

Introductory brochure for the water-transfer-print



The exclusive design

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Introduction

Expansion of business for lacquer-factories: water-transfer-printing

Boundless diversity: film-design for objects to lacquer

Water-transfer-printing opens attractive possibilities to lacquer-factories to develop other business areas. Because with the from WT-DIRECT established print method you cannot just take for lacquered car-tracts. As well you can cover other already lacquered tracts, after appropriate machining, in many different ways with special film. Because of the easy integration of water-transfer-printing into the shop-precincts of a lacquer-specialist-factory, this process supplemented the classic industrial fields optimal and cons to a better work-utilization.

The film-carried print method can be basically used by every lacquer-factory or every other business establishment. Undertakings which are interested in this innovative print method just need the space and a water connection for the bowl. The face you want to design need to be prepared with WT-DIRECT BASE COAT and later you have to seal it with clear coat. On this account water-transfer-printing is basically perfect for the everyday business area of a lacquer-specialist-factory or another business which are working with varnish. Every fabricator can learn the necessary know-how for printing in an introductory, one- till two day training course and after that you can implement the learned. We provide accordant courses in our training center in 73655 Plüderhausen – GERMANY.

Per water-transfer-printing you can cover almost every lacquered object. Based on the multilateral application area an utilization far beyond the classical automobile area provides. Next to rims, strips, interior panel, motor covers and many more for example coffee machines, mobile shells or articles of furniture can be covered. Water-transfer-printing is also ideal for companies which are assimilating small batches. Concerning to the use and new customer groups, not least the creativity of each employee is asked, because material and process doesn't set any boundaries for a start. By means of water-transfer-printing you can bring up new target groups and advert them on the business activities of a lacquer-specialist-factory – from normal car-lacquer-refinishing to the point of a fancy design of the furnishing.

Products:

- **Films**

Water-transfer-print-films are partially transparent or translucent. Thereby the underground-tone decides the effect. Therefore there are set no boundaries in being creative. Currently there are ca. 800 different designs in the standard width of 50 cm available. Additionally you can order popular films in 80 cm width. For details see section "logistic data".

To match the newest trends and developments, we will constant broad and assemble our range of articles.

- **Activator**

To etch the medium-film of the design you need a special 2- or 1- components activator. The components A and B need to be mixed with air fuel ratio 100:50 according to weight and the 1-component activator is spray-ready.

- **Filter pad**

To remove film-leftovers from the bowl, special filter pad got established. Those filter pad is more compact and more resistant than usual filter pads.

Cost: 12,50€ / m²

Target audience / positioning

- **Positioning:**

1. High quality design of lacquered surfaces
2. Cost-saving betterment of low priced undergrounds

- Target audience:

1. All car repair-specialist-factories
2. All job coaters / automotive supplier
3. Commercial vehicle-manufacturer / undertakings
4. Automobile Tuner
5. Furniture / generally industry
6. Design- / decor companies
7. Motorbikes – attaching parts

Advantage and use-reasoning

- Car body and lacquer-factory

1. Design instead of reparation => Earning of new customers => additional-sales
2. Advertising-possibilities on your own cars => new external-demonstration => Image-improvement
3. Selection options to other paint shops => new customers-structure => enlivenment of the CR business
4. Scope for design for new segments => Image-improvement
5. Improved load => more sold hours => upper profit

- Vending agency plant

6. Uniqueness => ideal sill by competition-customers => chance to get additional-sales
7. Water-transfer-printing offers new vending options also beyond of CR => chance to win new customers => additional sales
8. Water-transfer-printing is a product-system => If you want to sell films to competition-customers, you should use products of WT-DIRECT.

Price comparison and calculation:

- Roll prices of the films:

Running meter pro role: 10m

Roll width: 50cm

80cm

Costs/roll: 48,00€ + value added tax

78,00€ + VAT

- Activators:

You have to mix the needed activator out of the components A and B in the air fuel ratio 100:50 according to weight.

