HOTFIX APPLICATION

The Swarovski product assortment includes a wide range of Hotfix products. These can be applied simply, quickly and securely. Hotfix technology is ideal for application in the fields of textiles, interior décor and accessories.

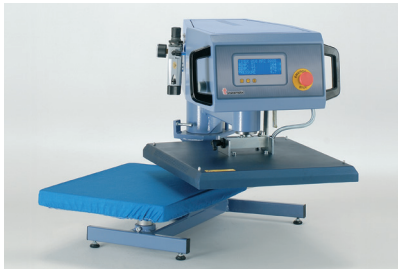
PRODUCT OVERVIEW

The following products are suitable for Hotfix application:

	HOTFIX APPLICATION
Flat Backs Hotfix	✓
Transfers	✓
Synthetics	✓
Crystal Mesh	✓

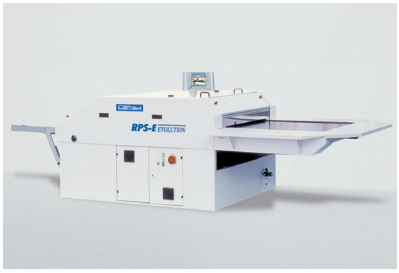
MACHINES AND TOOLS

The following machines and tools are used in the Hotfix application of Swarovski crystals:



Heat press

Double heat press



Continuous fusing press

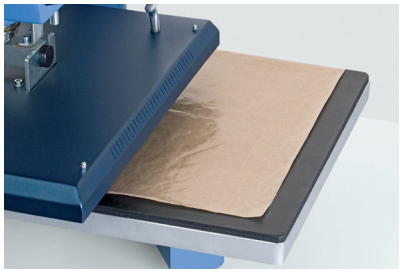
Ultrasonic device

Stone setting machine

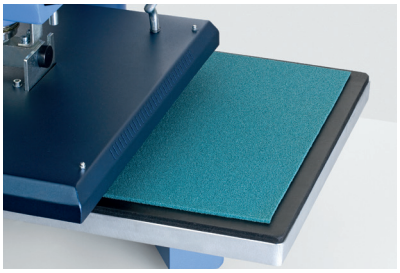
Applicator

Iron

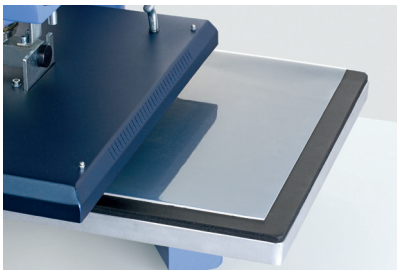
Silicone board (tool for designing Transfers) (art. 9010/006)



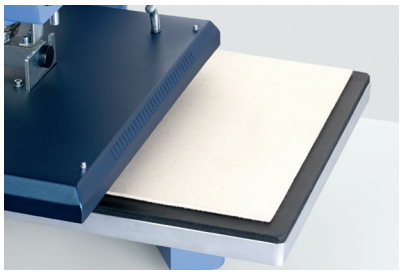
Teflon® foil (art. 9010/003)



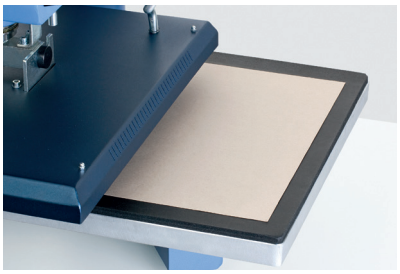
Silicone ironing pad (foam) (art. 9010/002)



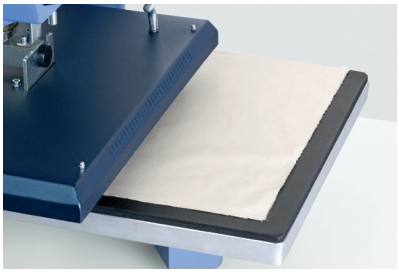
Silicone pad (tool for Crystal Diamond Transfers) (art. 9010/005)



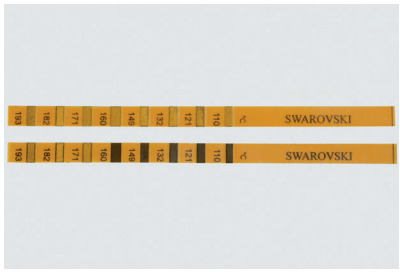
Felt



Standard cardboard



Standard pressing cloth



Temperature measuring strips (art. 9010/007)

Laser temperature measuring device

Transfer film

SUPPLIERS

This list provides an overview of selected suppliers worldwide.

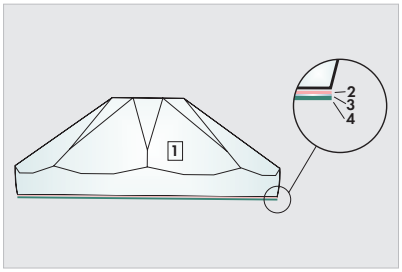
MACHINES & TOOLS	SUPPLIER	CONTACT
Heat press	Bestblanks	www.bestblanks.com
	Elna SMP Singapore	www.elnasingapore.com
	Fukutomi Technologies	www.sublihub.com
	Hix Corporation	www.hixcorp.com
	Zhejiang Huangyan Garment Machinery Factory	www.ji-feng.com
	Jesse J. Heap & Son, Inc.	www.jesseheap.com
	Nagel & Hermann	www.strass.cc
	OSHIMAKK Co., Ltd.	www.oshima.com.tw
	Pro World	www.proworldinc.com
	ColDesi, Inc	www.rhinestonecamsmachines.com
	RPL Supplies, Inc.	www.rplsupplies.com
	STAHLS' Europe GmbH	www.stahls.de
	Teva	www.teva-organisation.com
	Thermopress Europe	www.thermopress.de
Double heat press	Teva	www.teva-organisation.com
	Wagner GmbH	www.wagner-transferpressen.de
Continuous fusing press	Maschinenfabrik Herbert Meyer GmbH	www.meyer-machines.com
Ultrasonic device	Ever Green Ultrasonic Co., Ltd.	www.evergreen-taiwan.com
	Zhejiang Huangyan Garment Machinery Factory	www.ji-feng.com
	Jesse J. Heap & Son, Inc.	www.jesseheap.com
	Perfecta Schmid Triopan AG	www.perfecta.ch
	Pessani s.r.l.	www.pessani.com
	ColDesi, Inc	www.rhinestonecamsmachines.com
	Shanghai Exing Industry Co., Ltd.	www.exingsh.com.cn
	Teva	www.teva-organisation.com
Stone setting machine	Dairo Machine Co.	www.dairomc.com
	Nagel & Hermann	www.strass.cc
	Pessani s.r.l.	www.pessani.com

MACHINES & TOOLS	SUPPLIER	CONTACT
Applicator	Creative Crystal® Company	www.bejeweler.com
	Donwei Machinery Industry Co., Ltd.	www.donwei.com.tw
	Dreamtime Creations	www.dreamtimecreations.com
	Hobbyring	www.hobbyring.de
	Kandi Corp.	www.kandicorp.com
	Shanghai Exing Industry Co., Ltd.	www.exingsh.com.cn
Silicone board (tool for designing Transfers) (50 x 25 x 0.1 cm, 20 x 10 x 0.05 in)	Swarovski: art. 9010/006	www.swarovski.com/professional
Teflon® foil (100 x 50 cm, 40 x 20 in)	Swarovski: art. 9010/003	www.swarovski.com/professional
Silicone ironing pad (foam) (134 x 100 cm, 54 x 40 in)	Swarovski: art. 9010/002	www.swarovski.com/professional
Silicone pad (tool for Crystal Diamond Transfers) (50 x 50 x 0.2 cm, 20 x 20 x 0.08 in)	Swarovski: art. 9010/005	www.swarovski.com/professional
Temperature measuring strips (40 pcs.)	Swarovski: art. 9010/007	www.swarovski.com/professional
Laser temperature measuring device	PCE Instruments	www.industrial-needs.com
Transfer film	DSO, Co., Ltd. Nagel & Hermann	www.dso-co.com www.strass.cc

APPLICATION

BASIC HOTFIX PRINCIPLES

Hotfix elements have a coating of hot-melt glue on the back, enabling swift, simple application. This glue is activated by **heat** (applied either directly or indirectly via ultrasound), and bonds with the carrier material. When cooling, the glue hardens and securely and permanently fixes the elements in place. The Swarovski Hotfix adhesive is characterized by its **wash resistance** and **easy-care** properties. The temperature, application time and pressure can be varied according to the carrier material.
Further details and information can be found in the "Care Instructions" chapter and in the Hotfix Selector table at the end of this chapter.

