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SELF-ADHESIVE ELEMENTS

Self-adhesive Elements are eye-catching and innovative products that come ready-to-apply. Their glue-covered reverse side allows easy and fast application.

When applied on paper and solid surfaces, they can create fantastic designs. Coldfix is a perfect alternative for leather and textiles which are not suitable for Hotfix application.

- 98** Product Overview and field of usage
- 100** Machines and Tools
- 101** Suppliers
- 102** Application
- 115** Quick Assistance

PRODUCT OVERVIEW AND FIELD OF USAGE

The following products are suitable for listed carrier materials:

	APPLICATION ON SOLID MATERIALS*	APPLICATION ON TEXTILE MATERIALS AND LEATHER**
Crystal-it Infinity	✓	
Crystal Fabric-it	✓	
Crystaltex-it	✓	
Crystaltex Chaton-it	✓	
Crystal Rocks-it	✓	
Crystal Fine Rocks-it	✓	
Crystal Ultrafine Rocks-it	✓	
Crystal Fabric Coldfix		✓
Crystal Fine Rocks Coldfix		✓

* application on solid materials such as e.g. paper, metal, glass. The material needs to be suitable for gluing.

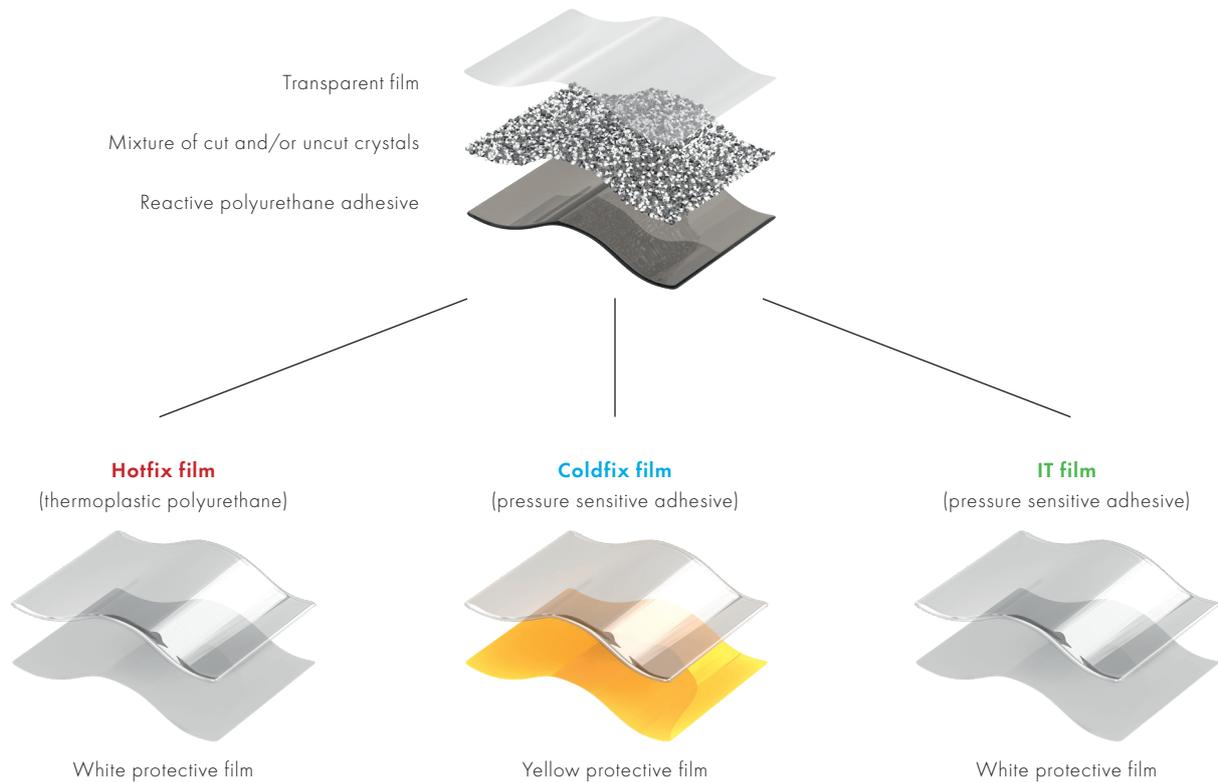
** application on textile materials and leather which are not suitable for Hotfix application.

