.

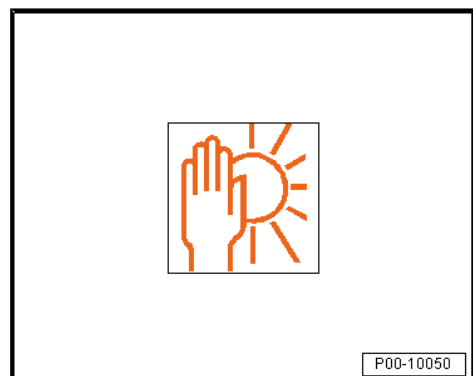
After fully emptying the spray can, dispose of as recycling material.

Data

VOC content: 2004/42/IIB (e)(840) 730	The EU limit for this product (product category IIB.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 730 g/l.
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Storage

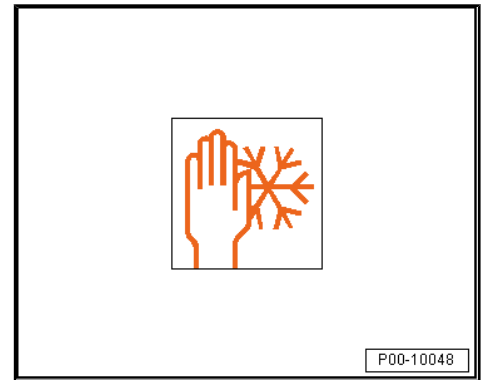
The guaranteed shelf life is 60 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.





Storage conditions

The prescribed storage temperature is +20 to +25°C (do not store at temperatures below +5°C).



3.18 Additional materials

⇒ ["3.18.1 Matting additive ALN 775 106", page 351](#)

⇒ ["3.18.2 Matting additive LVM 769 810 A2", page 357](#)

⇒ ["3.18.3 Texture additive", page 360](#)

⇒ ["3.18.4 Blending additive for Aquaplus", page 365](#)

⇒ ["3.18.5 Additive for Aqua Premium", page 365](#)

3.18.1 Matting additive - ALN 775 106-

Designation:

- ◆ Matting additive - ALN 775 106-

Issue 04.2013

Product description

The matting additive - ALN 775 106- is an additive for 2-pack HS top coats which produces a matt effect on painted plastic parts.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Hardened, well-preserved and lightly sanded old or factory finish.
- ◆ Plastic parts coated with primer or surfacer.



Note

For plastic parts, see "The VW/Audi painting system for plastic parts" (data sheet no. 5.74).

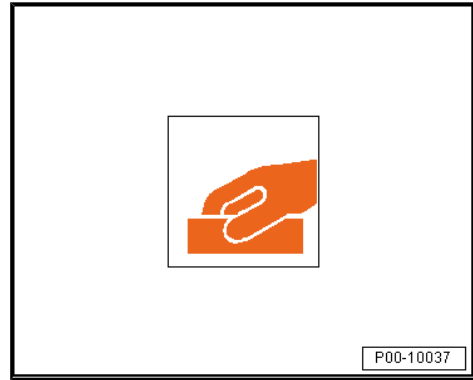
Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .





- Then lightly sand.



- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

Application

Usable products:

- ◆ 2-pack HS top coat
- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for 2-pack VHS hardener
 => [page 240](#)



Matting table:

Mixing ratio (in % by weight)		Gloss units (GU) as per DIN 67530
Matting additive - ALN 775 106-	2-pack HS top coat	60° angle
10	90	85-95 GU*
20	80	80-90 GU*
30	70	75-90 GU*
40	60	60-90 GU*
50	50	25-65 GU*

* Depending on colour. Lose of gloss when the matting additive - ALN 775 106- is added is more characteristic for light colours then for dark ones. The gloss degree produced also depends on other factors (see "Factors influencing the degree of gloss").



Mixing ratio

Cross-linking of matting mixture:

Mixing ratio: 4:1 by volume with

- ◆ 2-pack VHS hardener - LHA 009 051 A2- / -LVM 009 051 A5- (for small to medium-size areas at moderate temperatures)
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3- (for larger areas at moderate temperatures)
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2- (for large areas at high temperatures)
- ◆ See technical data sheet for 2-pack VHS hardener
=> [page 240](#)

Thinner:

- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-

Application time/pot life:

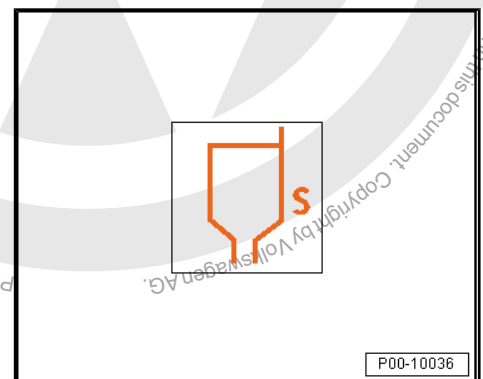
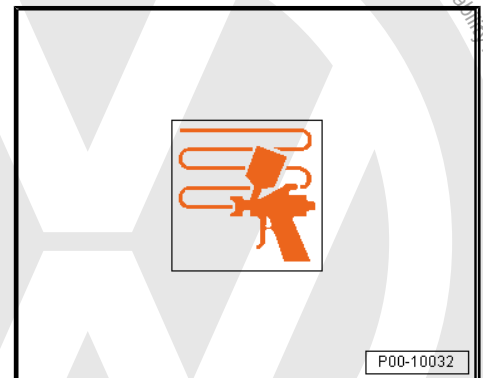
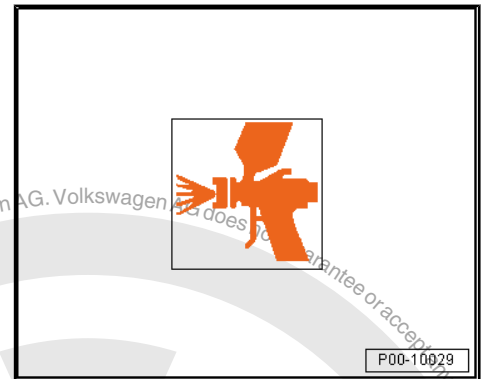
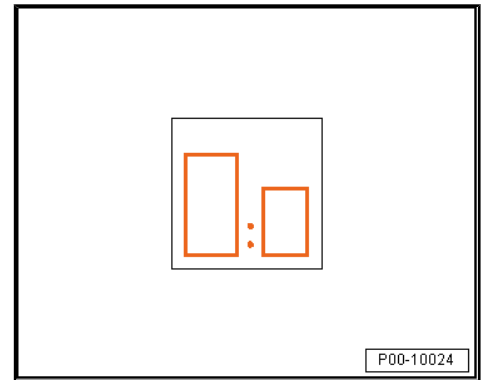
- Ready-to-spray preparation 60-90 minutes at +20°C.

Method of application: "spray".

