APPLICATION MANUAL

Hotfix

PRECIOSA

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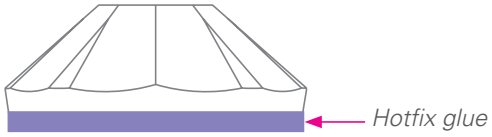
Basic Principles of Hotfix Technology

Hotfix stones and applications have a glue layer on their back side. The heat-activated glue turns into liquid and back into a solid after cooling.



PRECIOSA PRODUCTS SUITABLE FOR HOTFIX APPLICATION

COMPONENT		HOTFIX APPLICATION
Flat Back Stones	Hotfix	✓
Hotfix Transfers	Hotfix	✓
Crystal Sheet	Hotfix	✓

PROCEDURE

Application

Cooling

It takes about 5 minutes for the glue to cool down after application, at which point, the stones are fixed to the base material.

Curing

The glue should cure for 24 hours to become firm and durable. Do not handle or wash the textile material during this period.

Care

Textile material with applied stones can be washed at 60 °C, tumble-dried, dry-cleaned and carefully ironed.

Technological requirements

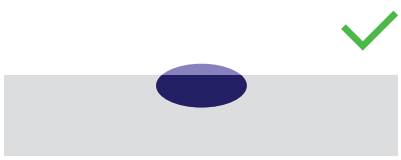
To take full advantage of the outstanding qualities of Preciosa hotfix products it is necessary to observe certain rules for their application:

- Choice and preparation of a suitable base material.
- Correct temperature, pressure and time alloted for the application.
- Choice of the stone/application side for application.

Material Qualities for the Application of Preciosa Hotfix Products

ABSORPTION QUALITIES OF THE MATERIAL

A firm bond between the hotfix stone/application and the base material can only be achieved if at least part of the heat-activated glue soaks into the used base material. Test the absorption qualities of the chosen material in advance with water.



Good absorption qualities: the droplet soaks into the material

Bad absorption qualities: the droplet stays on the surface of the material

Unsuitable base materials and surface treatments

- ✕ Teflon surface treatments.
- ✕ Treatments increasing dirt resistance.
- ✕ Dyes with metal pigments.
- ✕ Enzymatic treatments.
- ✕ Treatments for easy maintenance.
- ✕ Hydrophobic or water repellent treatments (silicon or synthetic rubber as water repellents).
- ✕ Treatments with fluorinated hydrocarbons.
- ✕ Treatments with softening agents.
- ✕ Smooth leather and smooth leather imitations.

Bad absorption qualities of the material caused by improper surface treatments (softening agents in particular) can be sometimes eliminated by washing the material prior to Hotfix application.

HEAT RESISTANCE OF THE MATERIAL

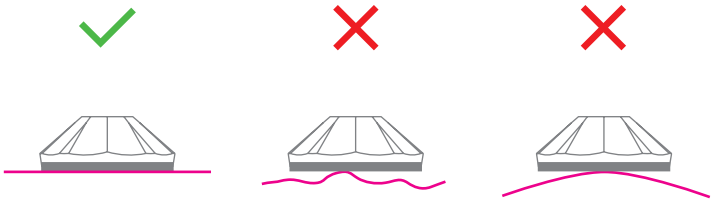
Before starting the application make sure the heat resistance of the base material is suitable for using Hotfix technology. The heat resistance of the material should be at least 120 °C / 250 °F.

PRESSURE RESISTANCE

Some materials can become deformed when exposed to excessive pressure. Make sure that the chosen material is resistant to the application tools by testing a small sample prior to the main application.

SHAPE OF THE BASE MATERIAL

The base material needs to be completely flat. Materials that bend or move easily under application pressure are not suitable for applying big stones.



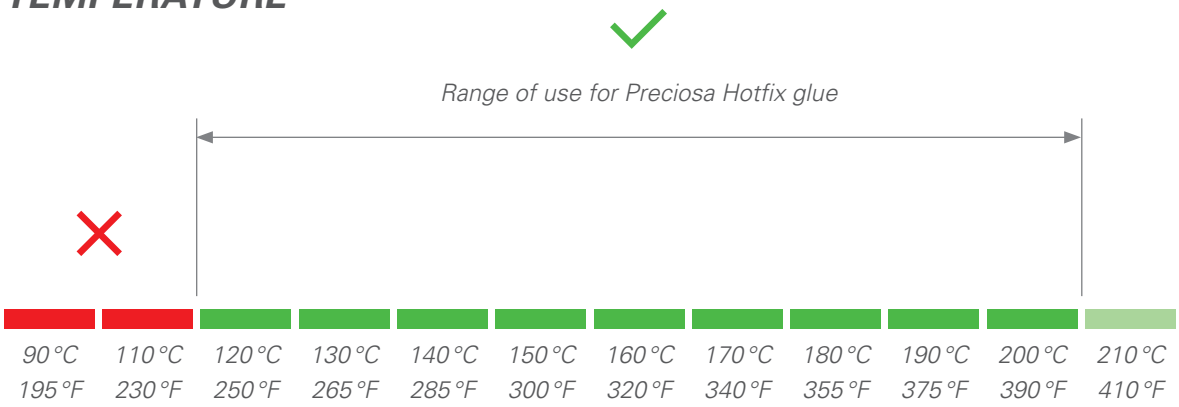
Material without a flat area

Material under bending stress

Technological Parameters for Application of Preciosa Hotfix Products

The choice of temperature, time and pressure is very important for a successful application.
All features are influenced both by the base material quality the size of the stone the surface of application.