Activator A:

Size of trading unit: 1,0 liter – Price: € 20,00 / hoop, net + VAT

Activator B:

Size of trading unit: 0,5 liter – Price: € 17,50 / hoop, net + VAT

Activator spray-ready:

Size of trading unit: 1,0 liter – Price: € 22,50 / hoop, net + VAT

- Starterkit

The Starterkit “**medium bowl**” includes:

9. 1 Standard-bowl incl. delimiter (1m x 1m dipping-area)

10.4 rolls of 10m film-designs (50cm width) free choice

11. 1 liter activator spray-ready

Price: 5.599,00 € + VAT and forwarding

The Starterkit “**big bowl**” includes:

1. 1 big bowl incl. delimiter (2m x 2x dipping area)
 2. 6 rolls of 10m film-designs (50cm width) free choice
 3. 1 liter activator spray-ready
- Price: 8.599,00 € + VAT and forwarding

- Special sizes:

Special sizes for bowls are basically possible. Price and delivery after arrangement with the manufacturer.

By special request it is also possible to order a Starterkit without a bowl. Then it includes:

18 film-designs (50cm width); 1 liter activator A and 0,5 liter activator B

Price: 399,00 € + VAT and forwarding

Application technology

Undergrounds: Water-transfer-printing can be applied on every lacquered underground.

Important: The undergrounds may not be water soluble.

Underground: The underground need to be try and well cleaned. You can use CR degreasing agents as detergent.

Masking: Firstly mask the underground in a ca. 2mm distance to the face you want to coat. After this you have to mask the exact lacquer-barrier with a waterproofed masking tape (for example 3M Fine line tape).

- Premises to the water-transfer-printing

- 1.1 dipping bowl and washing-place

- Important: The dipping bowl needs to be degreased before using!!!**

- 1.2 Optimal machining-quality by ca. 23°C and air moisture of 50-60%
(only when optimal machining-quality).

- 1.3 Exhaust device

- 1.4 Wear protective clothing! Gloves and especially when activating the film a respirator mask, minimum protection class A1, need to be available.
(The activator contains noxious solvents.)

- 1.5 Working temperature:

- WT-DIRECT films: water temperature in the dipping bowl 25 – 27°C

- 1.6 Fill level of the tap water

- Fill the dipping bowl till the overflow. Before initial fill you need to clean the bowl well with the accordant detergents.

- 1.7 Change water after quality-losings when producing. (see manufacturer-instruction sheet.) At the duct-discharge of the effluent you need to consider the local discharge-approval-regulations.

- 1.8 Machine care and cleaning see manufacturer-instruction sheet.

- 1.9 Storing of the films:

- WT-DIRECT films: 18-25°C by 50-60% relative air moisture

- 1.10 HVLP-spraying gun SATAJET 3000 with die diameter 1,0 mm and 0,6 bar pressure.

1.11 Washing-place:

Hand-washing-place with hand shower (garden-shower with hand lever), ca. 27°C warm washing water 1,0 to 2,0 bar pressure.

Machine-washing-place with automatically draining washing-cycle (with circulating washing water) and hand shower with fresh water wash-up.

1.12 Lantern slide as an underlayment when cutting films.

- Machining data for standard for standard-films:

2.1 Film-soaking-time before activating:

WT-DIRECT films: 60-90 seconds depending on film.

2.2 Activator-residence time after sputtering:

WT-DIRECT films: 3-30 seconds depending on film

2.3 Processing time of the activated film:

Up to 60 seconds, depending on film, room temperature and air moisture.

2.4 Washing:

By hand: let it lay for ca. 30 seconds, then wash it.

With an automat: wash directly

- Operating premises of the dipping-bowl

3.1 Switch on pump and heater

3.2 Settle the thermostat of the filter-bowl (see 1.5). One-time calibration, modification only when you have got special films or when you change your film-supplier.