- Application viscosity for +20 °C material temperature

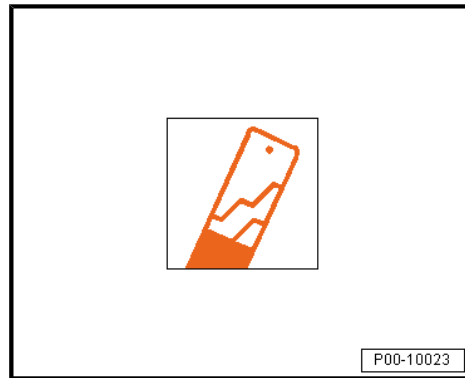
Application viscosity "Compliant" and "HVLP":

18-20 seconds

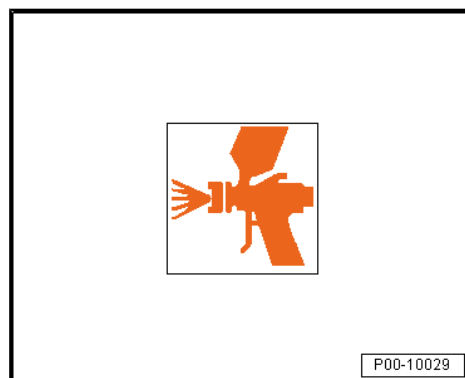




- Add 15 % thinner at +20°C material temperature



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.4 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



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- Two spray passes (with intermediate flash-off time) are necessary to achieve the recommended dry-film thickness of 50-60 µm.

i Note

- ◆ It is not necessary to add 2-pack plasticizer additive - ALZ 011 001- .
- ◆ The matting additive - ALN 775 106- is not suitable for matting clear coats.
- ◆ The matting additive - ALN 775 106- is thixotropic and becomes liquid when stirred well. Shake the can well by hand, or use a shaker, if possible. The material should also be stirred in the mixing unit for 15 minutes before use.
- ◆ Adding the matting additive might influence the concealing power.
- ◆ The actual gloss level achieved is influenced by a number of factors apart from differences relating to the colour shade. The following chart shows some additional parameters and their effects on the degree of gloss.



Higher gloss	Low gloss
Slower-drying hardeners	Faster-drying hardeners
Slower-drying thinners	Faster-drying thinners
Higher application viscosity	Lower application viscosity
Higher dry layer thickness	Lower dry layer thickness
Shorter flash-off time	Longer flash-off time
Forced drying	Air drying

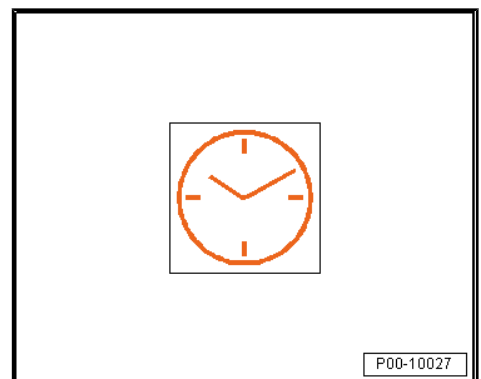
Factors influencing the degree of gloss:

- ◆ The use of different hardeners, thinners, application methods, drying conditions and layer thicknesses results in different degrees of gloss (varying by up to 20 %).

Drying

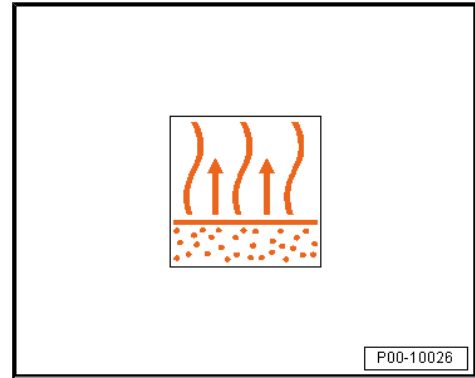
Air drying at +20 °C room temperature:

- ◆ Dust dry in 30-50 minutes
- ◆ Dry for assembly in 5-6 hours
- ◆ Dry overnight

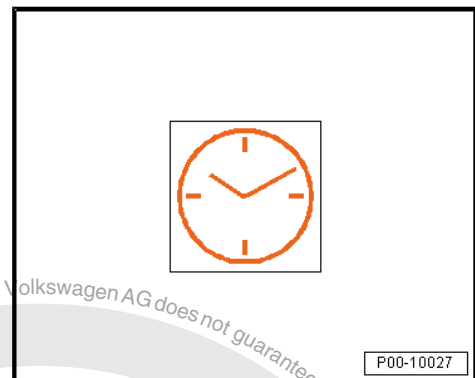




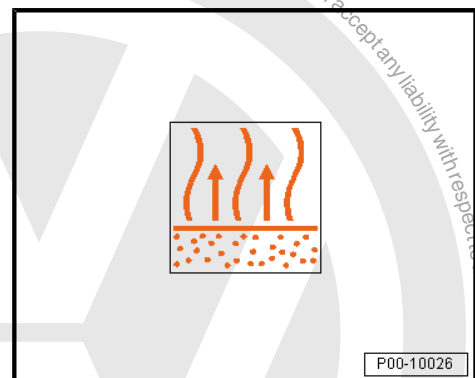
Final flash-off time with force drying is at least 5-10 minutes.



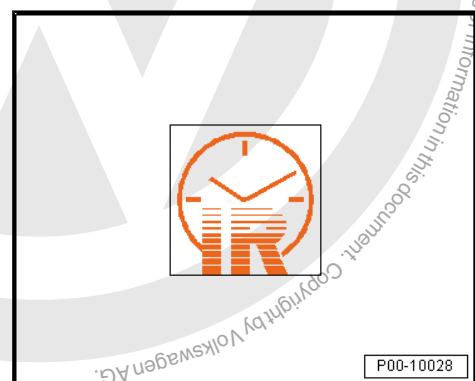
Force drying at +60°C material temperature in 30-40 minutes.



Final flash-off time with infrared drying is at least 5-10 minutes.



Infrared drying with short-wave radiant heater: 5 minutes at 50% power and 10 minutes at 100% power.



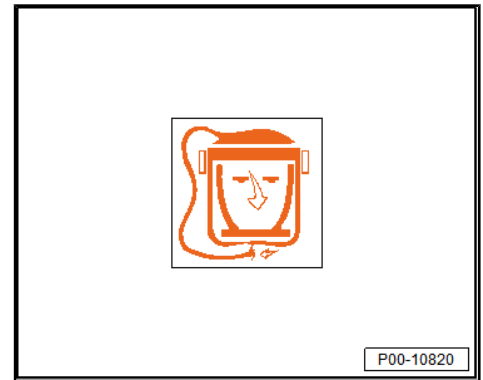


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

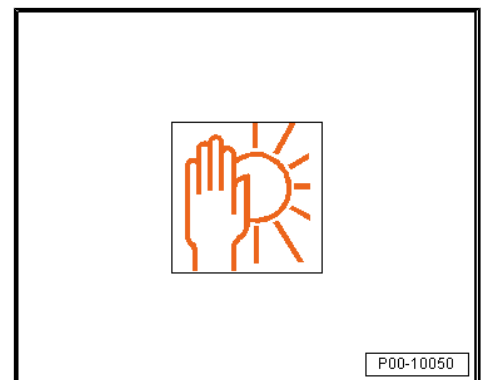
Data

Viscosity as supplied	Paste-like
Flash point:	above +23 °C
VOC content: 2004/42/II B (e) (840) 600	The EU limit for this product (product category II B.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 600 g/l.