TEMPERATURE



Warning:

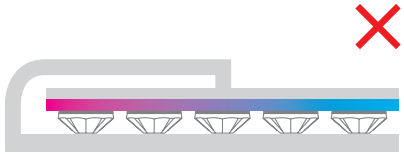
Be careful when using a heat press. The temperature on the display does not necessarily match the actual surface temperature of the heated press plate. The temperature affecting the product after closing the press can also change depending on the application cycle rate. If the time delay from closing the press plates is too long the unheated plate will cool and the temperature affecting the glue during application will be lower than expected. The shorter the time delay when closing the press plates, the higher the temperature of the glue will be.

We recommend pre-heating the press plate before starting the application, i.e. before the first application. Switch on the press and leave it closed and empty (without any textile material). The pre-heating procedure should last approximately three times longer than the application itself (the temperature of the pre-heated plate should be such that you can hold your hand on it).

An uneven heat distribution can also occur or the press heating plate can be defective. It is recommended to check the temperature regularly with a laser thermometer.

Temperature distribution in the heat press

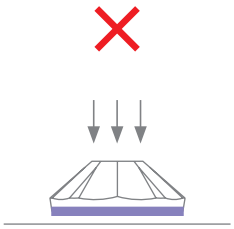
The heat is evenly distributed throughout the whole plate of the heat press



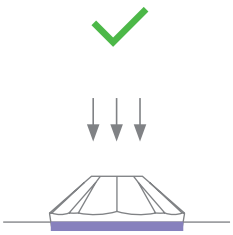
The heat is not evenly distributed throughout the plate of the heat press

PRESSURE

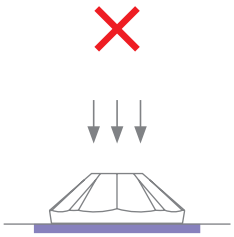
The application pressure depends on the chosen Hotfix product, base material and technical equipment (machines, etc.). Choosing an appropriate pressure when applying the Hotfix stones or applications is another of the decisive factors for a high-quality bond between the product and the base material. It is recommended to test the pressure on a material sample.



Pressure is too low – the glue does not adhere



Optimal pressure – the glue adheres without spreading out



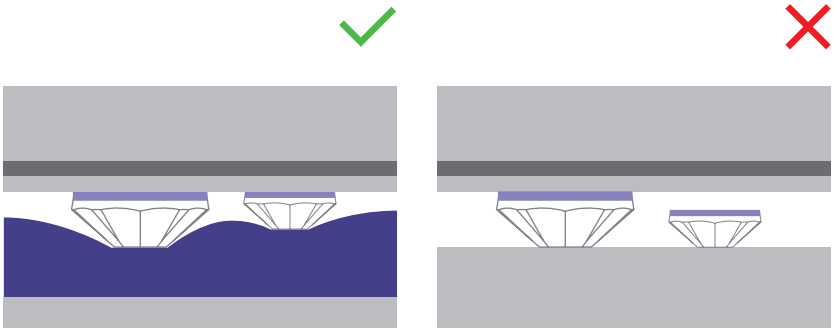
Pressure is too high – the glue spreads out

Pay attention to the following:

- The pressure must be applied directly to the stone/application.
- Special attention should be paid to application near buttons, zippers, seams and other protrusions of the base material.

Recommendation:

Use a compensation pad (e.g. silicon foam or foam rubber) to make the surface even; use the same pad when applying stones of different heights next to each other.



Glue

Compensation pad

APPLICATION TIME

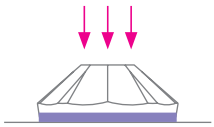
The application time has to be long enough for the glue to melt appropriately and soak into the base material. The base material, size and shape of the stones/applications, choice of equipment and stone/application orientation, (stone/application can be applied with their front or back side exposed to the heat), can all influence the quality of the hotfix application.

APPLICATION SIDE

Hotfix stones/applications can be applied with either their front side or back side exposed to the heat.

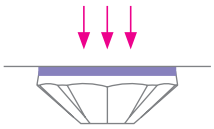
Front side (heat penetrates through the stone)

Very thick materials or materials in multiple layers.