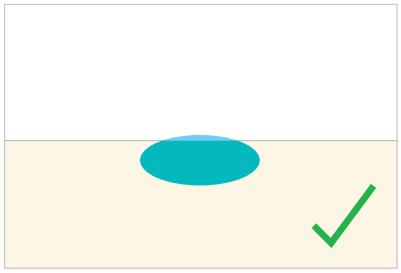


1 **Crystal**
2 **A – Foiling:** A brilliant silver-based (Ag) mirror coating with a rose-colored protective layer
3 **Primer:** Transparent primer improves the bonding between the hot-melt adhesive and the A-Foiling
4 **Hot-melt adhesive:** This transparent adhesive, developed by Swarovski, allows the application of the crystals on a variety of different materials

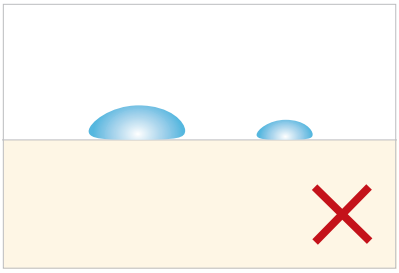
Before beginning the application process, you should always check whether the carrier material is suitable for Hotfix application. Please check the following criteria:
– Heat resistance (min. 120 °C/250 °F)
– Resistance against pressure
– Application area of the product
– Suitability of surface properties and absorbency

CHECKING ABSORBENCY VIA THE WATER DROP TEST

The water drop test is a quick and easy way to get an initial idea of the absorbency of the carrier material. Apply a couple of water drops onto the carrier material. If the material quickly absorbs the drops, it offers good absorbency. If the water pearls off the carrier material, or if it takes a long time to be absorbed, the material offers insufficient absorbency. This can impair the effectiveness of Hotfix application.



Good absorbency
Drops are absorbed



Insufficient absorbency
Drops pearl off

Some textiles and special finishes are **unsuitable** for Hotfix application, due to a **lack of absorbency.**

This is a list of **unsuitable** carrier materials and finishes:
– Very tightly woven textiles
– Very thin fabrics, e.g. tulle
– Smooth leather and smooth imitation leather
– Hydrophobic or water-repellent treatments (silicone, synthetic resin as a waterproofing agent)
– Teflon® coatings
– Stain-resistant treatments
– Easy-to-care treatments
– Fluorocarbon finishes
– Softening agents
– Select dyes (dyes with metal pigments)
– Enzymatic treatments

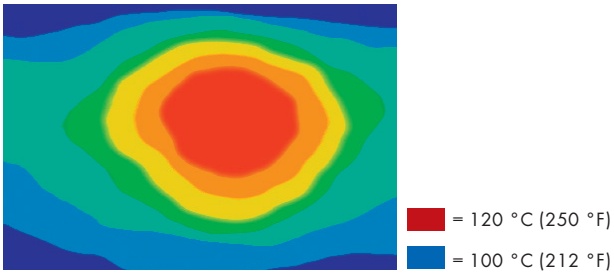
It can sometimes be helpful to wash the carrier material before application, in order to remove any unsuitable finishes (particularly softening agents), and thus improve absorbency.

Generally, the following parameters are most important when carrying out Hotfix applications of Swarovski products, depending on the consistency of the base material:
– Temperature
– Pressure
– Application time
– Application side

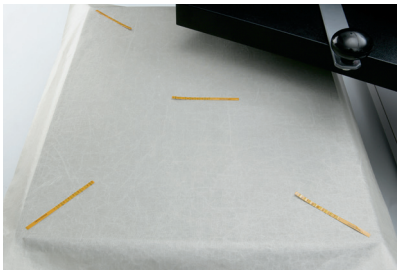
A detailed summary of all application parameters can be found in the Hotfix Selector table at the end of this chapter.

TEMPERATURE

?! Swarovski Hotfix adhesive is activated within a temperature range of 120 °C to 170 °C (250 °F to 340 °F). A suitable application temperature can be selected from this range according to the carrier material and its sensitivity to heat.
With heat presses, the temperature selected on the display does not always reflect the actual temperature on the surface of the press. Often, the temperature can be distributed unevenly, or one heat plate may be defective.
It is therefore recommended to regularly check the temperature with a laser measuring device or temperature measuring strips at various points on the heating surface, to ensure the temperature is distributed evenly across it. Checks should be carried out regularly (once per week), particularly during production.



Uneven heat distribution in the central area of the heat press

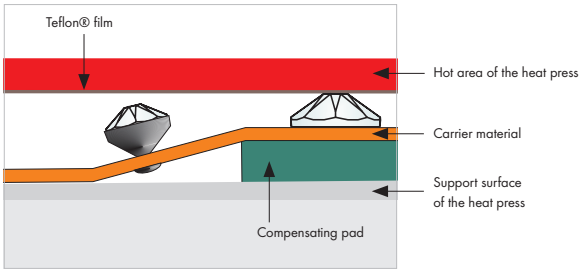


Test with temperature measuring strips (art. 9010/007)

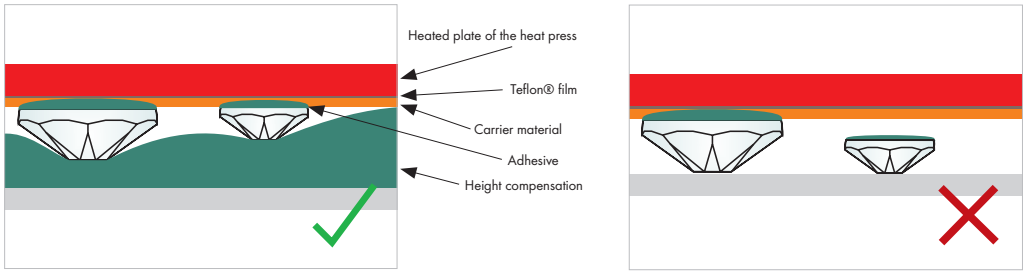
PRESSURE

?! The pressure setting depends on the Hotfix elements to be applied, the carrier material, and the technical equipment (machines, etc.) available.
Too much pressure can cause the adhesive to be spread out and can also affect the surface of the carrier material.
Too little pressure, however, can result in a weak and insufficient bond between the crystal and the carrier material. In general, the pressure should be applied **directly to the crystal product** (e.g. Flat Backs Hotfix, Transfers, Crystal Mesh).
It is therefore necessary to check if there are any buttons, zippers or other raised parts surrounding them. Always use a **compensating pad** to even out the surface.

Jeans pocket



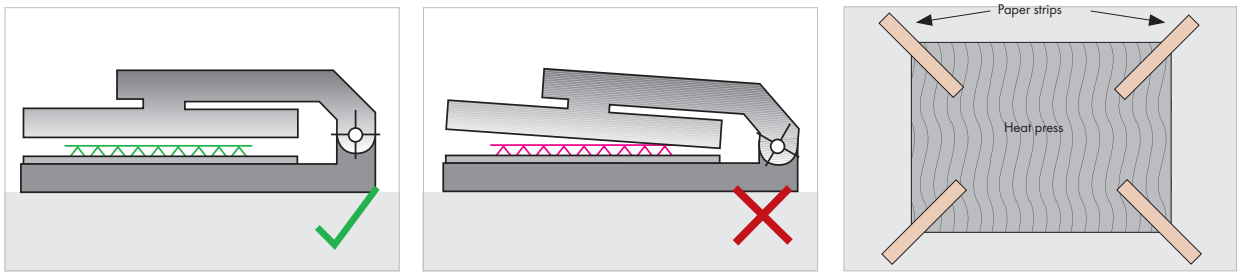
When applying Swarovski crystals of different heights, a **compensating pad** should always be used. Silicone foam, foam rubber or felt can be used here.