Storage

The guaranteed shelf life is 48 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.18.2 Matting additive - LVM 769 810 A2-

Designation:

- ◆ Matting additive - LVM 769 810 A2-

Issue 10.2014

Product description

The matting additive - LVM 769 810 A2- is an additive for 2-pack HS clear coats and 2-pack HS top coats which produces a matt effect on painted metallic or plastic substrates.

The product is typically used when larger areas need to be painted as well as for full-vehicle paint jobs, but also for painting small and add-on parts.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Hardened, well-preserved and lightly sanded old or factory finish.
- ◆ Plastic or metal parts coated with primer or surfacer.



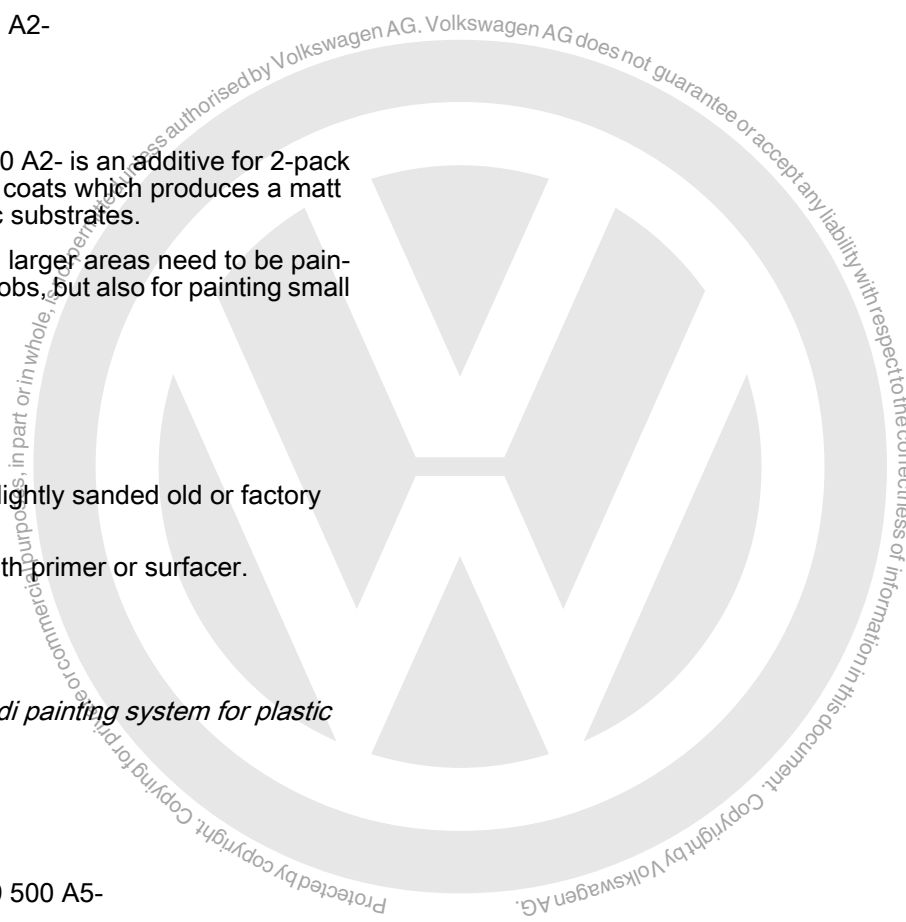
Note

For plastic parts, see "The VW/Audi painting system for plastic parts" (data sheet no. 5.74).

Application

Usable products:

- ◆ 2-pack HS clear coat - L2K 769 500 A5-





- ◆ 2-pack HS Vario clear coat - L2K 769 K01 A2-
- ◆ 2-pack HS optimum plus clear coat - LZK 769 K07 A5-
- ◆ 2-pack HS brilliant plus clear coat - LZK 769 K05 A5-
- ◆ 2-pack HS performance clear coat - LZK 769 K06 A5-
- ◆ 2-pack HS mixture paint/top coat - L2K 074/073...-
- ◆ 2-pack HS hardener, slow-drying - LHA 009 047 A3-
- ◆ 2-pack HS hardener, extra slow-drying - LHA 009 048 A3-
- ◆ 2-pack VHS hardener, slow-drying - LHA 009 052 A2- / -LHA 009 052 A3-
- ◆ 2-pack VHS hardener, extra slow-drying - LHA 009 053 A2-
- ◆ See technical data sheet for the respective hardener
⇒ [page 237](#) .
- ◆ 2-pack thinner - LVE 009 001 A5-
- ◆ 2-pack slow-drying thinner - LVM 009 300 A2-
- ◆ 2-pack thinner, special - LVM 009 200 A2- / -LVM 009 200 A5-
- ◆ Clear coat additive - LVM 007 000 A2-

Adjusting the degree of gloss/matting; Application instructions



Note

Refer to "Gloss level adjustment for 2-pack HS clear coats" (data sheet no. 5.75) and "Paintwork repair system for vehicles with a matt finish" (data sheet no. 5.76).



Application instructions



Note

- ◆ *It is not necessary to add 2-pack plasticizer additive - ALZ 011 001-.*
- ◆ *Shake or stir the matting additive - LVM 769 810 A2- well in the can.*
- ◆ *Mix the matting additive - LVM 769 810 A2- with 2-pack HS clear coat or 2-pack HS top coat according to the respective specifications. Add the hardener and the reducer right before application. The ready-to-spray mixture should be applied immediately. If the mixture is left to stand in the mixing cup or spray gun cup for a longer period of time (15 min.), it must be stirred again prior to further application (sedimentation behaviour).*
- ◆ *Adding the matting additive might influence the concealing power.*
- ◆ *It is absolutely necessary to test the mixture on a spray sample prior to application in order to achieve the degree of gloss that matches the vehicle. Measuring the degree of gloss (at an angle of 60°) on adjacent parts may also be helpful.*
- ◆ *Blending or refinishing the matt clear coat within a part, e.g. a side part, or speed repair is not possible.*
- ◆ *It is not possible to polish out dust inclusions so cleanliness during the entire refinishing process is of utmost importance.*
- ◆ *The actual gloss level achieved is influenced by a number of factors apart from differences relating to the colour shade. The following chart shows some additional parameters and their effects on the degree of gloss.*

Higher gloss	Low gloss
Faster-drying hardeners	Slower-drying hardeners
Faster-drying thinners	Slower-drying thinners
Higher application viscosity	Lower application viscosity
Higher dry layer thickness	Lower dry layer thickness
Shorter flash-off time	Longer flash-off time
Forced drying	Air drying

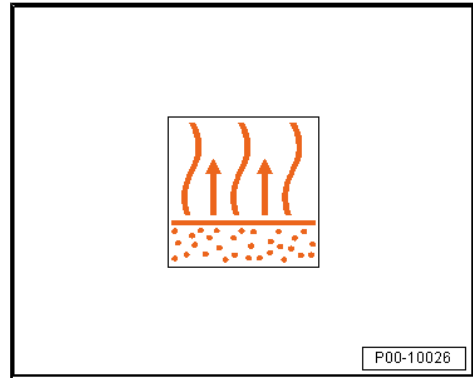
Factors influencing the degree of gloss:

- ◆ The use of different hardeners, thinners, application methods, drying conditions and layer thicknesses results in different degrees of gloss (varying by up to 20 %).