Self-adhesive Elements have a coating of a pressure-sensitive glue on the back, enabling swift, simple application. This glue is activated by **pressure** (applied either by hand, rubber roller or heat press), and bonds with the carrier material.

Crystal -it Infinity and Synthetic-it motifs are suitable for the application on solid materials, while Coldfix is suitable for application on textile materials and leather which are not suitable for Hotfix application.

As **Synthetics** are available as **Hotfix**, **IT** and **Coldfix** version, please find here for a detailed overview the different material composition and proper fields of application

for each product group. In general, all 3 versions are build-up very similar. The main difference will be in the adhesive used at the reverse side of the product.



- Heat resistance (min. 120 °C / 285 °F)
- Resistance against pressure
- Application area of the product
- Suitability of surface properties and absorbency

- Heat-sensitive carrier materials (e.g. silk, cashmere, real and artificial leather ...)
- Pressure-sensitive carrier materials (e.g. wool, real and artificial leather ...)
- Textiles with a low level of absorbency (e.g. functional fabrics with water-repellent coating, ...)
- Easy and fast embellishment of finished products

- Solid materials which are suitable for gluing (surface tension of at least 38mN/m)

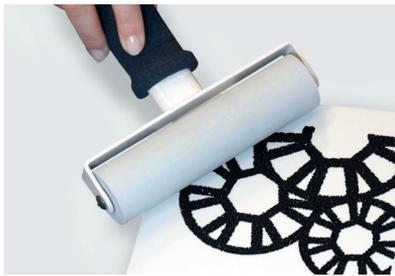
Please keep in mind: Coldfix is not a replacement for our Hotfix products - it is a new alternative for difficult carrier materials that are incompatible with Hotfix products.

If Hotfix is applicable, we recommend using Hotfix technique as the achievable bonding strength is higher than applying a Coldfix product.

MACHINES AND TOOLS

The following machines, tools and aids can be used for applying Self-adhesive Elements.

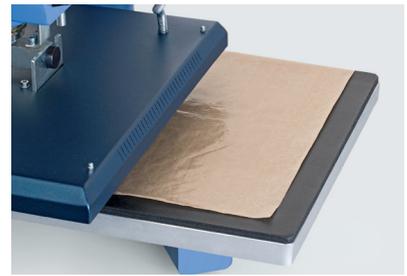
Especially for Coldfix application onto textiles and leather:



Rubber roller



Heat press



Teflon® foil (art. 9010/003)

Especially for IT- application onto solid materials:



Test Pen (art. 9030/000)



Blow torch



Isopropyl alcohol/Acetone



Plasma cleaner



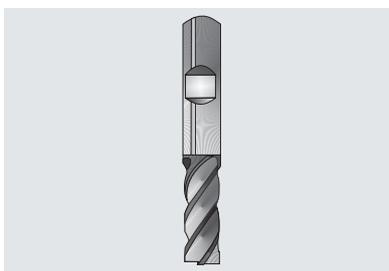
Corona



Plastic Gloves



CNC milling machine



Milling cutter



Protective eyewear

SUPPLIERS

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
NC drill/milling cutter	Dixi Holding SA Hahn & Kolb GmbH Hoffmann GmbH Reich Präzisionswerkzeuge Wedco	www.dixi.ch www.hahn-kolb.de www.hoffmann-group.com www.reich.at www.wedco.at
Test Pen	Swarovski: art. 9030/000	www.swarovski-professional.com
Heat press	Bestblanks Elna SMP Singapore Fukutomi Technologies Hix Corporation Zhejiang Huangyan Garment Machinery Factory Jesse J. Heap & Son, Inc. Nagel & Hermann OSHIMAKK Co., Ltd. Pro World ColDesi, Inc RPL Supplies, Inc. STAHL'S Europe GmbH Teva Thermopress Europe	www.bestblanks.com www.elnasingapore.com www.sublihub.com www.hixcorp.com www.ji-feng.com www.jesseheap.com www.strass.cc www.oshima.com.tw www.proworldinc.com www.rhinestonecamsmachines.com www.rplsupplies.com www.stahls.de www.teva-organisation.com www.thermopress.de
Double heat press	Teva Wagner GmbH	www.teva-organisation.com www.wagner-transferpressen.de
Teflon® foil (100 x 50 cm, 40 x 20 in)	Swarovski: art. 9010/003	www.swarovski-professional.com
Rubber roller	Regiotape GmbH AJC Tools & Equipment Co.	www.regio-tape.de www.ajctools.com

APPLICATION

When applying Swarovski Self-adhesive Elements, optimal results are obtained by coordinating the entire application process. Follow the application steps in the right order is very important. Experience has shown that the most common reasons

for Crystal-it Infinity, Synthetic-it and Coldfix products becoming detached are inappropriate areas of application, not suitable carrier materials, and wrong application process (e.g. wrong angle when removing film, too less pressure during application).