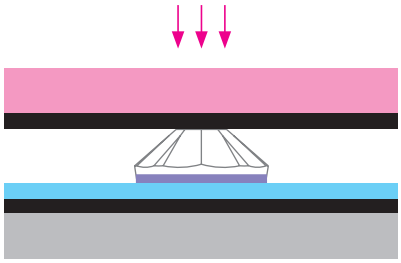


Back side

Thin materials (heat reaches the glue more quickly through the base material).

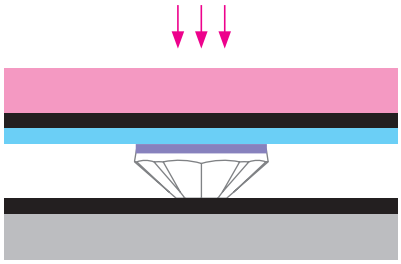


Front side application



Front side of the material is exposed to the heat

Back side application

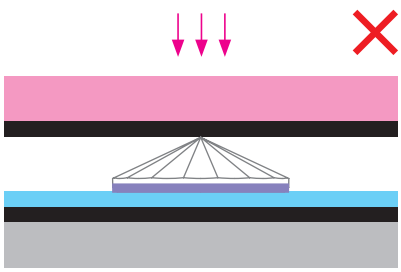


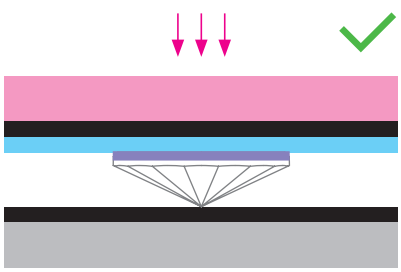
Reverse side of the material is exposed to the heat

Heated press plate *Teflon pad* *Base material* *Unheated press plate*

Be careful with some stone shapes

Some products (e.g. fancy stones) can be applied only with their back side exposed to the heat.





HOW TO RECOGNIZE A PROPERLY APPLIED STONE/ APPLICATION?

A correct combination of application parameters results in a firm bond between the stone/application and the underlying base material. In this case, a tiny amount of glue extrudes around the stone/application circumference, which should not interfere with the aesthetic aspects of the applied stone/application as it is not visible to the eye unless viewed under a magnifying glass. If thin or soft materials are used the stone/application is correctly applied when the glue soaks a little through the base material and is visible on the reverse side.

If the conditions were not followed correctly, (e.g., if the temperature was too high or the pressure was incorrectly applied, etc.), a considerable amount of the glue could become visible surrounding the applied stone/application. The result is a weak bond between the stone and the base material.

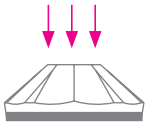
If the application temperature or pressure are too low or the application time too short the glue is not sufficiently activated and problems with adhesion can occur.

TIPS AND TRICKS

- To achieve optimal results, it is necessary to test all application parameters in advance on samples of materials chosen for the application. Use the parameters in the Application Time table for setting approximate values.
- Please note that the glue is cured and the bond between the applied stone/application and the base material becomes firm only after 24 hours since the application. Until then Hotfix products should be handled with care; it is not recommended to check the bond quality or to wash the product.
- If stretch material is used for the hotfix application it is recommended to secure the material slightly stretched on a pad prior to the application.
- Hotfix glue was developed specifically for textile materials. However, it is possible for Hotfix products to be applied to other materials (e.g. wood, paper, metal). It is essential to check the surface quality and conduct tests prior to the application in these cases.
- A high-quality application can be achieved only on a perfectly clean and degreased surface of the base material. A smooth surface can still be inadequately wettable which is caused by surface tension. Low surface tension results in poor surface wetting. The bond between the surface and the Hotfix glue will therefore not be strong enough and might even be impossible.
- The value of 38 mN/m is considered to be the minimal surface tension for any treatment (valid also for painting, varnishing, etc.). The surface tension can be measured and checked with a test pen and ink. It is not possible to test the surface tension on porous or absorption materials.

Single Stone Application

Overview of temperature and time combinations for different materials (MC CHATON ROSE MAXIMA Hotfix)

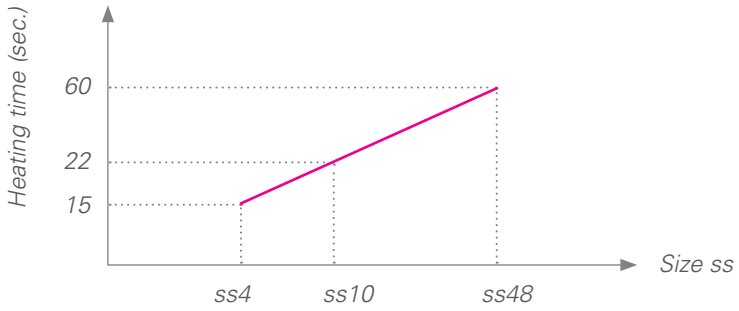


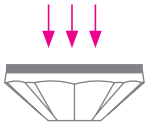
Front side (ss10)