Height compensation with different Hotfix elements

The parallel plane of the heat press

?! Take care to apply pressure evenly when using a heat press with a scissor mechanism. The upper plate of the heat press must be completely horizontal in order to effectively and evenly distribute pressure and temperature.



Checks should always be carried out to make sure the plates are parallel. This can be done by placing paper test strips into the press and closing it with the least possible pressure. After this, if it takes the same force to pull out each strip, the plates are parallel.

APPLICATION TIME

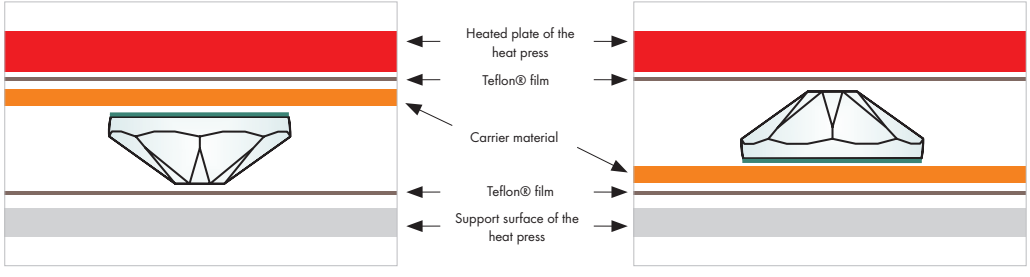
In general, the application time should be sufficient to allow the hot-melt glue to be fully activated, and then to penetrate the carrier material.
The application time necessarily depends on the Hotfix elements, the temperature selected, the machine used, the carrier material and the application side.
A detailed summary can be found in the Hotfix Selector table at the end of this chapter. Please note that the times stated are intended as a guideline. When adapting them to your application, it is recommended to carry out tests on the original material.

APPLICATION SIDE

?! Hotfix elements can usually be applied from the front and the back. A shorter application time can be achieved with thinner fabrics by applying crystals from the back, as the heat reaches the adhesive through the carrier material faster, activating it immediately.

Application from the back

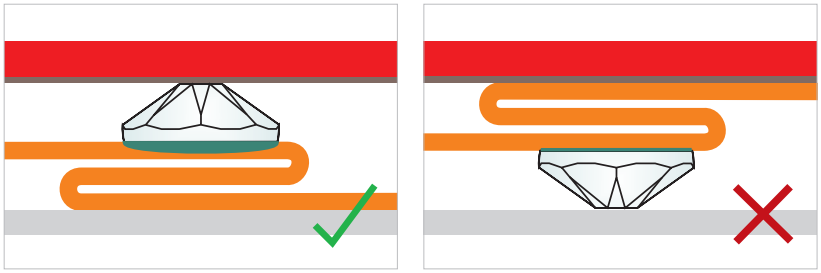
Application from the front



Rear (reverse) side of fabric is exposed to heat

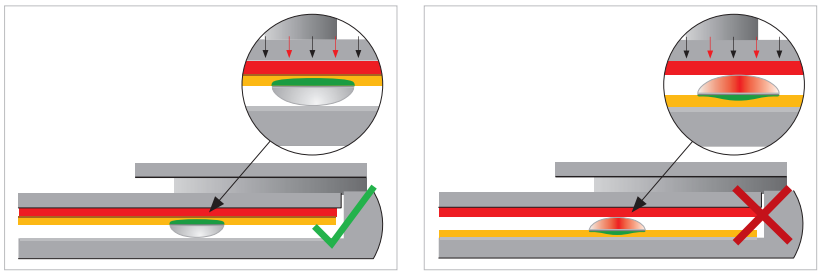
Front (right) side of fabric is exposed to heat

When applying Hotfix products on **thick or multi-layered** fabrics (such as seams) the application side selected should be the one that allows the heat to be transferred to the hot-melt adhesive quickest. This ensures fast, optimum activation.



Selecting the optimum application side

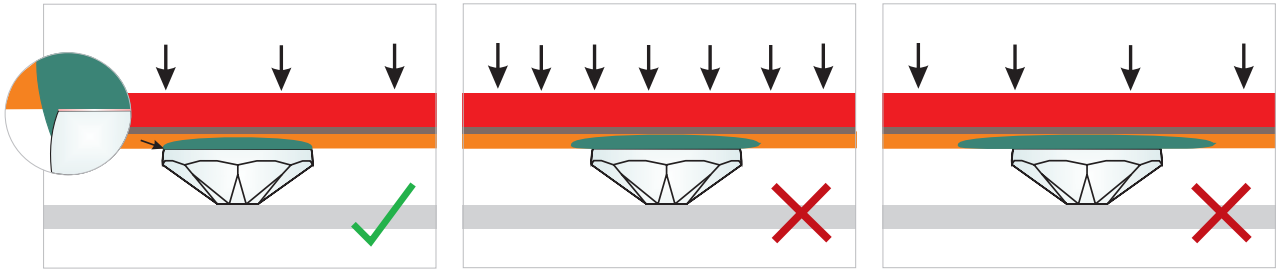
?! Note that the shape and size (causing irregular temperature penetration) of many items (e.g. Crystaltex Cabochons, Creation Transfers Plus) will only allow an application **from the back.** Further information can be found in the Hotfix Selector table at the end of this chapter.



Certain Swarovski products can only be applied from the back.

DEFINING THE OPTIMUM APPLICATION PARAMETERS

?! Adhesive has been successfully activated when, using a magnifying glass, it is possible to see a thin edge of glue formed around the crystal. On thin fabrics, the optimum application parameters are chosen when the glue will have lightly penetrated through the fabric and is lightly visible at the reverse.



Optimum application result

Huge excess of glue – too much pressure exerted with heat press

Huge excess of glue – heat press temperature too high, or applied too long

When parameters have been incorrectly selected, such as an extreme application temperature, pressure, or application time, significant amounts of glue can spread out.
When the application temperature or pressure is too low, or the application time too short, the adhesive cannot be sufficiently activated, leading to problems with adhesion.

APPLICATION USING A HEAT PRESS

A heat press is the ideal tool for applying Hotfix products as it can be used to apply even, adjustable pressure.
All Swarovski products mentioned in the product overview can be applied using the following steps. Please also note the helpful hints concerning the application of Crystal Mesh and Crystal Diamond Transfers.
To adjust the application parameters and the tools to achieve an ideal balance, it is strongly recommended that tests are carried out with the original material.

1 Peel off the white protective film*.

2 Place the product in the desired position.

3 Make sure to apply the elements from the recommended side and use the correct pressurizing medium. To protect the heating surfaces from any glue residue, it is best to cover them with Teflon® film.

4 After pressure, time and temperature are set, close the heat press.

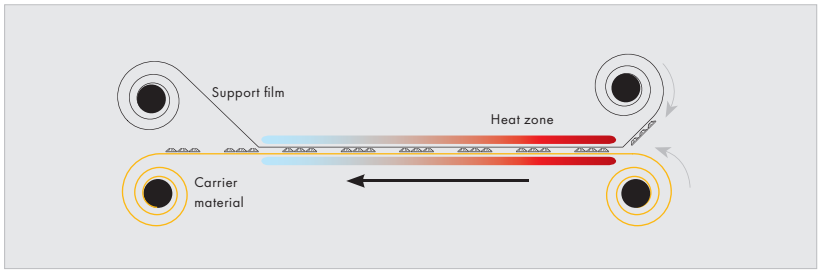
5 After the application is finished, use a pressing cloth to apply additional pressure to the product.

6 Once the product is at least hand warm, the transparent film can be removed at an acute angle.

?! *If the adhesion is insufficient after the application process, the whole process can be repeated, adjusting the parameters (such as pressure, time, and temperature). Please ensure that the application process is repeated from the very beginning, and that the initial application time is combined with the additional time. For example: An application time of 10 seconds was not sufficient. Pressure should not just be applied for further 5 seconds – the process must be repeated in its entirety, with an application time of 15 seconds.