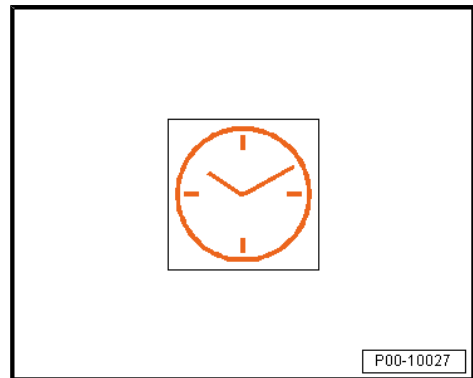


Drying

Final flash-off time with force drying is at least 15-20 minutes.



Force drying at +60-65°C material temperature in 45 minutes

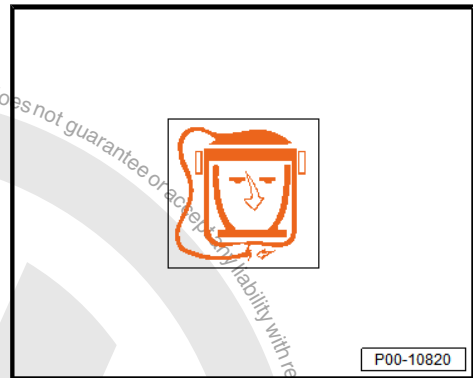


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

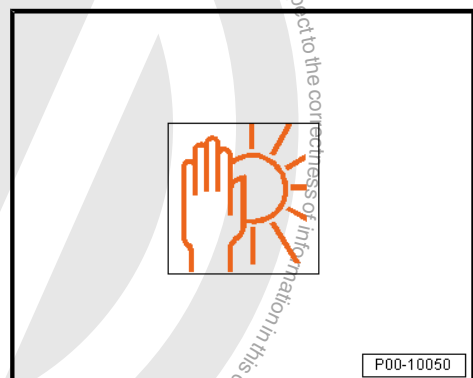
Data

Flash point:	above +23 °C
VOC content: 2004/42/IIB (e) (840) 600	The EU limit for this product (product category IIB.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 600 g/l.



Storage

The guaranteed shelf life is 48 months from date of production.
 Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.18.3 Texture additive

Designation:

- ◆ Fine texture additive - ALN 775 108-



Issue 04.2013

Product description

The fine texture additive - ALN 775 108- is designed to be added to 2-pack HS top coats. The respective top coat is then converted into a texture paint.

that can be used for treating plastic vehicle parts.

Technical data sheet

Substrate

Suitable substrates:

- ◆ Hardened, well-preserved and lightly sanded old or factory finish.
- ◆ Plastic parts coated with primer or surfacer.



Note

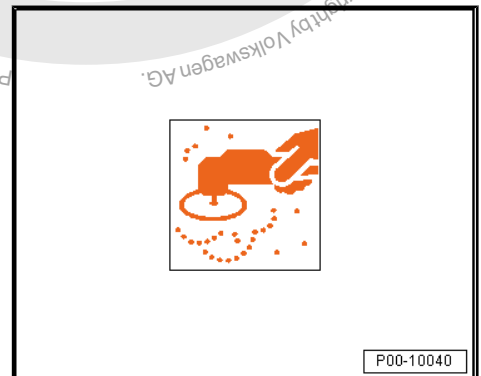
For plastic parts, see "The VW/Audi painting system for plastic parts" (data sheet no. 5.74).

Substrate pre-treatment:

- Thoroughly clean with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



- Dry sand using orbital sander (P400 to P500 grade) and dust collector.



- Alternatively, wet sand with P800-grit sandpaper.





- Before recoating, use a suitable cleaning agent to ensure a clean surface free of residues.

Application

Mixing ratio

Mixing ratio 1:1 by volume with 2-pack HS top coat:

- Then mix this 4:1 by volume with a suitable 2-pack VHS hardener.

See technical data sheet for 2-pack VHS hardener ⇒ [page 240](#) .

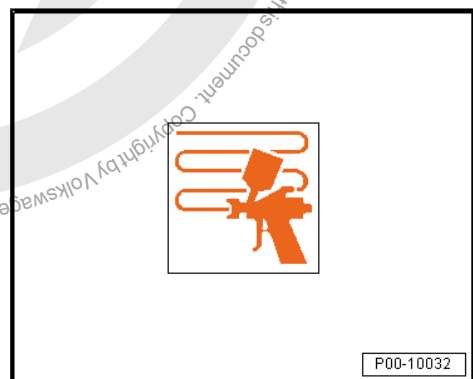
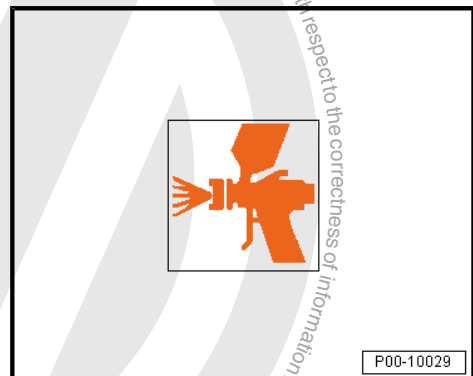
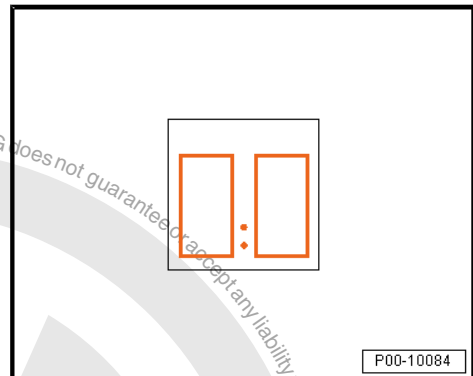
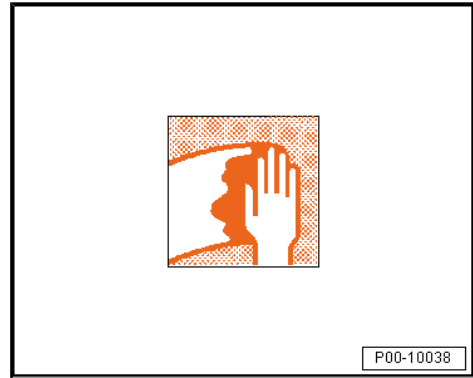
Thinner:

- ◆ 2-pack thinner, special - LVM 009 200 A2/A5-
- ◆ 2-pack thinner, slow-drying - LVM 009 300 A2-

Application time/pot life:

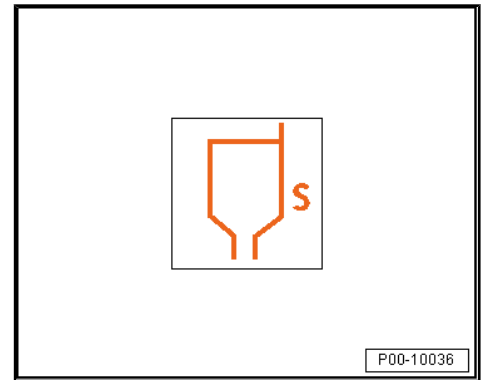
- Ready-to-spray . 90-100 min. at +20°C

Method of application: "spray".