Fabric	Fabric example	Weight (g/m²)	Time (sec.)								
TEMPERATURE			120°C 250°F	130°C 265°F	140°C 285°F	150°C 300°F	160°C 320°F	170°C 340°F	180°C 355°F	190°C 375°F	200°C 390°F
natural plant-based fabrics	cotton, silk, linen	50-200	48	40	34	28	22	16	12	10	8
natural animal-based fabrics	wool, cashmere	200-300	55	45	35	30	25	20	16	13	10
artificial fabrics	PES, lycra	150-250	52	44	48	32	25	18	15	12	9
fabrics that require special care	suede, embroidery, 100% denim	250-400	60	50	42	34	26	20	16	13	10

Time of heating depending on the size of the Chaton Rose

(example:
cotton - temperature 160 °C)



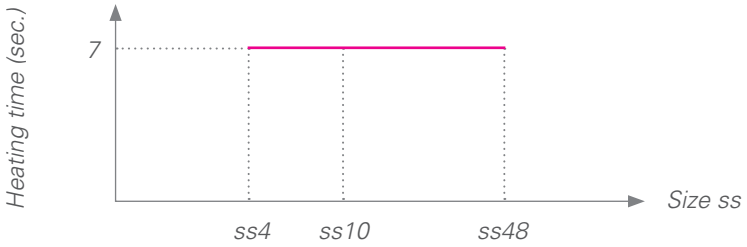


Back side

Fabric	Fabric example	Weight (g/m²)	Time (sec.)								
TEMPERATURE			120°C 250°F	130°C 265°F	140°C 285°F	150°C 300°F	160°C 320°F	170°C 340°F	180°C 355°F	190°C 375°F	200°C 390°F
natural plant-based fabrics	cotton, silk, linen	50-200	15	13	10	9	7	5	4	4	3
natural animal-based fabrics	wool, cashmere	200-300	24	22	17	14	11	7	6	6	5
artificial fabrics	PES, lycra	150-250	20	18	15	12	9	6	5	5	4
fabrics that require special care	suede, embroidery, 100% denim	250-400	25	23	20	15	11	7	6	6	5

Time of heating depending on the Chaton Rose size

(example:
cotton - temperature 160 °C)



When using different base materials and stone sizes, it is necessary to make an application test of particular stones on the chosen base material.

APPLICATION IN A HEAT PRESS

A heat press is a piece of equipment with two flat plates between which the textile is placed during the application. Either one or both plates can be heated.

Advantages:

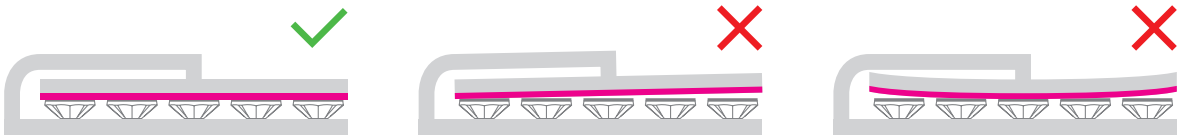
- Uniform and adjustable pressure on the stones/ applications.
- Setting of proper temperature and time.
- High efficiency of application.

Helpful tips:

Teflon or silicon foil. The foil avoids staining or sticking of the reverse side to the front side of the textile in case the glue soaks through where the stones are applied.

Parallel position of the heat press plates

The upper and lower press plates should be in a parallel position which enables the pressure and temperature to be evenly distributed over the whole pressing area.

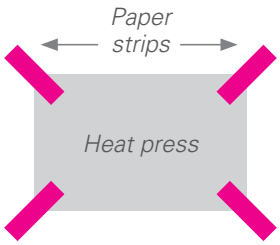


Plates are parallel – pressure and temperature are uniform

Plates are not parallel – pressure and temperature are not uniform

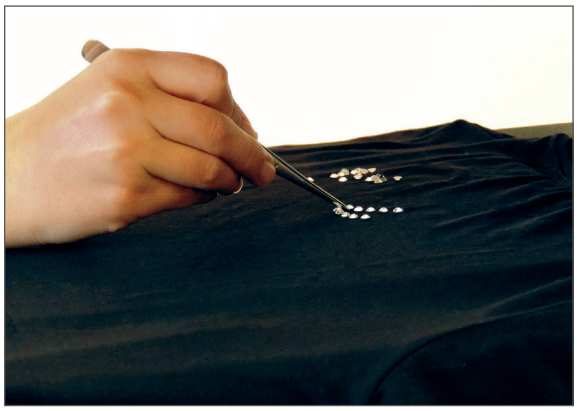
Recommendation:

Paper strips can be used to check if the plates are parallel. Place the strips into the press and close it using the lowest possible pressure. Pull the strips out afterwards; if the same force is used for all four strips then the plates are parallel. If a different force has to be used when pulling the strips out, the plates are not parallel. In this case, the press is not suitable for correct Hotfix assortment application.