Before beginning the application process, you should always check whether the carrier material is suitable for application of Self-adhesive Elements.

CAVITY PRODUCTION

The cavity makes it easy to position Crystal Fabric-it, Crystaltex-it, Crystaltex Chaton-it, Crystal Rocks-it, Crystal Fine Rocks-it and Crystal Ultrafine Rocks-it exactly and

ensures higher protection of the crystal product against mechanical and chemical stress. There are several different production methods and cavity types.

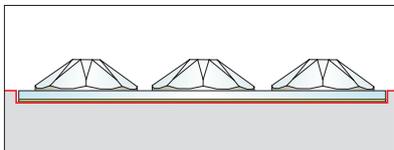
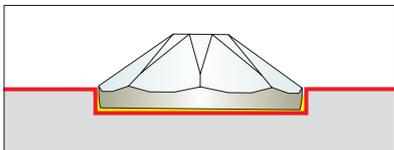
PRODUCTION METHODS

– **Milling** is when materials are machined using a milling machine and milling cutter. Milling machines can be fitted with appropriate tools depending on the materials, e.g. for working with

metal and plastic, wood, or natural stone. Modern CNC machining centers offer the greatest precision and can be used to produce **cavities of every shape** necessary. Please note

that when machining natural stone, ceramic, or glass, for example, special diamond-tipped tools must be used.

APPLICATION

SWAROVSKI PRODUCTS	PRODUCTION METHOD	CAVITY TYPE
Crystal Fabric-it Crystaltex-it Crystaltex Chaton-it Crystal Rocks-it Crystal Fine Rocks-it Crystal Ultrafine Rocks-it	Milling Casting	<p>Indentation</p>  

When gluing an article with a **flat back** it is also advisable to create a cavity as shown here. This cavity ensures that the crystal is better protected against mechanical and chemical stress. The depth of the cavity depends on the height of the girdle and the thickness of the base material.

PRODUCTION TOLERANCES FOR CAVITIES

Note: When producing cavities, the dimensions should consider the tolerance of the product and the production

tolerance. The tolerances of the product can be requested from your Swarovski representative.

CHECKING SURFACE TENSION AND PRE-TREATMENT

Before beginning the application process, you should always check whether the carrier material is suitable for application of Self-adhesive Elements.

There are different material checks necessary, depending if you want to apply a **Crystal-it Infinity** or **Synthetic-it on a solid material** or a **Coldfix product onto a textile or leather carrier material**.

Nevertheless, please note that there are certain types of plastics used for **solid materials, textile and leather treatments** that are difficult for any gluing connection.

The following table contains a selection of materials that can cause problems for any glue application:

Plastic	Examples	Adhesive Qualities
Polyamide (PA)	Degamid, Nylon, Perlon	very difficult
Polyethylene (PE)	Geberit, Hostalen G, Ferrozell	difficult
Polyethylene Terephthalate (PET)	Cardura, Atlas, Eralyt	difficult
Polyoxymethylene (POM)	Delrin, Kematal, Ertacetal	difficult
Polypropylene (PP)	Moplefan, Proplex, Verelite	difficult
Polytetrafluoroethylene (PTFE)	Teflon®, Gaflon, Ferrotron	very difficult
SILICONE	Silopren, Contiduct, Corotex	very difficult

MATERIAL CHECK AND PRETREATMENT FOR SOLID MATERIALS WHEN USING IT PRODUCTS

Checking the surface tension

The surface tension is an indicator for the wetting properties of the surface to be glued. A surface tension of **at least 38 mN/m** is recommended for gluing

Swarovski crystals. It should also be randomly tested during production. It is best to use the Test Pen (art. 9030/000) to measure the surface tension.