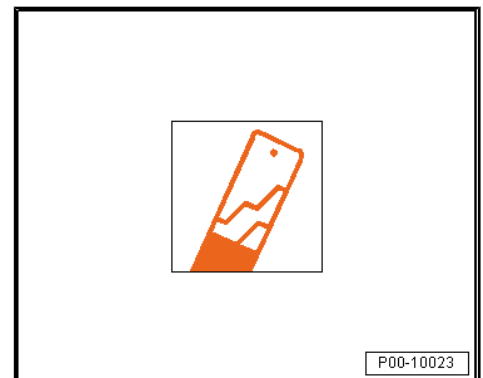




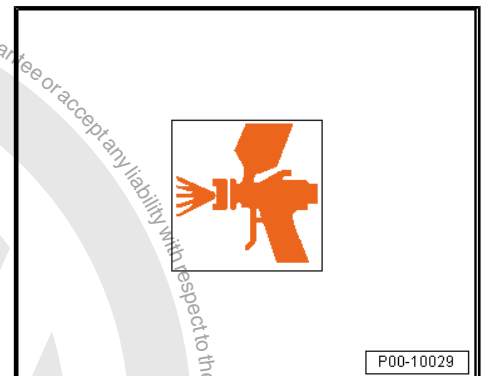
- Application viscosity 4 mm, +20°C, DIN 53211
- The application viscosity at +20°C is the "Compliant" and "HVLP" mixing viscosity.



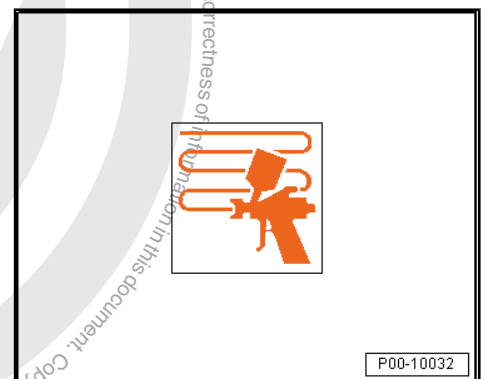
- Add 15 % thinner at +20°C material temperature



- Adjust spray nozzle (see manufacturer's instructions): "Compliant" 1.3-1.4 mm.
- Adjust spray nozzle (see manufacturer's instructions): "HVLP" 1.3-1.5 mm.
- Adjust spray pressure following manufacturer's instructions to 2.0-2.5 bar, "Compliant".
- Adjust atomising pressure (see manufacturer's instructions): "HVLP" 0.7 bar.



- Two spray passes with intermediate flash-off time (5 to 10 minutes) are necessary to achieve the recommended dry-film thickness of 50-60 µm.



Note

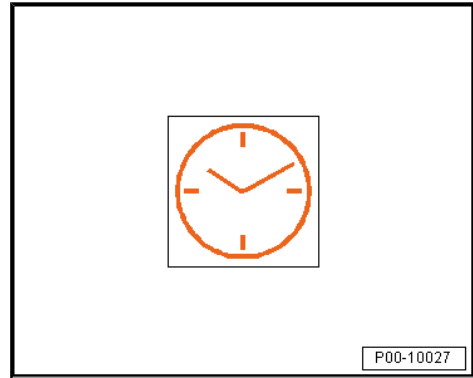
- ◆ *It is not necessary to add 2-pack plasticizer additive - ALZ 011 001-.*
- ◆ *The fine texture additive - ALN 775 108- is only suitable for use on add-on parts (e.g. bumpers or spoilers).*
- ◆ *Various effects can be created using different spraying techniques and layer thicknesses.*
- ◆ *The fine texture additive - ALN 775 108- is thixotropic and becomes liquid when stirred well.*



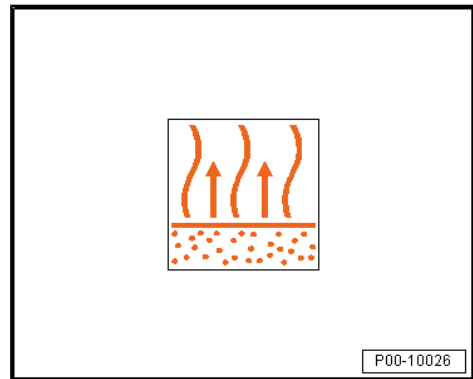
Drying

Air drying at +20 °C room temperature:

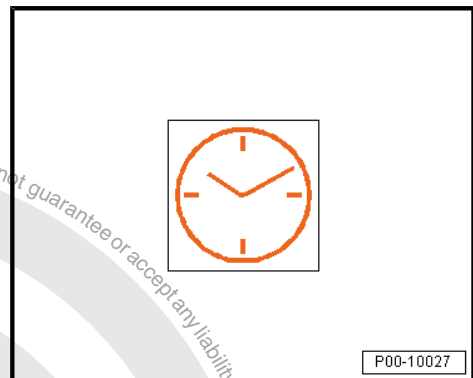
- ◆ Dust dry in 30-50 minutes
- ◆ Dry for assembly in 4-6 hours
- ◆ Dry overnight



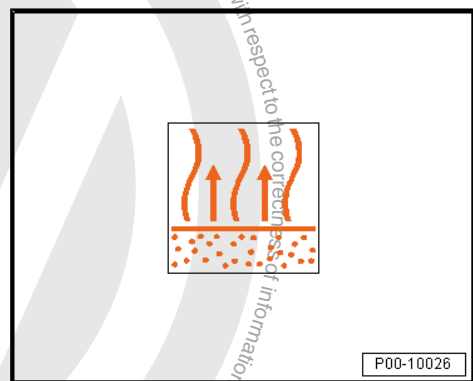
Final flash-off time with force drying is at least 5-10 minutes.



Force drying at +60°C material temperature in 30-40 minutes.

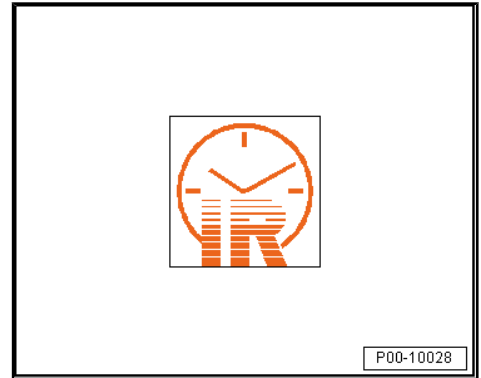


The final flash-off time with infrared drying is 5 minutes.





Infrared drying with short-wave radiant heater, 10-15 minutes and medium-wave radiant heater, 15-20 minutes.

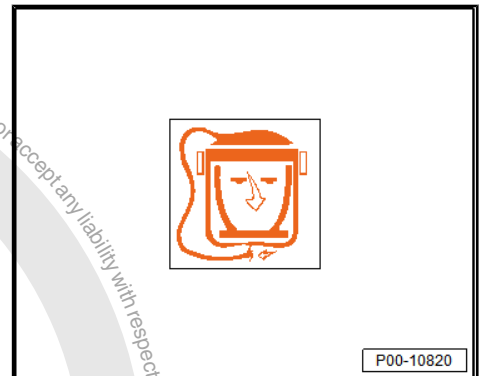


Personal protective equipment:

- ◆ Adhere to the safety data sheet.
- ◆ Wear personal protective equipment during application.