APPLICATION USING A CONTINUOUS FUSING PRESS

Transfers and other Hotfix Banding variants can be applied using a continous fusing press. This type of application offers a simple, efficient way of joining the carrier material and the Hotfix product as part of a continuous application process.



Continuous fusing press operation

With most continuous fusing presses, heat is generated on both sides. The speed of the press, pressure and temperature should be selected to ensure that the time in the heat zone corresponds to the figures in the Hotfix Selector table (see the end of this chapter). This time can be calculated using the length of the heat zone and the speed selected.

APPLICATION USING AN ULTRASONIC DEVICE

Art. 2078 XIRIUS Flat Back Hotfix (SS 12 – SS 34), art. 2038 XILION Flat Back Hotfix (SS 6 – SS 10) and some Creation Stones (e.g. Rivoli cuts art. 2716, 2816, 2826) can quickly and easily be applied using an ultrasonic device. In this process, the hot-melt adhesive is activated via **friction heat,** created through the quick vibrations and simultaneous pressing down of the Flat Backs onto the carrier material. A device with a vacuum pump is best for correctly positioning the crystals. Alternatively, they can also be positioned using transfer film or tweezers, and then applied via ultrasonic.
The frequency of the ultrasonic device must be precisely set according to the manufacturer's instructions. Some manufacturers also offer devices with automatic frequency setting. The application time is then selected according to pretests.

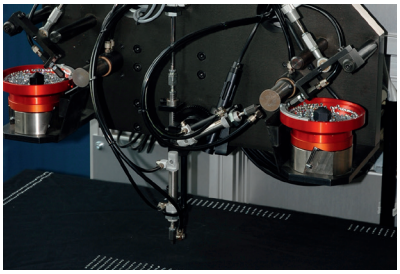
1 Choose an adapter to match the size of the crystal.

2 Position the crystal on the carrier material, which should be resting on a solid base (e.g. glass, metal).

3 Press the adapter firmly onto the crystal at a perpendicular angle and activate the device.

APPLICATION USING A STONE SETTING MACHINE

Hotfix crystals can be secured with a stone setting machine using either ultrasonic or heat. The feed and application of the crystals is either fully or semi-automatic.



Stone setting machine

APPLICATION USING AN APPLICATOR

Applicators are a cost-effective way to apply art. 2078 XIRIUS Flat Back Hotfix (SS 12 – SS 34) and art. 2038 XILION Flat Back Hotfix (SS 6 – SS 10) onto the carrier material.

1 Choose an applicator point to match the size of the crystal, so that the crystal cannot tilt out of place or use a plain applicator point.

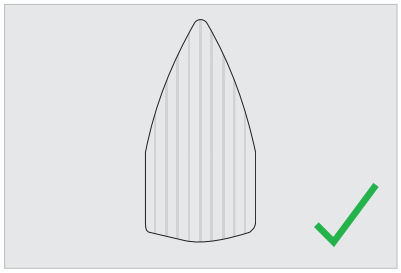
2 Heat the applicator to a suitable temperature and pick up the crystal.

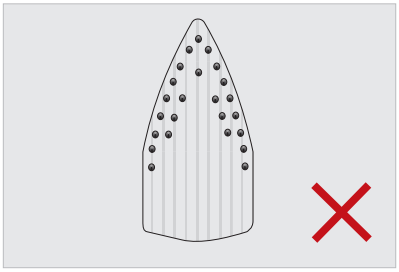
3 As soon as the Hotfix adhesive on the rear of the crystal has melted, position the element on the carrier material, which should be resting on a solid base (e.g. glass, metal).

?! **Note:** Heat sensitive fabrics can be damaged by high temperatures of the applicator point.

APPLICATION USING AN IRON

In general, an iron can be used for the application of all Hotfix elements. However, as pressure and temperature can only be controlled to a **limited extent,** the use of a heat press is recommended.
Always make sure that there are no **steam vents** on the soleplate of the iron. Pressure cannot be applied at these vents, and water droplets and steam have a negative effect on the application results. Always iron on a firm, flat, and even base.





Explanation of dot system according to DIN EN ISO 3758

- • Soleplate temperature 110 °C (230 °F)
- •• Soleplate temperature 150 °C (302 °F)
- ••• Soleplate temperature 200 °C (392 °F)

1 Select symbol •• (max. 150 °C/302 °F).

2 Use felt or cardboard to prevent the crystal elements from marking the fabric.

3 A Teflon® underlay protects the soleplate of the iron from any glue residue.

Hot-melt adhesive generally requires 24 hours to cure completely. Any washing or quality assurance should take place after this period.

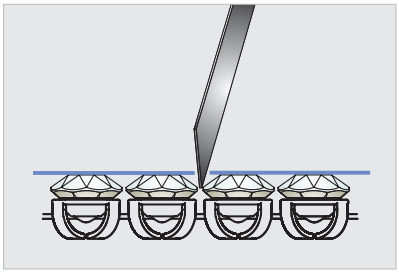
USEFUL INFORMATION

PRE-CUT FABRIC

Experience has shown that the best results are obtained with applications on pre-cut fabric. In order to obtain optimum adjustment of all application parameters, advance testing on the materials to be used is strongly recommended before production begins.

CUTTING CRYSTAL MESH

Before Hotfix application, the transparent film must not be removed. The film allows the individual crystals to be aligned perfectly, and provides Crystal Mesh with the stability necessary for flawless application.

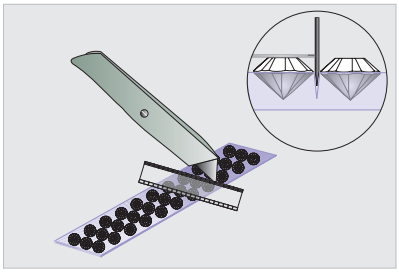


1 Cut between the rows of crystals with a Stanley knife, but do not pull them apart, otherwise the stability of the crystals will be lost.

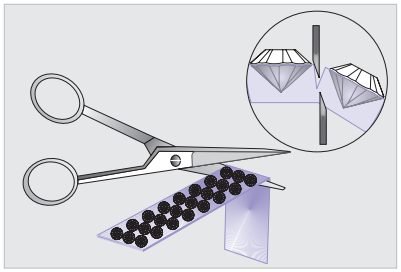
2 Cut the metal mesh with scissors along the scored line, and remove the excess link rings. The Crystal Mesh is now ready for Hotfix application.

CUTTING CRYSTALTEX CHATON BANDINGS AND CABOCHON BANDINGS

When working with Crystaltex Chaton Bandings and Cabochon Bandings, the lack of space between crystals means care must be taken during cutting, so as to avoid any damage.



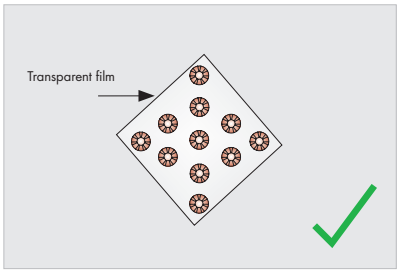
1 Cut into the carrier material between the crystal rows with a Stanley knife.

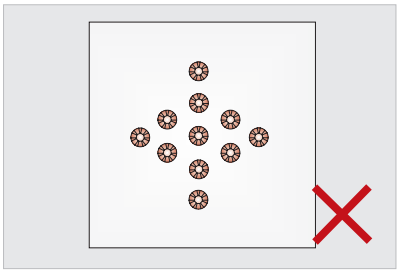


2 Snap and cut off the Crystaltex Chaton Banding and Cabochon Banding along the scored edge.

AVOIDING FILM MARKS

?! Undesired film marks on sensitive fabrics can be avoided by cutting the transparent film close **to the edge of the motif.** Apply the product for a short time, using a small amount of pressure. Then remove the transparent film and press again following the recommended time and pressure settings.