1 Before gluing, mark the surface.



2 If the ink remains visible for 2 seconds, the surface is suitable for gluing.



3 If the ink disappears or forms bubbles, the surface is not suitable for gluing. In this case, the pre-treatment cleaning methods should be checked.

Note: On porous or absorbent materials, the surface tension cannot be checked with the Test Pen. If the Test Pen is used on highly polluted surfaces (e.g. grease, oil) or on material like wood, the Test Pen might be polluted as well and cannot be used anymore.

CRYSTAL APPLICATION INSTRUCTION MOVIE

Checking surface tension

Watch instruction movie on proper Test Pen usage online at <http://swarovski.com/gluing-application>



Pre-treatment

If the surface tension is below 38 mN/m, the following pre-treatment cleaning methods, applied in the correct order,

can be effective in reaching the right level. After each cleaning process, the surface tension has to be checked again.

TYPES OF CLEANING	PRE-TREATMENT CLEANING METHODS
<p>1 Mechanical cleaning This involves sanding, blasting, or brushing but is usually not necessary for jewelry.</p>	<ul style="list-style-type: none"> - Removal of dirt, rust, scale, and residues of varnish - Roughening the surface
<p>2 Washing and degreasing It is important to ascertain that the tensides do not contain silicone, as this would impair adhesion. When using solvents it is advisable to test the durability of the surface to be cleaned beforehand to avoid any damage. Solvents containing substances with a high boiling point should not be used due to the risk of residue. If using cleaning solvents, wait a few minutes to allow them to evaporate.</p>	<ul style="list-style-type: none"> - Cleaning with tenside solutions, rinsing with de-ionized water - Cleaning with isopropyl alcohol/ethanol - Cleaning with acetone (MEK/ethyl acetate) - Cleaning with a cleaning solvent: should not contain high boiling point substances (risk of residue)
<p>3 Physical cleaning and activation These cleaning methods can be applied if mechanical cleaning or washing and degreasing are either not possible or have not resulted in a surface tension of >38 mN/m. Therefore the pre-treatment cleaning method used should be done on a case-by-case basis.</p>	<ul style="list-style-type: none"> - Flame treatment via a blow torch The surface to be treated is exposed to the flame of a torch very briefly. When using special gas mixtures, surface silication can also be carried out, so as to apply a more adhesive coating. - Corona treatment An electric corona discharge is briefly applied to the surface. - Plasma treatment Plasma treatment offers precise cleaning and activates the surface via an ionized gas.
<p>4 Chemical cleaning and primers Applying a primer improves adhesion and helps to prevent corrosion.</p>	<ul style="list-style-type: none"> - Applying small amounts of solvent and activating the surface. - Applying a primer.

MATERIAL CHECK FOR TEXTILES AND LEATHER WHEN USING COLDFIX

When applying Coldfix **using a heat press with a temperature of 90 °C (195 °F)** increases the bonding strength of the product and reduces the time of achieving the final strength, please check the following criteria:

- Heat resistance (min. 90 °C / 195 °F)
- Resistance against pressure
- Application area of the product (no bended/shaped area of the design)

Coldfix was developed for application on leather and textiles, which are not suitable for the Hotfix application process.

Note: To ensure the best possible result, test applications on the intended carrier material are strongly recommended.

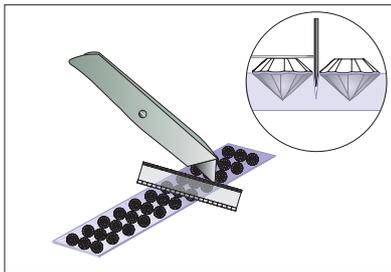
PREPARATION

Prior to application, some Swarovski products need some special preparation to achieve a high-quality gluing connection.

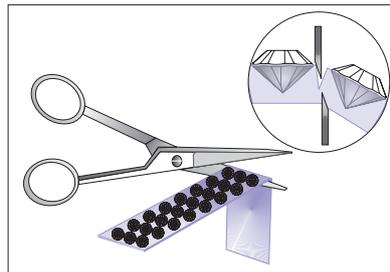
PREPARATION WHEN APPLYING SYNTHETIC-IT

Cutting Crystaltex Chaton Bandings

When working with Crystaltex Chaton Bandings, the lack of space between crystals means great care must be taken during cutting, so as to avoid damaging the crystal.