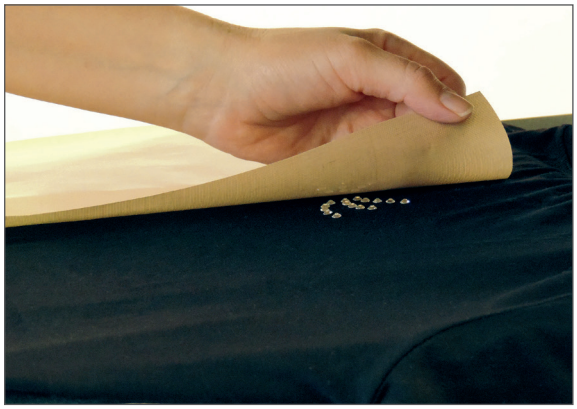


Application procedure

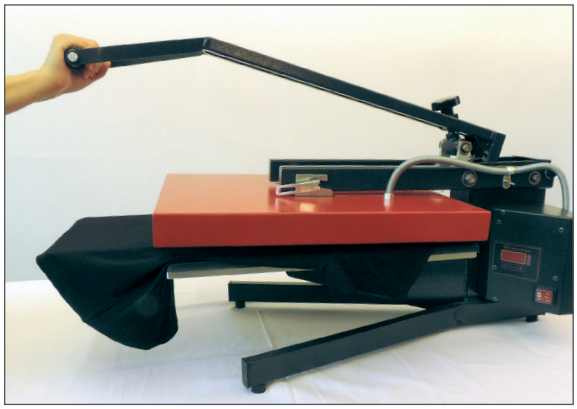
1 Put the clothes on the lower press plate. Insert a pad inside the garment to protect the reverse side from staining. Teflon or silicon are recommended, or even a blank sheet of paper.



2 Create a motif according using tweezers – use stones of the same size.



3 Afterwards, carefully cover the motif with teflon foil.



4 Close the heated press and leave the garment with Hotfix stones in the press according to the time and temperature given in the Application Time table.

5 After finishing the application procedure open the press and gently press down on the motif through an ironing cloth.

6 Let the garment with the applied motif cool down. The glue is cured after 24 hours.

APPLICATION WITH ULTRASOUND EQUIPMENT

In this procedure, the glue is activated by heat that results from friction during quick vibrations; at the same time, the stones are pressed on the base material.

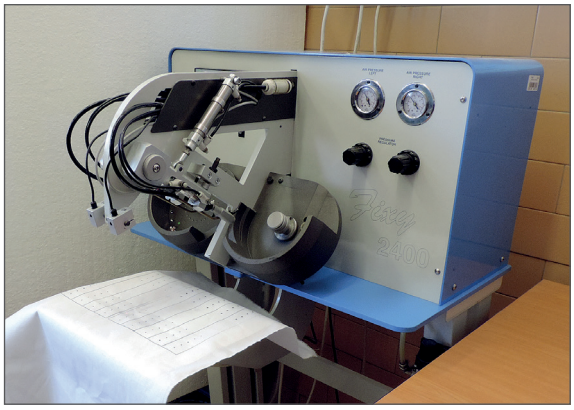
Advantage:

✓ High-quality application.

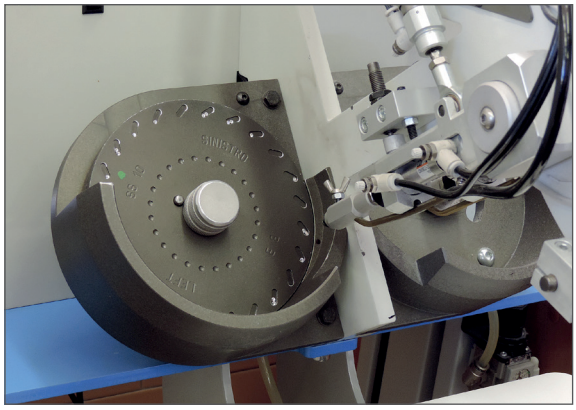
Note:

- When using this equipment it is necessary to carefully follow the producer's instructions (setting the frequency of the ultrasonic equipment).
- The application time is then set according to the previous tests with particular stones and base material.