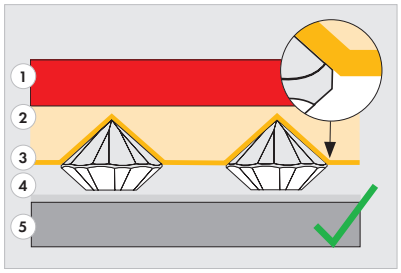
If the film has already left marks, the surface structure of the carrier material can usually be restored by brushing, using a steam iron or by re-pressing it in the heat press.

HOTFIX APPLICATION ON OTHER MATERIALS

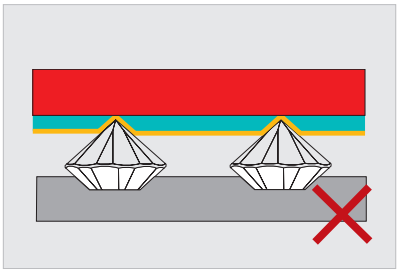
The Hotfix glue was specially developed for use with textiles. However, experience shows that Hotfix applications can also be carried out on other materials such as wood, paper or metal. In such cases it is very important to carry out application tests beforehand, and to check the surface properties (see surface tension in the "Gluing" chapter).

APPLICATION INSTRUCTIONS FOR CRYSTAL DIAMOND TRANSFERS

When applying Crystal Diamond Transfers (Transfers with high-brilliance Chatons: art. 1028 XILION Chaton for sizes PP 7 and PP 12, art. 1088 XIRIUS Chaton for PP 17), a **soft, compensating underlay** (e.g. Silicone pad art. 9010/005) should always be used. This soft pad encloses the crystal points, and allows the optimum distribution of pressure, thus improving the bond between the carrier material and the Crystal Diamonds (adhesion right up to the girdle). Cardboard prevents the crystals from sinking into the soft support surface of the heat press, and ensures the proper application of pressure.



A soft silicone pad offers optimum distribution of pressure and allows adhesion right up to the girdle.

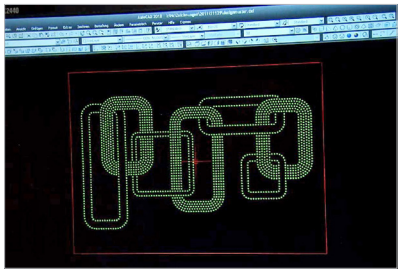


Without a pressure compensator, adhesion only occurs at the contact points with the heated plate.

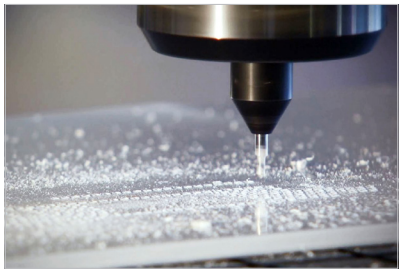
1 Heated surface
2 Silicone pad
3 Carrier material
4 Hard cardboard
5 Support surface of the heat press

CRYSTAL DIAMOND TRANSFERS ON SOLID MATERIALS

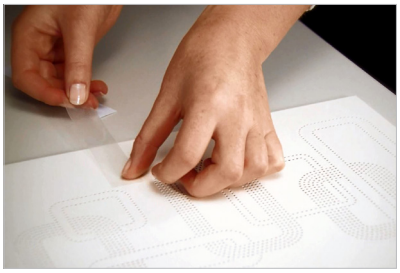
To apply Crystal Diamond Transfers on solid, wooden-based surfaces carry out the following instructions:



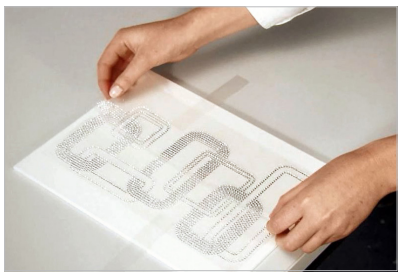
1 To program the CNC milling machine with the requested Crystal Diamond motif the individual .dxf file is required. Contact your Swarovski sales office to request this file.



2 Mill the cavities using a special 90° mill with a diameter that corresponds to the selected element. Clean the surface carefully using oil-free compressed air afterwards.



3 For an easier removal of the transfer film after the application, apply a small transfer foil on the edge of the carrier material.



4 Peel off the Crystal Diamond Transfer's white protective film and place the Crystal Diamond Transfer in the desired position on the carrier material. The transfer film is lying on the small transfer foils, too.

5 Carefully clean the contact surfaces of the heat press while turned off. Position the carrier material in the heat press and set the application parameters. Make sure that the right application tools are used.

6 After the application is finished, use a pressing cloth or a heat resistant glove to apply additional pressure.

7 Once the product has cooled down completely, the transparent film can be removed at an acute angle with help of the applied transfer foil.

We do not recommend the application of Crystal Diamond Transfer on following fields of application:

- In baths and wellness areas, due to high temperature and moisture
- In contact with sweat, chlorine and other aggressive cleaning agents
- Outdoors

For further information visit SWAROVSKI.COM/PROFESSIONAL

Cavitiy production/types

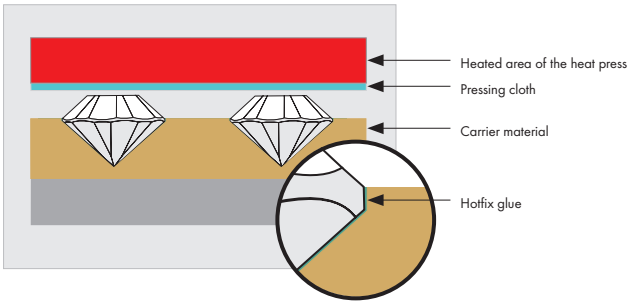
Specific cavities need to be created when applying Crystal Diamond Transfers onto a carrier material with a solid surface. The cavity enables the Transfer to be easily positioned and ensures a higher protection of the crystal against mechanical and chemical stress. These cavities can be produced by milling (e.g. with CNC machines). The individual .dxf file which is needed to program the machine includes position information (centre point of each crystal). It can be read by standard CNC machines.

For detailed information and instructions about cavity production/types please refer to the "Gluing" chapter.

ART. 1360	CAVITY ANGLE	ADDITIONAL COUNTERSINK	TWIST/NC DRILL 90° DIAMETER
PP 7	90°	0.10 mm	1.5 mm
PP 12			2.0 mm
PP 17			2.5 mm

Hotfix application of different stone sizes

A Hotfix application of one motif with different stone sizes is not possible in only one application step. In this case the specific design must be divided into separate motifs, which in turn must be applied separately, starting with the Crystal Diamond Transfers that feature the smallest stone.



QUICK ASSISTANCE

The following table outlines common problems and their causes when applying Hotfix elements, and offers advice on how to avoid them. Further details and more extensive descriptions can be found in the section marked with a ?!

PROBLEM	CAUSE
The product does not adhere to the fabric.	**1, 2, 3, 4, 5, 6**
Glue is oozing out around the crystals.	**7, 8, 9, 10**
The support film leaves marks on delicate fabrics.	**7, 8, 9, 10, 11, 12**
The product does not adhere to seams or multi-layered fabric.	**1, 2, 3, 4, 5, 6, 13**

CAUSE		RECOMMENDATION
1	The application temperature is too low.	Increase the temperature to at least 120 °C (250 °F). See the Hotfix Selector table for further assistance.
2	Uneven distribution of heat on the heated surface.	Check the temperature with a temperature measuring strip or a laser measuring device, and set up the heat press again.
3	The application time is too short.	Increase application time; it takes longer for the heat to activate the Hotfix glue on layered fabric and seams; if necessary apply from the front. See the Hotfix Selector table for further assistance.
4	The pressure is too low.	Thick fabrics and certain products need higher pressure. See the Hotfix Selector table for further assistance.
5	The heat press does not close evenly.	Adjust the heat press.
6	The ironing pad is unsuitable.	Carry out tests with different ironing pads to establish the most suitable.
7	The temperature is too high.	Choose a lower temperature, between 120 °C and 170 °C (250 °F – 340 °F). See the Hotfix Selector table for further assistance.
8	The application time is too long.	Reduce the application time. See the Hotfix Selector table for further assistance.
9	The pressure is too high.	Reduce the pressure on the heat press. See the Hotfix Selector table for further assistance.
10	The ironing pad is too hard.	Use a soft silicone pad.
11	The fabric is extremely sensitive.	Iron the fabric with a steam iron.
12	The transparent support film leaves marks.	Cut away more of the film, closer to the edge of the motif, to reduce marking.
13	Hotfix elements are not being affected by the heat plate.	Balance out the different thicknesses of seams, buttons, zippers etc. by using pieces of felt, which have been cut to exactly the right size and placed under the Hotfix element.