1 Cut into the support film between the crystal rows with a Stanley knife.



2 Snap and cut off the Crystaltex Chaton Banding along the scored edge.

PREPARATION WHEN APPLYING COLDFIX-MOTIFS

Coldfix motifs are delivered on a sheet. Depending on the sizes and the shape of the motif, the quantity of motifs on a sheet can vary. Before separating the single

motifs, it's recommended to press the motifs using your hand or a rubber roller onto the transparent foil. Use a scissor to cut between the motifs.

Now the motifs are ready for further processing and application.

APPLICATION

APPLYING CRYSTAL-IT INFINITY

This self-adhesive product consists of Flat Backs in different shapes, sizes, heights, and colors. If applying it on materials such as metal, make sure the surface is free of pollution such as grease or oil.



1 Before starting, put the motif onto a solid underlay such as a desk and press the crystals onto the transparent film. This can easily be achieved when the transparent film points upwards.



2 Make sure the motif still lays on the desk, this time with the white protective film pointing upwards. Fix the motif with one hand, while peeling off the white film at an acute angle with the other hand.



3 Position the motif in the location desired and press down firmly.



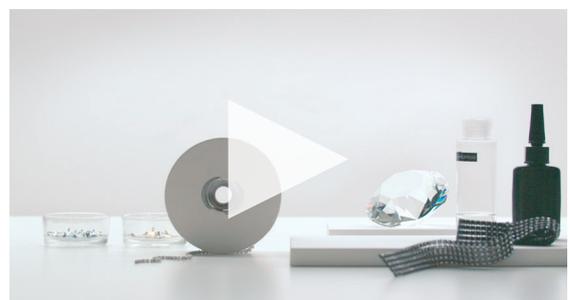
4 Carefully remove the transparent film at an acute angle and press down the motif again.

Note: the minimum application temperature is 18 °C (64 °F) with the glue fully hardening after 72 hours.

CRYSTAL APPLICATION INSTRUCTION MOVIE

Crystal-it Infinity

Watch instruction movie on how to apply Crystal-it Infinity online at <http://swarovski.com/crystal-it-infinity>



APPLYING SYNTHETIC-IT

Synthetic-it products can be applied in two different ways: Dry application or Wet application

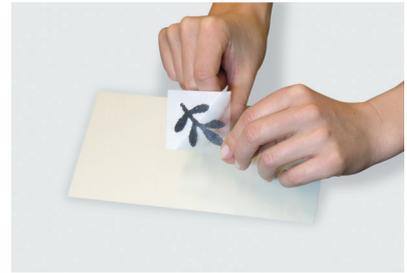
Dry application



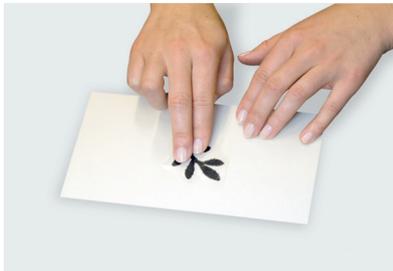
1 The surfaces to be glued must be properly pre-treated, so as to achieve sufficient surface tension.



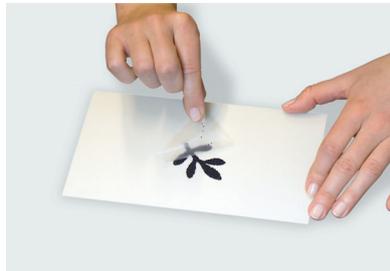
2 Press the motif onto the transparent film.



3 Peel off the white protective film at an acute angle.

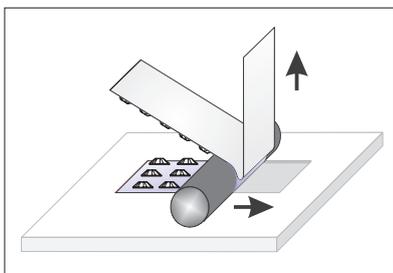


4 Position the motif in the location desired and press down firmly for around 10 seconds.



5 Carefully remove the transparent film at an acute angle and press down on the motif again.

Note: Prevent the self-adhesive back from sticking together, as separating it can cause damage. The minimum application temperature is 18 °C (64 °F), with the glue fully hardening after 72 hours.