3.3 Wait till working temperature is achieved (see 1.5), then switch off the heater.

- 3.4 Change filter pad (filter-sort: WT-DIRECT filter pad or basement-filter pad) of the filter-bowl when the water level in the filter-box is rising constantly. (see manufacturer-instruction sheet).
- 3.5 Preset timer to film-soaking-time (see 2.1).
- Machining (first till last operation within 24 hours)
 - 4.1 You need to observe the tone, drying time (drying after technical bulletin > **these drying times need to be observed**<, still open-pored, therefore you have to process it in between maximum 24 hours) and material type. Gleaming varnish is not porous enough, that's why the coating-film doesn't cling. 2K-varnish cannot be etched by the activator.
 - 4.2 Cut film (blank of the coating-area +5cm, minimal 25cm x 25cm).
 - 4.3 Cut film in slant 1cm deep ca. 45° cuttings, at the brim around, cut in intervals of 3 to 5cm or stick little glue strips in the same interval at the brim.
 - 4.4 Lay limitation-blank sheets onto the water surface (2-3cm distance to the film)
 - 4.5 Lay the wet film between thumb and forefinger, compress fingers for 3 seconds and lay film with the gluey side onto the water (touch film diagonal, let sag mid and lay onto water with one sag side). Press out bubbles with dry finger or by soft blowing with the mouth.
 - 4.6 Press start-button of the timer
 - 4.7 After the sound of the blip – press stop-button

- 4.8 Spray activator covering, a gleam in the light, onto the film. (Before beginning with the process turn on the vacuum device, put on dust mask and gloves.) If you apply the activator too thick the film will become blurred on the component. Productiveness of the activator is ca. 20 to 30 mg/m², conforming 35 to 55 meter film-length, 50cm width for one liter.
- 4.9 Observe residence time of the activator (see 2.2).
- 4.10 Do dipping process slowly with few centimeters per second. When dipping by hand, shake soft in dipped condition till the film breaks off at the brim. The machining time (see 2.3) need to be observed. The time till the film is melting on the water is depending on the film. The dipping-angle can be geometry-dependent up to 80°. No other film will adhere on an already covered face. You can wash off the film-overlap. By further dipping processes you have to paste the already covered face.
- 4.11 Waiting time see 2.4
- 4.12 Clean the tracts with warm water till the lubricating film is gone. By a floating water you have to rinse it afterwards with fresh water.
- 4.13 Let the tracts dry well.
- 4.14 Decor-flaws can be corrected:
If you have got flaws, you can take a paintbrush soaked with spray-ready activator, displace color from the film and transfer it. If there is little color on the film you have to remove the color from a minimum 5cm x 5cm area.
- 4.15 Apply clear coat.

Training

Currently we are providing 1 - or 2-day seminars in our training-centers in Plüderhausen. The costs for the attendee are 250 € / Netto for per training-day.

Dates for water-printing-trainings will be announced.

Recognizing and avoiding of failures

Failures	Failure solution
Film doesn't adhere after transferring.	Tract was deposited too long after lacquering or it was left too long in the dryer. Observe storage conditions of the films, see 1.9. Too little activator applied, see 4.8.
After dipping the surplus film hangs like skin on the tract.	You can wash off surplus film. Shake dipped tracts till the film on the edge breaks off (only possible when dipped by hand) Observe slew of activator per m ² (see 4.8).
Film become blurred in the bowl.	See 4.4; 4.8; 4.9 and 2.2
There are bubbles on the dipped tract.	Geometry-dependent: change dipping-angle or revolve tract, so that the first face which contacts the water is as small as possible (begin on one edge). Geometry-independent: slow down dipping-time, so that there is no tape flutter.
Decor-distortion generally:	Slow down dipping-time
Decor-distortion at indentations and openings:	Elongate indentations till the left over partial-height with adhesive tape. Seal the openings with adhesive tape or make the openings smaller if the air needs to escape in an indentation.

Fissure-pictures on the finished dipped tract.

Reduce dipping-time. (Activator is evaporated)
Use 2K-activator. Water is too cold, see 1.11.

Adhesion-deficiency:
You are able to warp the film like wet lacquer with your finger.

Too much activator, see 4.8.
Mixed the 2K-activator in the wrong air fuel ratio. Applied too much activator.