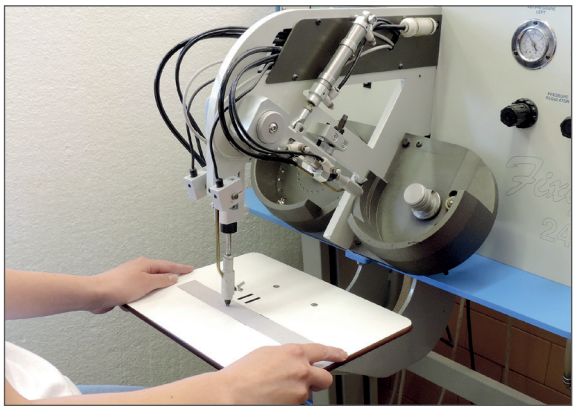
Application procedure



1 During production two different items can be applied at the same time.



2 Stones are picked up automatically.



3 The stone application on the textile material is also automatic – the material has to be positioned correctly.

APPLICATION WITH A MANUAL APPLICATOR

A manual applicator is a cheap way of applying Hotfix MC Chaton Roses on the base material.

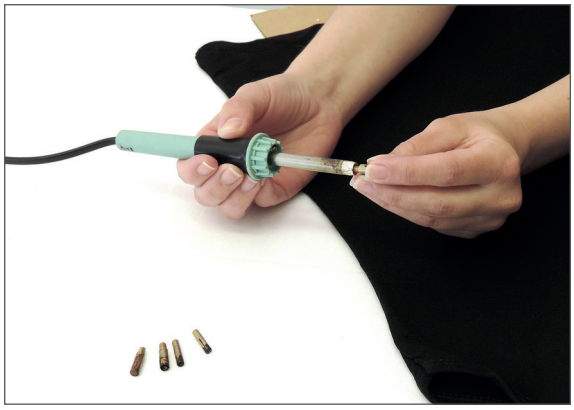
Advantage:

✓ Low purchase price.

Note:

- When using the manual applicator it is necessary to carefully follow the producer's instructions (temperature setting).
- The application time is then set according to the previous tests with particular stones and base material.

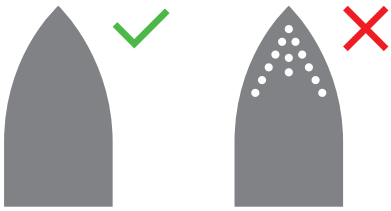
Application procedure



1 Choose an adapter to match the stone size and put it on the applicator.

2 Heat the applicator to the required temperature.

3 Place the clothes on an appropriate pad (glass, ceramic, metal) and press on the stone.



APPLICATION WITH AN IRON

Advantage:

✓ A normal iron can be used to apply all Hotfix products – preferably one without steam slots.

Disadvantage:

✕ Application with an iron does not always produce the best results. It is recommended to use a heat press to achieve a uniform application quality.

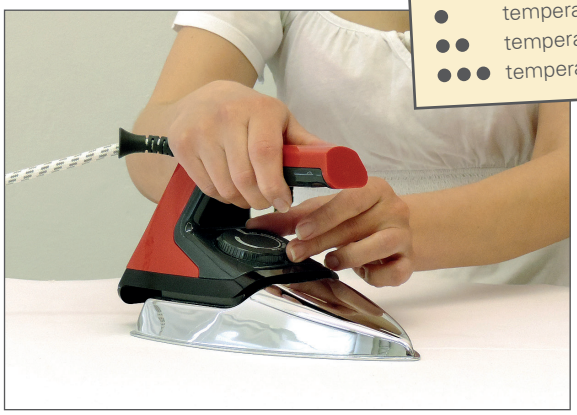
Warning:

- The pressure and temperature regulations are not accurate.
- The accuracy of the pressure regulation depends on individual feeling and estimation of the person who carries out the application.
- Check if there are no steam slots in the bottom of the iron (water droplets and steam can negatively affect the application and can even make it impossible).
- Carry out the application on a firm, flat and even pad.

Application procedure

Symbols according to DIN EN ISO 3758:

- ● temperature of ironing surface 110°C (230°F)
- ●● temperature of ironing surface 150°C (300°F)
- ●●● temperature of ironing surface 200°C (390°F)



1 The optimal temperature of the ironing surface is 150 °C (300 °F).

2 Put a cardboard or a felt pad under the cloth.

3 Stones should be covered with teflon foil during the application to protect the iron surface from staining by glue spreading. Applying without foil is also possible but only with utmost care.

4 Check the applied stones.

Important Advice and Information

POSSIBLE PROBLEMS, THEIR CAUSES AND RECOMMENDATIONS

PROBLEM	CAUSE
The stone/applications does not adhere to the base material.	**1, 2, 3, 4, 5, 6**
The glue spreads around the stone.	**7, 8, 9, 10**
The stone/applications does not hold on seams or layered materials.	**1, 2, 3, 4, 5, 6**

CAUSE	RECOMMENDATION
1 *The application temperature is too low.*	Increase the temperature by at least 10 °C (20 °F).
2 *The application time is too short.*	Prolong the application time. In case of a thick or multilayer material apply the heat from the front side through the stone.
3 *The pressure is too low.*	It can occur by application on a thick material. Increase the pressure.
4 *Uneven distribution of heat on the heated surface.*	Check the temperature with a measuring tape or a laser thermometer. If the difference is higher than ca 5 °C (10 °F) repair the heat press.
5 *The heat press closes askew.*	Repair the heat press.
6 *The application pad is not suitable.*	Test different application pads and choose the most suitable one.
7 *The application temperature is too high.*	Lower the temperature by at least 20 °C (40 °F).
8 *The application time is too long.*	Shorten the application time.
9 *The pressure is too high.*	Decrease the pressure of the heat press.
10 *The application pad is too hard.*	Use a softer application pad.