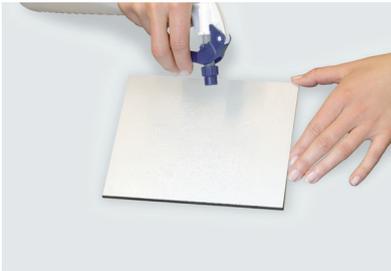


When applying Synthetics-it remove the white protective film during application in the pre-produced cavity.

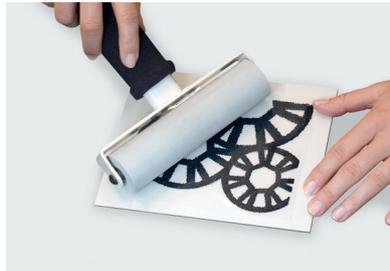
Wet application

For larger motifs and those that must be positioned accurately on surfaces, a wet application is recommended. It is essential,

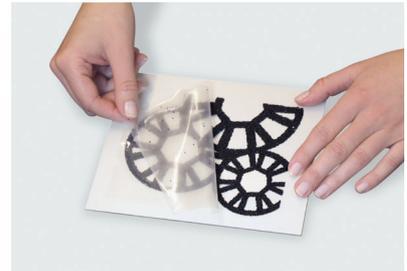
however, that the base does not absorb the soap water that is used here.



- 1 Moisten the cleaned surface with soap water.



- 2 Carefully peel off the white protective film at an acute angle, and carefully position the product on the wet surface. After positioning it, press down on the soap water beneath the motif, e.g. using a rubber roller.



- 3 Carefully remove the transparent film at an acute angle and leave the surface to dry.



- 4 After drying, press down firmly on the motif again, e.g. using a rubber roller.

Note: Prevent the self-adhesive back from sticking together, as separating it can cause damage. The minimum application temperature is 18 °C (64 °F), with the glue fully hardening after 72 hours.

APPLYING COLDFIX

There are two ways of applying Coldfix products depending on material and application field.

Cold application (room temperature)

- Coldfix product is placed on a suitable carrier material and pressed down using a rubber roller. Final adhesive strength is reached after 72 hours.

Application using a heat press

(90 °C/195 °F) - Coldfix is applied from the reverse side using a heat press. Final adhesive strength is reached after 12 hours.

Please be aware that when applying Coldfix products using a heat press at some materials adhesion strength can be increased.

At subsequent table some examples of adhesive strength differences are shown:

CARRIER MATERIAL DESCRIPTION

ACHIEVABLE PEEL ADHESION*

Cold application (room temperature) Final adhesive strength reached after 72h

Application using a heat press (90 °C/195 °F) Final adhesive strength reached after 12h

Tamurakoma N2012 col23 40g/m ²	3-4 N/cm	3-4 N/cm
Gabardine TC black 210g/m ² , 65% polyester, 35% cotton	3-4 N/cm	6-7 N/cm
lycra GGAQ black 120g/m ² , 73% polyamide, 27% elastane	8-9 N/cm	9-10 N/cm
Alcantara® regular 5015 black 230 g/m ² , 68% polyester, 32% polyurethane	3-4 N/cm	8-9 N/cm
Grain leather, black	5-6 N/cm	6-7 N/cm
Artificial leather black, 100% polyurethane, 315 g/m ²	4-5 N/cm	4-5 N/cm

* Tested following DIN 1939

Please note that achievable peel adhesion and bonding performance depend entirely on the characteristics of the carrier material used; it should be remembered that a gluing connection is only as good as the carrier material surface allows. Any oral, written, or test-based advice that Swarovski provides

regarding techniques for the application of its products are recommendations based on Swarovski's current knowledge and the information provided by its suppliers. **Such advice does not discharge customers from carrying out their own tests on techniques they propose to use, and**

the suitability of these techniques for the intended application. The application, use and processing of these techniques and products are solely the user's responsibility.

CAVITY PRODUCTION

CHECKING SURFACE TENSION
AND PRE-TREATMENT

PREPARATION

APPLICATION

Cold application (room temperature)

- 1 Before application, press the motif onto the transparent film.



- 2 Peel off the yellow protective film at an acute angle.



- 3 Place the motif on the carrier material and press down firmly for around 10 seconds with a rubber roller.



- 4 Carefully remove the transparent film at an acute angle.



- 5 After removing the transparent film press down a last time firmly on the motif using a rubber roller. The application is now finished.