Adhesion-deficiency: flaking

Tract was deposited too long after lacquering or
or it was left too long in the dryer.
Wrong undercoat lacquer (never 2K-varnish)
Mixed the 2K-activator in the wrong air fuel ratio. Take the prescribed activator from your film-supplier. Too cold water, see 1.11.

Frequently asked questions

Which tracts are suited for water-transfer-printing?

Nearly all! Because you can use water-transfer-printing for tracts in nearly any form and on a multitude of materials, so there are scant boundaries in the application. A rule of thumb is: If it is possible to ground and to lacquer the tract with clear coat, you can cover it with water-transfer-printing-designs. Though you can't use it for tracts which are in direct contact with fire, hot water, edibles or beverages.

Is it really possible to cover complex 3D-tracts all around with this technology?

Yes! Water-transfer-printing utilizes a basically physical principle – the water pressure. When you dip a tract underwater, the water is also achieving the parts, which are normally “inaccessible” with usual covering-methods. Because of the natural waterpower the liquid film is closing about the object all around, so that it is covered constant and seamless. One exception are extremely formed tracts, under which bubbles or air pockets could be formed. You can obviate this when you put an ably dipping-angle or when you stab a little air hole into the highest point of the concavity, through that the air is able to exhaust.

How resistant is the covering?

If you consider that the most with water-transfer coated tracts are inserted for automotive engineering, boatbuilding or aircraft construction as the case may be tackles you need in daily life for example cell phone- or remote-control enclosures, you can imagine easily how long-living and resistant the covers may be. With accordant clear coat you can also attain UV-resistance or scratch resistance.

How much does the water-transfer-printing cost?

It is astonishing cheap! Furthermore our machines are offering a good price performance ratio: to the costs for the system are coming – next to the already arising production expenses – only that for the needed consumables (basically film, activator and clear coat, as well as grounding).

How much space do you need for water-transfer-printing?

This depends amongst others from the size and the number of tracts you want to coat. Next to the place for the accordant water-transfer-printing-system, which is normally composed of one “dipping bowl” and one appending “washing-place”, you need enough space for the storing of the films and the tracts, as well as a suitable device to ground and clear coat. If you are not sure

what system will satisfy your individual demands, or if your existent premises are qualified for water-transfer-printing, we will advise you willingly.

Can I view a water-transfer-printing-system, before I make my buying decision?

Of course! On request we tell you willingly where and when you can visit one of our systems near to you, or where you can get a demonstration of it. Willingly a technician from us will visit you locally to demonstrate the machining in your house.

How long do you need to learn the technique?

Not that long – you will be surprised how fast you can learn the basically knack! Furthermore our machines offer you maximize ease of use and they will be basically delivered with a detailed manual in which is elucidated step-by-step the function of the machine and her handling, machine care and fostering.

Apropos maintenance and machine care...?

Both need just a minimum of time, because in the individual machines there are little tracts processed which could go bust or be damaged easily. The only maintenance work you need to do regularly are the water level- and the state-control as well as the cleaning of the glow bars. With every machine you will get a manual in which every needful workings are described. Here you can also find service-addresses and emergency telephone codes, but be sure that we just mention them for the sake of completeness.

The operation and the handling with water-transfer-print-systems and Activator from WT-DIRECT GMBH

To get a consistent and an optimal effect, we recommend the following equipment sold by us

1. For small tracts the SATA Mini Jet 1.0 SR
2. And for bigger tracts the SATA JET 3000 HVLP1,0 die set

The equipment is optimized for a fast, easy and uninterruptible manufacturing act.

Basic principle

You have to apply the water-transfer-film afloat on the water surface. The tract you need to coat you have to dip it into the water-transfer-film which is laying on the water surface in doing so the pattern from the water-transfer-film is going to be transfused onto the tract.