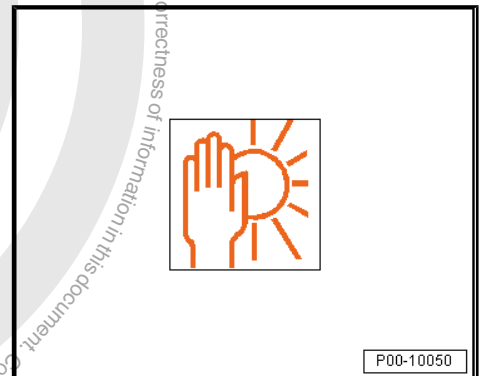
Data

Viscosity as supplied	Thixotropic
Flash point:	above +23 °C
VOC content: 2004/42/II B (e)(840) 600	The EU limit for this product (product category II B.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 600 g/l.



Storage

The guaranteed shelf life is 24 months from date of production. Can be processed on or before date indicated on label if stored in unopened, original containers at +20 °C.



3.18.4 Blending additive for Aquaplus

Designation:

- ◆ Blending additive for Aquaplus - LVM 030 000 A2-



Note

For information on preparing and applying the blending additive for Aquaplus - LVM 030 000 A2-, refer to chapter ⇒ ["3.7.4 Aquaplus blending system", page 170](#).

3.18.5 Additive for Aqua Premium

Designation:

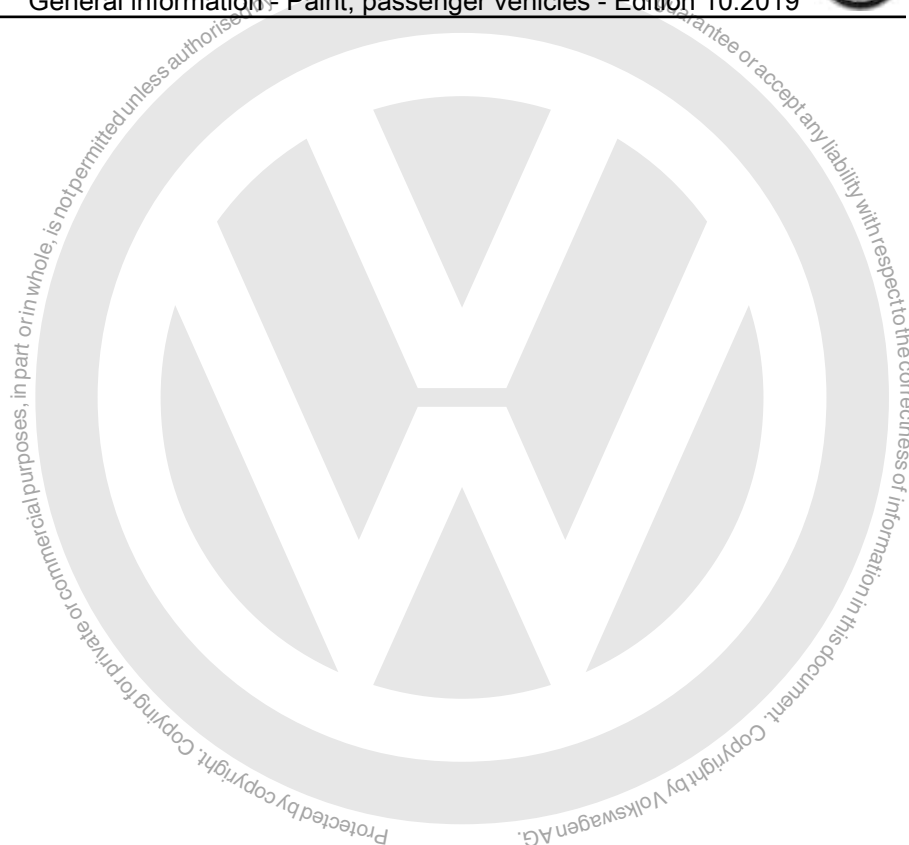
- ◆ Additive for Aqua Premium - LVM 035 200 A2/A3-
- ◆ Additive for Aqua Premium - LVM 035 300 A1-
- ◆ Additive for Aqua Premium - LVM 035 300 A1/A3- / Additive for Aqua Premium - LVM 035 301 A3-



Note

Information on the preparation and application of the additives for Aqua Premium is provided in the documentation for the respective base material ⇒ ["3.7.5 Aqua Premium system", page 174](#) .







4 Workshop equipment

⇒ ["4.1 Tools", page 368](#)

⇒ ["4.2 Tack cloths", page 379](#)

4.1 Tools

⇒ ["4.1.1 Spray can filling device VAS 6425", page 368](#)

⇒ ["4.1.2 Paint thickness tester VAS 6272", page 369](#)

⇒ ["4.1.3 Paint thickness tester VAS 6197", page 369](#)

⇒ ["4.1.4 Paint thickness tester VAS 5278", page 369](#)

⇒ ["4.1.5 Stone chip tester VAS 5102A", page 371](#)

⇒ ["4.1.6 Pneumatic brush grinder set VAS 6446", page 372](#)

⇒ ["4.1.7 Brush grinder set VAS 6776", page 373](#)

⇒ ["4.1.8 Suction feed spray-gun V.A.G 1538", page 374](#)

⇒ ["4.1.9 Infrared heater VAS 6873", page 375](#)

⇒ ["4.1.10 Stand VAS 6873/1", page 375](#)

⇒ ["4.1.11 Infrared heater VAS 6874", page 376](#)

⇒ ["4.1.12 Infrared heater VAS 6875", page 376](#)

⇒ ["4.1.13 Infrared heater VAS 6876", page 377](#)

⇒ ["4.1.14 Infrared heater VAS 6877", page 377](#)

⇒ ["4.1.15 Infrared heater VAS 6878", page 378](#)

⇒ ["4.1.16 Infrared heater VAS 6879", page 378](#)

4.1.1 Spray can filling device - VAS 6425-

Designation:

- ◆ Spray can filling device - VAS 6425-

Product description

The spray can filling device is a pneumatic unit for filling paint spray cans with mixed base and top coats without the need for cleaning. The device is suitable for filling 1-pack Fill Clean spray cans - LLS MAX 100- that can be ordered via ⇒ Electronic parts catalogue (ETKA) .

Size

- ◆ Diameter: 132 mm
- ◆ Height: 366 mm
- ◆ Height of door: 123 mm
- ◆ Filling cylinder: diameter 135 mm, height 65 mm, max. filling volume 100 ml
- ◆ Support base dimensions: 250 x 250 x 2 mm

Technical data

- ◆ Pneumatic filling principle
- ◆ Filling pressure: 8-10 bar / 100-130 psi
- ◆ Bursting point: approx. 60 bar /approx. 870 psi
- ◆ Operating temperature: +5°C to +50°C
- ◆ Gross weight: 4.23 kg





- ◆ Net weight 4.00 kg

Items supplied:

- ◆ Spray can filling device including metal cylinder
- ◆ Compressed air hose including coupling
- ◆ Securing bolt with washer
- ◆ Floor panel
- ◆ Adapter for 250 ml cans

4.1.2 Paint thickness tester - VAS 6272-

Designation:

- ◆ Paint thickness tester - VAS 6272-

Product description

The paint thickness tester VAS 6272 is a combination tester for the non-destructive measurement of paint thickness on steel, ferrous and non-ferrous metals. The menu guide and trouble-free calibration and setting of new parameters make this an ideal unit for workshops and quality assurance. The ergonomic shape of the device with an integrated measuring probe and simple operation allow extremely precise test results.