SWAROVSKI HOTFIX SELECTOR

The Hotfix Selector table contains information on the application parameters
– temperature
– pressure
– application time
– application side

for various Swarovski products and material combinations. The figures given are for Hotfix application using a heat press.

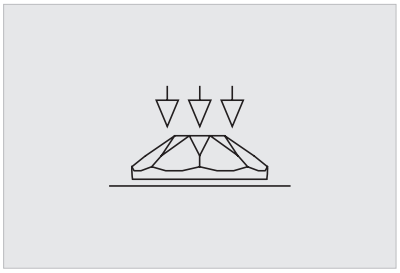
Note: The temperature/time combinations in the Hotfix Selector table are only guidelines. Too high temperature or too long application times might decrease the final bonding. Pressure cannot be specified more exactly, as this depends on the setting options of the press closure system (manual, pneumatic, hydraulic or electromagnetic). In all cases, tests should be carried out from the start of production, to ensure the ideal combination of settings for the design. The figures listed are valid until further notice.

PRODUCT		DESCRIPTION	TYPE OF SELECTOR
TRANSFERS	XILION/XIRIUS Transfers	Transfers with XILION (art. 2038) and/or XIRIUS (art. 2078) Flat Backs Hotfix	Hotfix Selector 1, page 103
	Creation Transfers	Transfers combined with Creation Stones (e.g. art. 2200, 2300) or Cabochons (art. 2080/4). Stone size: max. 8 mm	Hotfix Selector 2, page 103
	Mezzo Transfers	Metallic Transfers combined with XILION and XIRIUS Flat Backs, Cabochons or Creation Stones	Hotfix Selector 2, page 103
	Creation Transfers Plus	Transfers combined with Creation Stones Plus (e.g. art. 2493, 2555). Stone size: >8 mm	Hotfix Selector 3, page 104
	Crystal Diamond Transfers	Transfers with Chatons (stone size: PP 7/12/17)	Hotfix Selector 4, page 104*
	Framed Flat Back Transfers	Creation Transfers with Framed Flat Backs (art. 2078/H)	Hotfix Selector 5, page 105
	Framed Cabochons Transfers	Creation Transfers with Framed Cabochons (art. 2080/H)	Hotfix Selector 6, page 105
SYNTHETICS	Crystal Fabric and Graphic Fabric	Carrier material is completely covered with tiny cut and uncut crystals	Hotfix Selector 7, page 106
	Crystal Rocks and Graphic Rocks	Carrier material is covered with large double-pointed Chatons (stone size: PP 22)	Hotfix Selector 8, page 106
	Crystal Fine Rocks and Graphic Fine Rocks	Carrier material is covered with small double-pointed Chatons (stone size: PP 14)	Hotfix Selector 9, page 107
	Crystal Ultrafine Rocks	Carrier material is covered with very small double-pointed Chatons (stone size: PP 9)	Hotfix Selector 9, page 107
	Crystal Medley	Carrier material is covered with tiny cut and uncut crystals, including double-pointed Chatons (stone size: PP 14 and PP 29)	Hotfix Selector 7, page 106
	Crystaltex	Differently colored carrier material with XILION Flat Backs	Hotfix Selector 10, page 107
	Crystaltex Chaton	Small XILION Chatons embedded on different base materials	Hotfix Selector 7, page 106
	Crystaltex Cabochon	Carrier material is covered with Cabochons	Hotfix Selector 7, page 106
CRYSTAL MESH	Crystal Mesh Standard	Flexible metal mesh carrier with integrated loose crystals (stone size: PP 21)	Hotfix Selector 11, page 108
	Crystal Aerial Mesh	Flexible metal mesh carrier with integrated loose crystals (stone size: PP 14)	Hotfix Selector 11, page 108
	Crystal Fine Mesh	Flexible metal mesh carrier with integrated loose crystals (stone size: PP 9)	Hotfix Selector 11, page 108

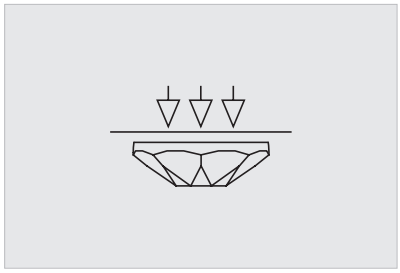
* For application on textiles and on solid materials.

FABRIC CATEGORY	FABRIC EXAMPLE	MATERIAL	WEIGHT
Reference fabric	Cotton/polyester blend	35% cotton, 65% polyester	210 g/m²
Natural fibers	Batiste, Vichy fabric, cotton jersey, interlock, linen fabrics, etc.	Cotton, linen	100 – 200 g/m²
	Silk fabrics, toile, etc.	Silk	100 – 200 g/m²
	Jeans, denim, cord, velvet, damask, gabardine, sweatshirt fabrics, etc.	Cotton	300 – 400 g/m²
	Cloth, tweed, bouclé, loden, boiled wool, felt, knitted fabrics, etc.	Wool	300 – 400 g/m²
Cellulose and synthetic fibers	Viscose, satin, organza, chiffon, taffeta, tulle, lace, etc.	Viscose, acetate, triacetate, polyester, polyamide, polyacrylics and various fiber blends	20 – 120 g/m²
	LYCRA®, neoprene, etc.		150 – 250 g/m²
Pile fabrics	Artificial leather, alcantara, suede, fleece, artificial fur, plush, toweling, etc.	Cottons, various fiber blends	200 – 350 g/m²

As most Swarovski products can be applied from the front or back, the Hotfix Selector table features the application parameters for both sides. Extensive information on optimum application, depending on the production process and the application type (e.g. on trouser pockets), is available.



Front: The front (right side) of the fabric is exposed to the heat press.



Back: The back (reverse) of the fabric is exposed to the heat press.

The temperature settings selected depend on the heat resistance of the carrier material, and should be judged by the customer. The higher the temperature, the less time is required to activate the Hotfix adhesive (see table/chart). The application time depends primarily on the textile used and its thickness.

TOOLS FOR HOTFIX APPLICATION

Teflon® foil (100 x 50 cm, 40 x 20 in, art. 9010/003)
Silicone ironing pad (foam) (134 x 100 cm, 54 x 40 in, art. 9010/002)
Silicone pad (50 x 50 x 0.2 cm, 20 x 20 x 0.08 in, art. 9010/005)
Felt
Standard pressing cloth (cotton)
Standard cardboard
Transfer film (www.dso-co.com, www.strass.cc)

HOTFIX SELECTOR 1

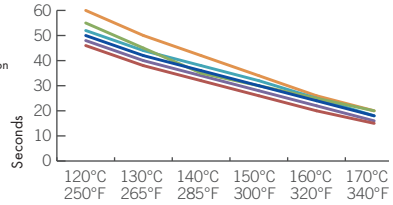
XILION TRANSFERS/XIRIUS TRANSFERS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	50	42	36	30	24	18
Silk, batiste, cotton jersey, thin linen fabrics, etc.	46	38	32	26	20	15
Jeans, cord, loden, cloth, knitted fabrics, etc.	55	45	35	30	25	20
Viscose, satin, chiffon, organza, taffeta, etc.	48	40	34	28	22	16
LYCRA®, neoprene, etc.	52	44	38	32	25	18
Artificial fur, artificial leather, fleece, suede, etc.	60	50	42	34	26	20

Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam

Note: The application time depends primarily on the size of the crystal.
To offer an average, figures are given for crystal size SS 20 (art. 2078).