The succession is:

1. Cleaning:

To clean up and to degrease the tract you want to coat (please use detention primer when it is out of plastic.) Painting of the underground in the matching color from WT-DIRECT GMBH. To apply the water-transfer-film into the bowl and then wait 1 minute
Spray the activator consistent and laminar onto the water-transfer-film with the SATA spray gun. Dip the painted tract now into the water through the water-transfer-film
Take the coated tract out of the water and clean it with a water sprinkler
Concluding you have to cover the dried tract with a 2K clear paint to protect the pattern.

Preparation of the tracts you have to coat

The tracts you have to coat have to be free from water soluble particles and they may not have any water sensitive exhibits like electronics because the tracts have to be dipped into the water-transfer-bowl. Tracts from cars or other tracts have to be developed, from mobile phones you have to detach the cover of the electronics.
The tracts need to be cleaned and degreased or rather be edited with plastic etch primer.
Concluding you have to cover the tracts with WT-DIRECT 1 K basecoat. As paint color choose the base color of the pattern you have to apply. For example brown for a wood grain, grey for cut aluminum or black for a dark carbon-look.

The tracts have to be absolutely dry and greaseless before you coat them with film.

Activator

You have to fill the activator functional into the SAT MiniJET 1,0 SR or rather SATA JET 3000 HVLP 1,0. The amount of the activator variegates a little bit from film to film and also it depends a bit to the room temperature.

Preparation of the bowl

Fill the water-transfer-print-bowl with normal tap water till the brink of the overflow. Put on the heater of the bowl and make sure that the water has a constant temperature of circa 27°C.

Preparation of the film

Cut out enough film for the tract you want to coat. Keep in mind that there need to be enough film that the film is able to cover all rough edges and cavities of the tract.
First put the film onto a straightly and clean area.

Tip: Cut the film in a distance of circa 3cm in a 45° angle so that the film can't convolve when he is inlaid into the bowl.

The film has to lay on the water with the glue-side.

Coating the tracts

Apply the film on the water surface now. Lay the film on the water with the glue-side. (Important!) Keep in mind that the water surface is calm. By light blowing with your mouth onto the floating film you will achieve a waveless, wrinkle-free and air hole free overlie of the film on the water.

Now you can see that the film is rolling in at the border which you can circumvent with the cut in. Exactly after one minute you applied the film on the water, you have to spray the activator consistent and laminar with the SATA spraying gun on it. Keep the SATA spraying gun in a distance of ca. 20-30cm to the film.

Do not take too much activator because the film should only be fogged.
After the spraying you have ca. 30 seconds to convert the film.

After the spraying with activator the film expands as you can see pretty well.

Now dip the tract directly after the spraying in a crude 45° angle slowly and calm into the film.

After the tract was completely under water, pull it out of the bowl.

Information:

It is very important to dip the tract consistent into the bowl through the film. By infiltration of the tract into the water by hand a bucking could be possible because the resistance of the water is not consistent, particularly when the tracts got vents or holes. It is advisable to paste them from behind. In that case it is advisable to use a dipping-arm who makes sure a consistent dipping into the water.

The film does not stick on itself. Therefore it is possible to dip the tract twice in special circumstances.

Cleaning the tracts

Now clean the tract with the sprinkler to remove the remaining film. In no case you should use a normal water tap or a high pressure water jet because both will corrode the recent applied film. You will achieve the best result when the water jet has got a temperature of 27°C.

Best clean the tracts directly after the dipping.

Completion of the tracts / Clear coat

When the coated tracts are dry, you have to apply the base coat depending on the coated tract. Through this the coat will be very abrasion-resistant.

Cleaning the water

After every workday please skim the film-leftovers, which are floating on the water surface with a water strainer. You don't have to skim the film-leftovers on the bottom of the bowl. They don't bother. Also you do not have to change water if you want to apply different pattern on several tracts one after another. Skimming the water surface is absolute enough.

Typical problems - and how you can avoid them

Problem: The film abrogates directly after applying onto the water surface.

Reason: The film is laying on the water with the wrong side. The film has to lay on the water with the glue-side.

Problem: The film is not vouching on the surface.

Reason: The underground is not greaseless or not coated.

Contact to WT-DIRECT

If you have got any further questions, don't hesitate to contact us.

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