Technical data

Measuring range: continuous 0 to 3500 μm

Items supplied

- 1 measuring device



4.1.3 Paint thickness tester - VAS 6197-

Designation:

- ◆ Paint thickness tester - VAS 6197-

Product description

Fully electronic paint thickness tester with 2 independently functioning probes and liquid crystal display. Measurements are possible on various metallic substrates. For example, all non-magnetic layers on steel or iron and all isolating layers on non-ferrous metals such as aluminium and copper. Calibration is not necessary due to the use of Hall sensor technology.

Technical data

Measuring range: 0 to 5000 μm for both sensors

Items supplied

- ◆ Paint thickness tester
- ◆ Case
- ◆ Reference plates
- ◆ Battery



4.1.4 Paint thickness tester - VAS 5278-

Designation:

- ◆ Paint thickness tester - VAS 5278-



Product description

The paint thickness tester allows precise and non-destructive paint thickness measurement on steel and iron or non-ferrous metals. The electronic tester with LCD digital display indicates the measurement data according to selection via the menu.

Technical data

- ◆ Continuous measuring range: 0-5000 µm or 0-200 mils
- ◆ Tolerance: +/- 1 µm or +/- 0.06 mils
- ◆ Temperature range: 0 °C - 60 °C
- ◆ Power supply: 9 Volt alkaline
- ◆ 4-digit liquid crystal display (LCD)

Items supplied

- ◆ 1 tester for steel and iron
- ◆ 1 tester for non-ferrous metals
- ◆ 1 carrying case
- ◆ 2 zero plates
- ◆ Operating instructions





4.1.5 Stone chip tester - VAS 5102A-

Designation:

- ◆ Stone chip tester - VAS 5102A-

Product description

The stone chip tester - VAS 5102A- was developed by Volkswagen AG. It makes it possible to determine whether paint flaking is the result of errors in material or construction or the result of excessive mechanical stress caused by stone impact, scratching or similar. The test is based on the simulation of average impact on vehicle paintwork in road traffic of low-mass bodies, e.g. sand or gravel, travelling at a high velocity.



Note

- ◆ *The testing procedure is described in detail in the catalogue "Assessment of Vehicle Paintwork".*
- ◆ *The unit is subject to an annual inspection by the manufacturer. A charge will be levied for this service.*

Items supplied

- ◆ 1 stone chip tester with battery-powered metering device, pressure regulator and hose
- ◆ 1 mains connector
- ◆ Calibration stand with test scales
- ◆ Illuminated magnifier
- ◆ Film with angles marked
- ◆ Adhesive tape 25 mm wide
- ◆ Filling knife and scissors
- ◆ Granulate feeder with 10 x 100 g granulate
- ◆ Hard case with rollers
- ◆ 100 each VW and Audi seals
- ◆ Operating instructions, evaluation scale, test certificate, test plan



4.1.6 Pneumatic brush grinder set - VAS 6446-

Designation:

- ◆ Pneumatic brush grinder set - VAS 6446-

Product description:

The pneumatic brush grinder set - VAS 6446- serves as a surface treatment tool.

Suitable for removal of undercoating, sealants and other adhesive materials. Corrosion removal and paint removal in body area. With pore-deep cleaning and sand blasting effect, protects the material and has a material compressing effect. Low speed.

Items supplied:

- ◆ 1 pneumatic brush grinder set
- ◆ 1 holder for brush grinder strap 23/28 mm
- ◆ 1 holder for brush grinder strap 11/28 mm
- ◆ 1 brush grinder straps 23/28 mm
- ◆ 2 brush grinder straps 11/28 mm
- ◆ 3 special brush grinder straps 11/28/17 mm





4.1.7 Brush grinder set - VAS 6776-

Designation:

- ◆ Brush grinder set - VAS 6776-

Product description:

The device is designed to clean surfaces and to remove corrosion in areas that are difficult to reach. Suitable for joints, grooves, wheel housings, flange edges, door folds, etc. The device is pneumatically operated.

Design, features and technical data:

- ◆ A polyamide belt with wire bristles rotates in a mounting system.
- ◆ The mounting system is powered by a pneumatic drive unit.
- ◆ The accelerator rod multiplies the contact force of the bristles.
- ◆ Corrosion and layers are stripped down to the pores.

Technical data:

- ◆ Weight: 1.1 kg
- ◆ Thread size of pneumatic connection: 1/4" PT (G 1/4" included).
- ◆ Hose diameter: 3/8" ID (9.5mm)
- ◆ Speed: 0-2600 rpm
- ◆ Air pressure: 7.5 bar / 110 psi
- ◆ Air consumption: 14.2 CFM (400 l/min.)
- ◆ Vibration: 1.45 m/sec² (EN ISO 8662-1; 8662-4)
- ◆ Noise level: 84 dB (DIN 45635-21; ISO 3744)

Items supplied:

- ◆ 1 brush grinder drive unit
- ◆ 1 x 11 mm mounting system VAS 6446/2
- ◆ 1 swivel joint VAS 6446/9
- ◆ 1 air pressure regulator VAS 6446/8
- ◆ 2 brush grinder belts VAS 6776/1
- ◆ 2 brush grinder belts, left VAS 6776/2
- ◆ 2 brush grinder belts, right 6776/3
- ◆ 2 brush grinder belts, stainless steel VAS 6776/4
- ◆ 2 accelerator rods, inc. arm for use with brush grinder belt for stainless steel
- ◆ 1 hard shell case

Spare parts:

- ◆ Brush grinder belt - AS 6776/1- ASE 36308300000
- ◆ Brush grinder belt - VAS 6776/2- ASE 36308400000
- ◆ Brush grinder belt - VAS 6776/3- ASE 36308500000
- ◆ Brush grinder belt - VAS 6776/4- ASE 36308600000
- ◆ Accelerator rod - VAS 6776/5- ASE 46308700000
- ◆ Accelerator rod - VAS 6776/6- ASE 46308800000





4.1.8 Suction feed spray-gun - V.A.G 1538-

Designation:

- ◆ Suction feed spray-gun - VAG 1538-

Product description:

Tool for sealing cavities in all new and used cars and for applying underbody sealant.

Design, features and technical data:

Special gun with safety check valve and quick release coupling for probe.

- ◆ Max. spray pressure: 10 bar
- ◆ Air connection thread: R 1/4".
- ◆ Air consumption: Approx. 100 l/min.
- ◆ Weight: 1300 g

Items supplied:

- ◆ Suction feed spray-gun
- ◆ 1 l steel cup, painted
- ◆ Flexible hook probe - V.A.G 1538/1-
- ◆ Nylon probe - V.A.G 1538/2-

Spare parts:

- ◆ Hook probe - V.A.G 1538/1-
- ◆ Nylon probe - V.A.G 1538/2-



Note

Recommended accessories are listed in the ⇒ Catalogue Workshop equipment and Special tools available under Volkswagen Service-Net.