Note: Final adhesive strength is reached after 72 hours.

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CRYSTAL APPLICATION INSTRUCTION MOVIE**Cold application**

Watch instruction movie on how to apply Coldfix at room temperature online at <http://swarovski.com/coldfix-cold-temp>



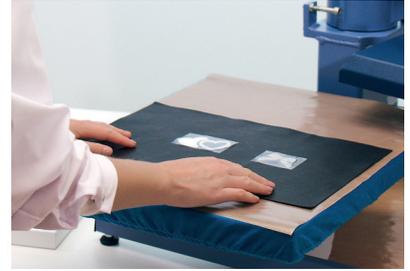
Application using a heat press (90 °C/195 °F)



1 Before application, press the motif onto the transparent film.



2 Peel off the yellow protective film at an acute angle.



3 Position the motif in the location desired.



4 Place the carrier material with the motifs facing down in a heat press.



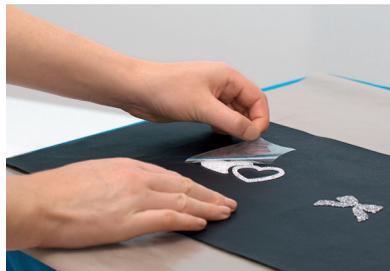
5 Use a Teflon® foil to protect the heat press.



6 Close the heat press and apply the motif with 5 seconds, 90 °C (195 °F) and medium pressure!*



7 After the application is finished use a pressing cloth or a rubber roller to apply additional pressure to the product.



8 Once the product is at least hand warm the transparent film can be removed at an acute angle. The application is now finished.

Note: Final adhesive strength is reached after 12 hours

* The application time depends primarily on the thickness of the carrier material used and should be tested by the customer.

CRYSTAL APPLICATION INSTRUCTION MOVIE

Coldfix: application using a heat press

Watch instruction movie on how to apply Coldfix using a heat press online at <http://swarovski.com/coldfix-low-temp>



ADDITIONAL APPLICATION ADVICE

It is possible to move or use the final product carefully right after the application, as long as it is not exposed to any mechanical or chemical stress until the final adhesive

strength is achieved. The time until the final adhesive strength is achieved varies depending on the application method (72 or 12 hours). Please note, that any washing

or quality assurance should take place after this period.

COLDFIX CARE INSTRUCTIONS



Turn inside out and use mild laundry detergent (wash by hand, max. temp. 30 °C, very mild process).



Do not use chlorine bleach!



Do not tumble dry!



Do not iron!



The textile will withstand gentle professional wet cleaning. Turn inside out.

To protect the crystals as much as possible, the use of a soft wash bag is recommended.

QUICK ASSISTANCE

The following table outlines typical gluing problems, along with possible causes and recommendations on avoiding them.

PROBLEM	CAUSE
The motive has insufficient adhesive power to the base material.	1, 2, 3, 4
The fabric or leather has changed its appearance after using the heat press (when applying Coldfix motif using a heat press).	5, 6, 7
The transparent film leaves pressure marks on delicate carrier materials.	5, 6, 7, 8
Loose Flat Backs remain on the white protective film (Crystal-it Infinity).	9
Loose Flat Backs remain on the transparent film (Crystal-it Infinity).	10
The separation of the white protective film and the transparent film is difficult.	11

CAUSE	RECOMMENDATION
1 Cleaning agents have affected the glue.	Use less solvent or a different type of solvent.
2 The base material was put under stress before the glue had reached its final strength.	Make sure that the suggested waiting time was respected (depends on product type and application process).
3 The pressure is too low.	Thick fabrics and certain products need higher pressure.
4 The surface of the base material is not clean.	Clean the base material.
5 The pressure is too high.	Reduce the pressure of the heat press.
6 The application time is too long.	Reduce the application time.
7 The ironing pad is too hard.	Use a soft silicone pad.
8 The transparent film leaves pressure marks.	Cut away more of the film, closer to the edge of the motif, to reduce marking.
9 The Flat Backs do not stick on the transparent film.	Press the crystals to the transparent support film before removing the protective foil.
10 The crystals do not stick on the base material after application.	Press the crystals to the base material before removing the transparent film.
11 The white film sticks very strong together with the transparent film.	Cut away more of the film, closer to the edge of the motif.