Hotfix Transfer and Crystal Sheet Application

APPLICATION IN A HEAT PRESS

Adjust the Heat-press to 160-170°C. (Do some tests to find the right temperature because not all thermostats are calibrated exactly). Start with 160°C first, 20 second.

Advantages:

- ✓ Uniform and adjustable pressure on the stones.
- ✓ Setting of proper temperature and time.
- ✓ High efficiency of application.

Please note the recommended application procedure for Crystal Sheet is fundamentally similar to that of Hotfix Transfers (see the next page). For cut-out motifs, application to transfer film is recommended for easier handling and precision.

Crystal Sheet – overview of temperature and time combinations for different materials

Fabric	Fabric example	Weight (g/m^2)	Time (sec.)		
TEMPERATURE			145°C 293°F	155°C 311°F	165°C 329°F
natural plant-based fabrics	silk	50-200	60	45	32
natural animal-based fabrics	wool, felt	200-300	28	16	12
artificial fabrics	artificial velvet	150-250	26	18	14
fabrics that require special care	100% denim, leather, suede	250-400	52	48	32

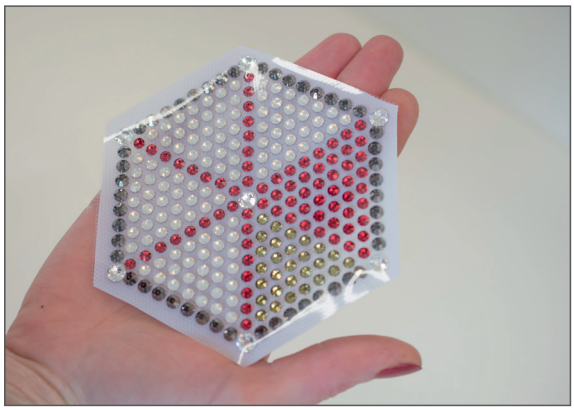
Transfer – overview of temperature and time combinations for different materials

Fabric	Fabric example	Weight (g/m^2)	Time (sec.)	
TEMPERATURE			160°C 320°F	170°C 340°F
natural plant-based fabrics	cotton, silk, linen	50-200	22	16
natural animal-based fabrics	wool, cashmere	200-300	25	20
artificial fabrics	PES, lycra	150-250	25	18
fabrics that require special care	suede, embroidery, 100% denim	250-400	26	20

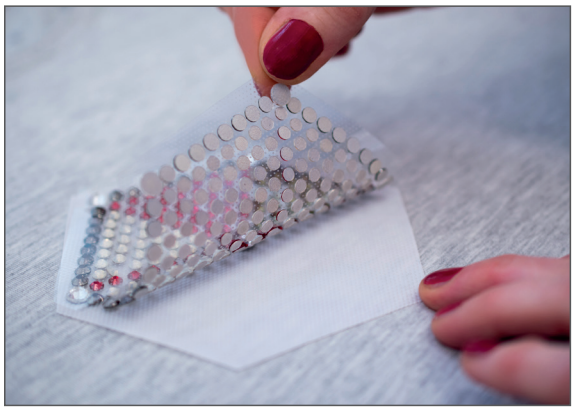
Hotfix Transfer application procedure

1 Place the fabric on the surface.

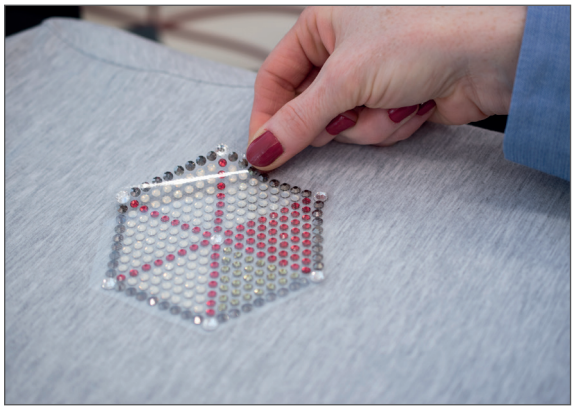
2 Cut out the rhinestone motif.