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4.1.9 Infrared heater - VAS 6873-

Designation:

- ◆ Infrared heater - VAS 6873-

Product description:

Short-wave infrared heater is used for quick drying of putty, filler, undercoat, top coat and clear coat for minor repairs.

Technical data:

- ◆ 220-240 V, 1 PH+PE
- ◆ 4 A

Items supplied:

Complete hand-held heater with plug and operating instructions

Spare parts:

Stand - VAS 6873/1- ASE 434 392 00 000



Note

Refer to manufacturer's operating instructions.



4.1.10 Stand - VAS 6873/1-

Designation:

- ◆ Stand - VAS 6873/1-

Product description:

Stand - VAS 6873/1- with timer

Technical data:

- ◆ 220-240 V, 1 OH+PE

Items supplied:

Complete stand with timer and assembly instructions



Note

Refer to manufacturer's assembly instructions.





4.1.11 Infrared heater - VAS 6874-

Designation:

- ◆ Infrared heater - VAS 6874-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical surfaces with 2 timers for flashing off and curing.

Technical data:

- ◆ 230 V, 1 PH+PE
- ◆ 3 KW
- ◆ 13 A

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.

4.1.12 Infrared heater - VAS 6875-

Designation:

- ◆ Infrared heater - VAS 6875-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical or horizontal surfaces with 2 timers for flashing off and curing.

Technical data:

- ◆ 230 V, 1 PH +PE
- ◆ 3 KW
- ◆ 13 A

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.



4.1.13 Infrared heater - VAS 6876-

Designation:

- ◆ Infrared heater - VAS 6876-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical or horizontal surfaces.

- ◆ Short-wave infrared heater with one head
- ◆ 2 output stages with 12 pre-programmed settings and 3 user-defined programs with automatic timer control
- ◆ Automatic distance measurement

Technical data:

- ◆ 400 V, 3 PH+PE
- ◆ 3 KW
- ◆ 5 A
- ◆ Fuse 16 A delay

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.



4.1.14 Infrared heater - VAS 6877-

Designation:

- ◆ Infrared heater - VAS 6877-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical or horizontal surfaces.

- ◆ Short-wave infrared heater with one head
- ◆ 2 output stages with 12 pre-programmed settings and 3 user-defined programs with automatic timer control
- ◆ Automatic distance measurement

Technical data:

- ◆ 400 V, 3 PH+PE
- ◆ 6 KW
- ◆ 9 A
- ◆ Fuse 16 A delay

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.





4.1.15 Infrared heater - VAS 6878-

Designation:

- ◆ Infrared heater - VAS 6878-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical or horizontal surfaces.

- ◆ Short-wave infrared heater with one head
- ◆ 12 pre-programmed settings and 3 user-defined programs
- ◆ Fully automatic drying process with pyrometer for temperature control, laser pointer and automatic distance measurement

Technical data:

- ◆ 400 V, 3 PH+PE
- ◆ 6 KW
- ◆ 9 A
- ◆ Fuse 16 A delay

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.



4.1.16 Infrared heater - VAS 6879-

Designation:

- ◆ Infrared heater - VAS 6879-

Product description:

The infrared heater is used to dry putty, filler, base coat, top coat and clear coat on vertical or horizontal surfaces.

- ◆ Short-wave infrared heater with two heads
- ◆ 12 pre-programmed settings and 3 user-defined programs
- ◆ Fully automatic drying process with pyrometer for temperature control, laser pointer and automatic distance measurement

Technical data:

- ◆ 400 V, 3 PH+PE
- ◆ 12 KW
- ◆ 9 A
- ◆ Fuse 16 A delay

Items supplied:

Complete stand with timer and assembly instructions



Note

Observe manufacturer's instructions for assembly and use.





4.2 Tack cloths

⇒ ["4.2.1 Tack cloth VAS 6177 ", page 379](#)

⇒ ["4.2.2 Buffing cloth, white VAS 6176 ", page 379](#)

⇒ ["4.2.3 Professional cleaning cloth VAS 6006 ", page 380](#)

4.2.1 Tack cloth - VAS 6177-

Designation:

- ◆ Tack cloth - VAS 6177-

Product description:

Tack cloth with extremely effective soft tack properties for critical cleaning tasks. Unlike other tack cloths, this cloth does not leave any chemical residue on the surface or on the hands. This assures that the surface to be treated is free from adhesive residue and fingerprints. The risk of streaks forming is considerably reduced as a result, particularly when using water-based paints. Modern fleece weave technology makes this cloth lint-free and resistant to fraying. It is also highly suitable for plastic repairs because it reduces the static charge of plastic parts.

Size: 380 x 430 mm

Areas of application:

- ◆ Intermediate cleaning prior to application of further coats
- ◆ Removal of dry particles prior to application of top coat
- ◆ Cleaning plastic parts

Items supplied:

6 cloths per bag, 30 bags per box

Folded 4 times and stored in zip-lock bags

4.2.2 Buffing cloth, white - VAS 6176-

Designation:

- ◆ Buffing cloth, white - VAS 6176-

Product description:

Extremely soft cloth for delicate, demanding polishing. A combination of viscose and polyester fibres make the cloth particularly soft. The special fleece structure prevents loose threads, fraying and the development of lint. Because there are no additives that cause streaks, the cloth is also ideally suited for buffing chrome, glass and interior parts.

Size: 400 x 365 mm per cloth

Areas of application:

- ◆ Hand polishing
- ◆ Finishing exterior surfaces
- ◆ Cleaning interior

Items supplied:

275 tear-off fleece cloths in a dispenser box



4.2.3 Professional cleaning cloth - VAS 6006-

Designation:

- ◆ Professional cleaning cloth - VAS 6006-

Product description:

The cloth is suitable for cleaning dust and micro dust from dry surfaces. It has anti-static properties when used to clean plastics, glass, paintwork, monitor screens etc. Its cleaning properties are even more impressive when moistened. Every smooth surface is deep cleaned with just one motion. The cloth is free from chemicals and is wear resistant. It achieves a maximum cleaning effect without chemical impregnation. However, if required, all types of cleaning solution can be used with the cloth. A fibre-splitting process increases the surface structure of the cloth 1400 fold. The fibres have a capillary effect which binds the removed dirt deep in the cloth. Thus the surface of the cloth remains clean and effective, and the cloth is always available for further use. Surface friction polarises dust, dirt, grease and fluid molecules so that they are loosened from the surface to be cleaned without the need for chemical agitators.

Size: 320 x 320 mm

Areas of application:

- ◆ Cleaning of body surfaces in preparation for paint spraying
- ◆ Removal of wax remains from anti-corrosion measures
- ◆ Removal of dirt from vehicle interior i.e. textile and leather materials
- ◆ Cleaning windows and mirrors
- ◆ Cleaning cockpit
- ◆ Degreasing metal objects such as tools etc.
- ◆ Numerous other applications in the office and household

Items supplied:

1 cloth, 320 x 320 mm in plastic jacket