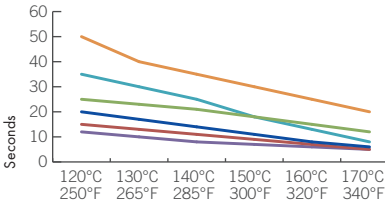


APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	20	17	14	11	8	6
Silk, batiste, cotton jersey, thin linen fabrics, etc.	15	13	11	9	7	5
Jeans, cord, loden, cloth, knitted fabrics, etc.	25	23	21	18	15	12
Viscose, satin, chiffon, organza, taffeta, etc.	12	10	8	7	6	5
LYCRA®, neoprene, etc.	35	30	25	18	13	8
Artificial fur, artificial leather, fleece, suede, etc.	50	40	35	30	25	20

Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam

Note: XIRIUS Transfers with size SS 40 and SS 48 should be applied like Creation Stones Plus (see the Swarovski Hotfix Selector overview).



HOTFIX SELECTOR 2

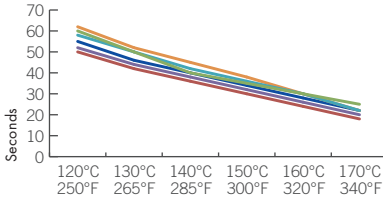
CREATION TRANSFERS & MEZZO TRANSFERS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	55	46	40	34	28	22
Silk, batiste, cotton jersey, thin linen fabrics, etc.	50	42	36	30	24	18
Jeans, cord, loden, cloth, knitted fabrics, etc.	60	50	40	35	30	25
Viscose, satin, chiffon, organza, taffeta, etc.	52	44	38	32	26	20
LYCRA®, neoprene, etc.	58	50	42	36	30	22
Artificial fur, artificial leather, fleece, suede, etc.	62	52	45	38	30	22

Pressure: medium
Tools: Teflon® foil, pressing cloth, silicone foam

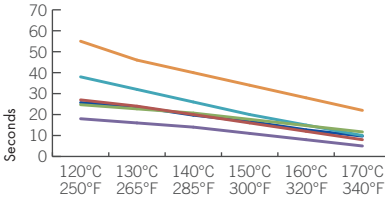
Note: The application time depends primarily on the largest element in the motif.



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	25	23	19	16	12	9
Silk, batiste, cotton jersey, thin linen fabrics, etc.	27	24	20	16	12	8
Jeans, cord, loden, cloth, knitted fabrics, etc.	25	23	21	18	15	12
Viscose, satin, chiffon, organza, taffeta, etc.	18	16	14	11	8	5
LYCRA®, neoprene, etc.	38	32	26	20	15	10
Artificial fur, artificial leather, fleece, suede, etc.	55	46	40	34	28	22

Pressure: medium
Tools: Teflon® foil, pressing cloth, silicone foam



HOTFIX SELECTOR 3

CREATION TRANSFERS PLUS

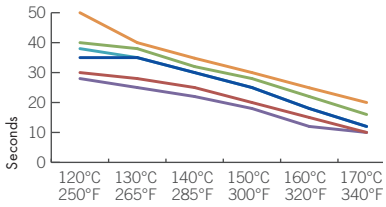
APPLICATION FROM THE FRONT

These items are **NOT** suitable for application from the front!

APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	35	35	30	25	18	12
Silk, batiste, cotton jersey, thin linen fabrics, etc.	30	28	25	20	15	10
Jeans, cord, loden, cloth, knitted fabrics, etc.	40	38	32	28	22	16
Viscose, satin, chiffon, organza, taffeta, etc.	28	25	22	18	12	10
LYCRA®, neoprene, etc.	38	35	30	25	18	12
Artificial fur, artificial leather, fleece, suede, etc.	50	40	35	30	25	20

Pressure: medium
Tools: Teflon® foil, pressing cloth



HOTFIX SELECTOR 4

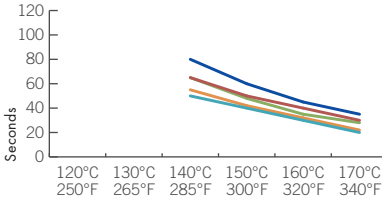
CRYSTAL DIAMOND TRANSFERS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)						
	110 °C / 230 °F	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	–	80	60	45	35
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	–	65	50	40	30
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	–	65	48	35	28
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	–	–	–	–	–
LYCRA®, neoprene, etc.	–	–	–	50	40	30	20
Artificial fur, artificial leather, fleece, suede, etc.	–	–	–	55	42	32	22
Medium density fiberboard (MDF)	120	–	–	–	–	–	–
Veneered wood fiberboard	120	–	–	–	–	–	–
Laminated wood fiberboard (HPL)	120	–	–	–	–	–	–
Solid hardwood	120	–	–	–	–	–	–

Pressure: high
Tools: Teflon® foil, pressing cloth, cardboard, preheated silicone pad

Note: Crystal Diamond Transfers are best suited to soft, voluminous fabrics.

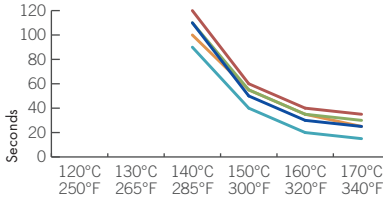


APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	110	50	30	25
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	120	60	40	35
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	110	55	35	30
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	–	–	–	–
LYCRA®, neoprene, etc.	–	–	90	40	20	15
Artificial fur, artificial leather, fleece, suede, etc.	–	–	100	55	35	25

Pressure: high
Tools: Teflon® foil, pressing cloth, cardboard, preheated silicone pad

Note: Crystal Diamond Transfers are best suited to soft, voluminous fabrics.



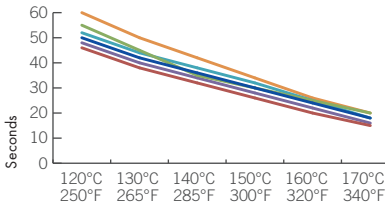
HOTFIX SELECTOR 5

FRAMED FLAT BACK TRANSFERS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	95	80	65	50	45	40
Silk, batiste, cotton jersey, thin linen fabrics, etc.	90	75	60	47	40	35
Jeans, cord, loden, cloth, knitted fabrics, etc.	95	80	65	50	45	40
Viscose, satin, chiffon, organza, taffeta, etc.	90	75	60	47	40	35
LYCRA®, neoprene, etc.	80	65	55	47	40	35
Artificial fur, artificial leather, fleece, suede, etc.	100	88	70	57	50	40

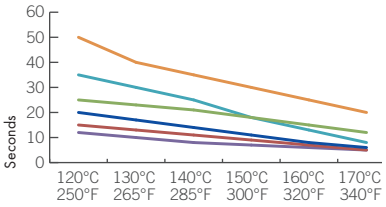
Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	20	17	14	11	8	6
Silk, batiste, cotton jersey, thin linen fabrics, etc.	15	13	11	9	7	5
Jeans, cord, loden, cloth, knitted fabrics, etc.	25	23	21	18	15	12
Viscose, satin, chiffon, organza, taffeta, etc.	12	10	8	7	6	5
LYCRA®, neoprene, etc.	35	30	25	18	13	8
Artificial fur, artificial leather, fleece, suede, etc.	50	40	35	30	25	20

Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam



HOTFIX SELECTOR 6

FRAMED CABOCHONS TRANSFERS

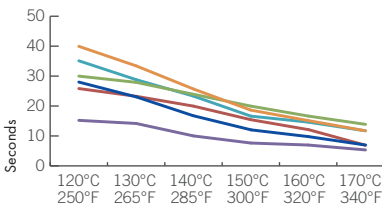
APPLICATION FROM THE FRONT

These items are **NOT** suitable for application from the front!

APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	27	22	17	12	10	7
Silk, batiste, cotton jersey, thin linen fabrics, etc.	26	23	20	16	12	7
Jeans, cord, loden, cloth, knitted fabrics, etc.	30	27	24	20	17	14
Viscose, satin, chiffon, organza, taffeta, etc.	15	13	10	8	7	5
LYCRA®, neoprene, etc.	35	29	23	17	14	11
Artificial fur, artificial leather, fleece, suede, etc.	40	33	26	19	15	11

Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam



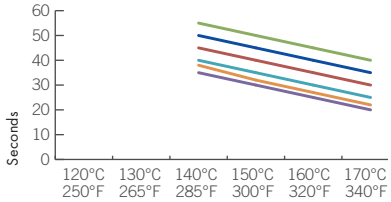
HOTFIX SELECTOR 7

CRYSTAL FABRIC, GRAPHIC FABRIC, CRYSTAL MEDLEY, CRYSTALTEX CHATON & CRYSTALTEX CABOCHON*

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	50	45	40	35
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	45	40	35	30
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	55	50	45	40
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	35	30	25	20
LYCRA®, neoprene, etc.	–	–	40	35	30	25
Artificial fur, artificial leather, fleece, suede, etc.	–	–	38	32	27	22

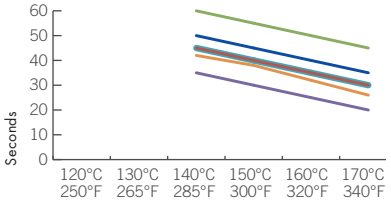
Pressure: medium
Tools: Teflon® foil, pressing cloth



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	50	45	40	35
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	45	40	35	30
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	60	55	50	45
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	35	30	25	20
LYCRA®, neoprene, etc.	–	–	45	40	35	30
Artificial fur, artificial leather, fleece, suede, etc.	–	–	42	38	32	26

Pressure: medium
Tools: Teflon® foil, pressing cloth



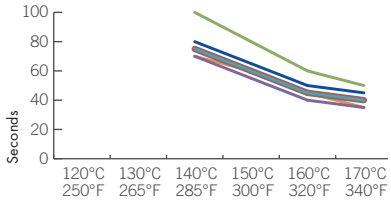
HOTFIX SELECTOR 8

CRYSTAL ROCKS & GRAPHIC ROCKS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	80	65	50	45
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	75	60	45	40
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	100	80	60	50
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	70	55	40	35
LYCRA®, neoprene, etc.	–	–	75	60	45	40
Artificial fur, artificial leather, fleece, suede, etc.	–	–	70	60	45	35

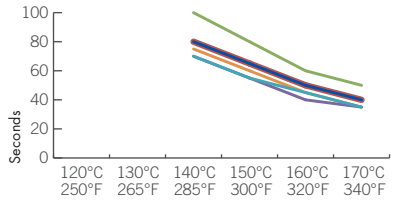
Pressure: medium
Tools: Teflon® foil, pressing cloth



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	80	65	50	40
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	70	55	45	35
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	100	80	60	50
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	70	55	40	35
LYCRA®, neoprene, etc.	–	–	80	65	50	40
Artificial fur, artificial leather, fleece, suede, etc.	–	–	75	60	45	35

Pressure: medium
Tools: Teflon® foil, pressing cloth



* Due to the crystals' lacquer it is recommended applying Crystaltex Cabochons from the back.
If applying them from front side, make sure to protect the crystals by using a felt or a rubber foam.

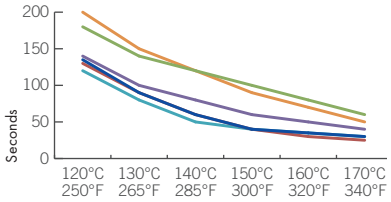
HOTFIX SELECTOR 9

CRYSTAL FINE ROCKS, GRAPHIC FINE ROCKS & CRYSTAL ULTRAFINE ROCKS

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	70	60	50	45
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	65	55	45	40
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	80	70	60	50
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	60	50	40	30
LYCRA®, neoprene, etc.	–	–	65	55	40	35
Artificial fur, artificial leather, fleece, suede, etc.	–	–	60	50	40	30

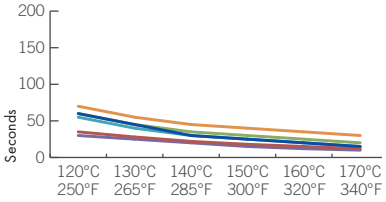
Pressure: medium
Tools: Teflon® foil, pressing cloth



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	–	–	80	65	50	40
Silk, batiste, cotton jersey, thin linen fabrics, etc.	–	–	70	55	45	35
Jeans, cord, loden, cloth, knitted fabrics, etc.	–	–	100	80	60	50
Viscose, satin, chiffon, organza, taffeta, etc.	–	–	70	55	40	35
LYCRA®, neoprene, etc.	–	–	80	65	50	40
Artificial fur, artificial leather, fleece, suede, etc.	–	–	75	60	45	35

Pressure: medium
Tools: Teflon® foil, pressing cloth, transfer film to fix in place



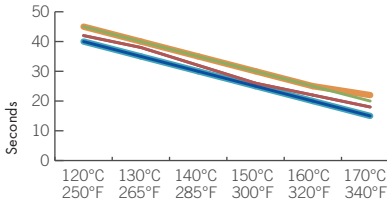
HOTFIX SELECTOR 10

CRYSTALTEX

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	40	35	30	25	20	15
Silk, batiste, cotton jersey, thin linen fabrics, etc.	42	38	32	26	22	18
Jeans, cord, loden, cloth, knitted fabrics, etc.	45	40	35	30	25	20
Viscose, satin, chiffon, organza, taffeta, etc.	42	38	32	26	22	18
LYCRA®, neoprene, etc.	40	35	30	25	20	15
Artificial fur, artificial leather, fleece, suede, etc.	45	40	35	30	25	22

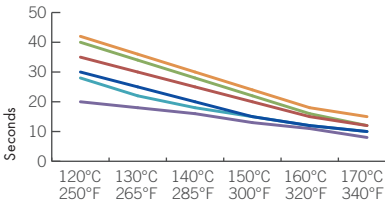
Pressure: medium
Tools: Teflon® foil, pressing cloth



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	30	25	20	15	12	10
Silk, batiste, cotton jersey, thin linen fabrics, etc.	35	30	25	20	15	12
Jeans, cord, loden, cloth, knitted fabrics, etc.	40	34	28	22	16	12
Viscose, satin, chiffon, organza, taffeta, etc.	20	18	16	13	11	8
LYCRA®, neoprene, etc.	28	22	18	15	12	10
Artificial fur, artificial leather, fleece, suede, etc.	42	36	30	24	18	15

Pressure: medium
Tools: Teflon® foil, pressing cloth



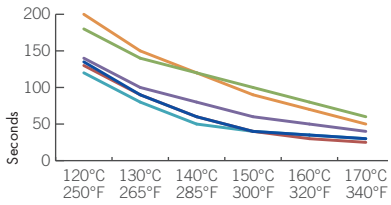
HOTFIX SELECTOR 11

CRYSTAL MESH STANDARD, CRYSTAL AERIAL MESH & CRYSTAL FINE MESH

APPLICATION FROM THE FRONT

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	135	90	60	40	35	30
Silk, batiste, cotton jersey, thin linen fabrics, etc.	130	90	60	40	30	25
Jeans, cord, loden, cloth, knitted fabrics, etc.	180	140	120	100	80	60
Viscose, satin, chiffon, organza, taffeta, etc.	140	100	80	60	50	40
LYCRA®, neoprene, etc.	120	80	50	40	35	30
Artificial fur, artificial leather, fleece, suede, etc.	200	150	120	90	70	50

Pressure: high
Tools: Teflon® foil, pressing cloth



APPLICATION FROM THE BACK

	Temperature/time required (in seconds)					
	120 °C / 250 °F	130 °C / 265 °F	140 °C / 285 °F	150 °C / 300 °F	160 °C / 320 °F	170 °C / 340 °F
Reference fabric	60	45	30	25	20	15
Silk, batiste, cotton jersey, thin linen fabrics, etc.	35	28	22	18	15	12
Jeans, cord, loden, cloth, knitted fabrics, etc.	60	45	35	30	25	20
Viscose, satin, chiffon, organza, taffeta, etc.	30	25	20	15	12	10
LYCRA®, neoprene, etc.	55	40	30	25	20	15
Artificial fur, artificial leather, fleece, suede, etc.	70	55	45	40	35	30

Pressure: high
Tools: Teflon® foil, pressing cloth, transfer film to fix in place