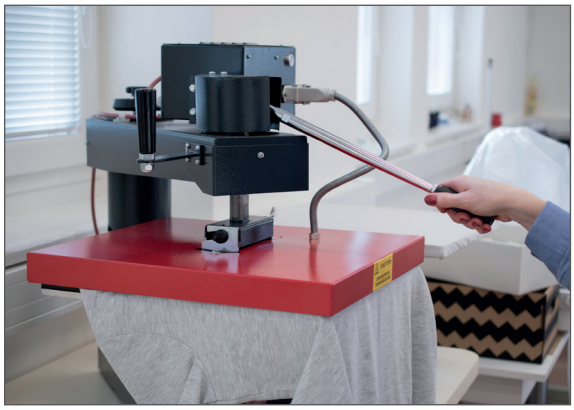
3 Keep excess material around the borders to a minimum.



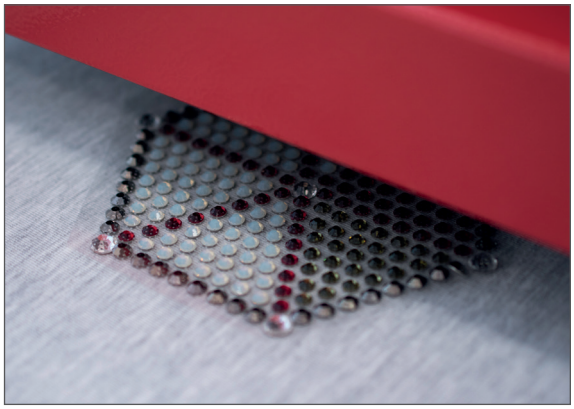
4 Remove the protective sheet of the siliconated paper.



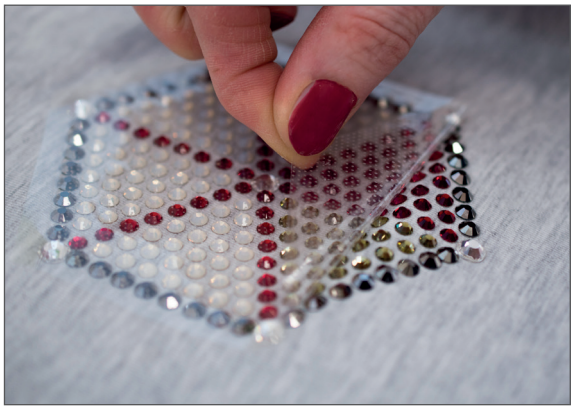
5 Place the transfer onto fabric where you want it to be applied (stones facing up).



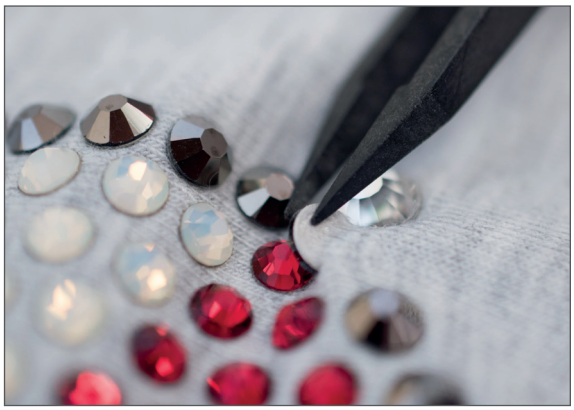
6 Press for 15-20 seconds with medium pressure and temperature at 160°C (make sure to cover the motif with a cotton cloth).



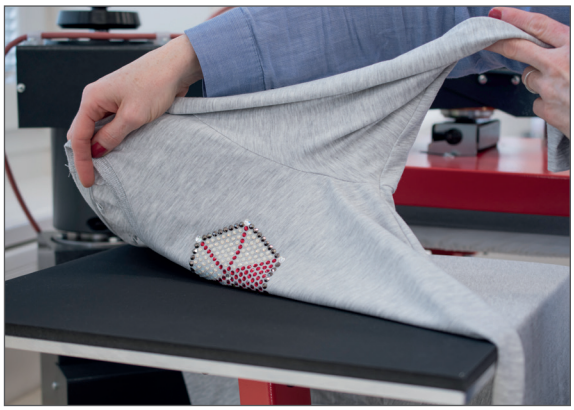
7 Allow to cool for a few seconds.



8 Gently remove the transparent foil. If any rhinestones are loose, cover the motif with the transparent film and a cotton fabric and repeat the procedure again.



9 If the stones are still loose or do not adhere correctly you can raise the temperature by approximately 3-4°C and extend time by 3-4 seconds.



10 For the application of motifs composed of different rhinestones size or of oversize rhinestones (larger than ss16) it is recommended to carry out the application on the reverse side (stones facing down) with increased pressure (heat will reach the base of the rhinestones more easily).

Helpful tips:

Teflon or silicon foil. The foil avoids staining or sticking of the reverse side to the front side of the textile in case the glue soaks through where the stones are applied.

USEFUL INFORMATION FOR CORRECT APPLICATION

- **Before every application make sure to always cover the motif with light cotton fabric or teflon/silicon foil from the heat press. This is important because the transparent film is made of PVC and without cloth protection it can deform under the heat-press.**

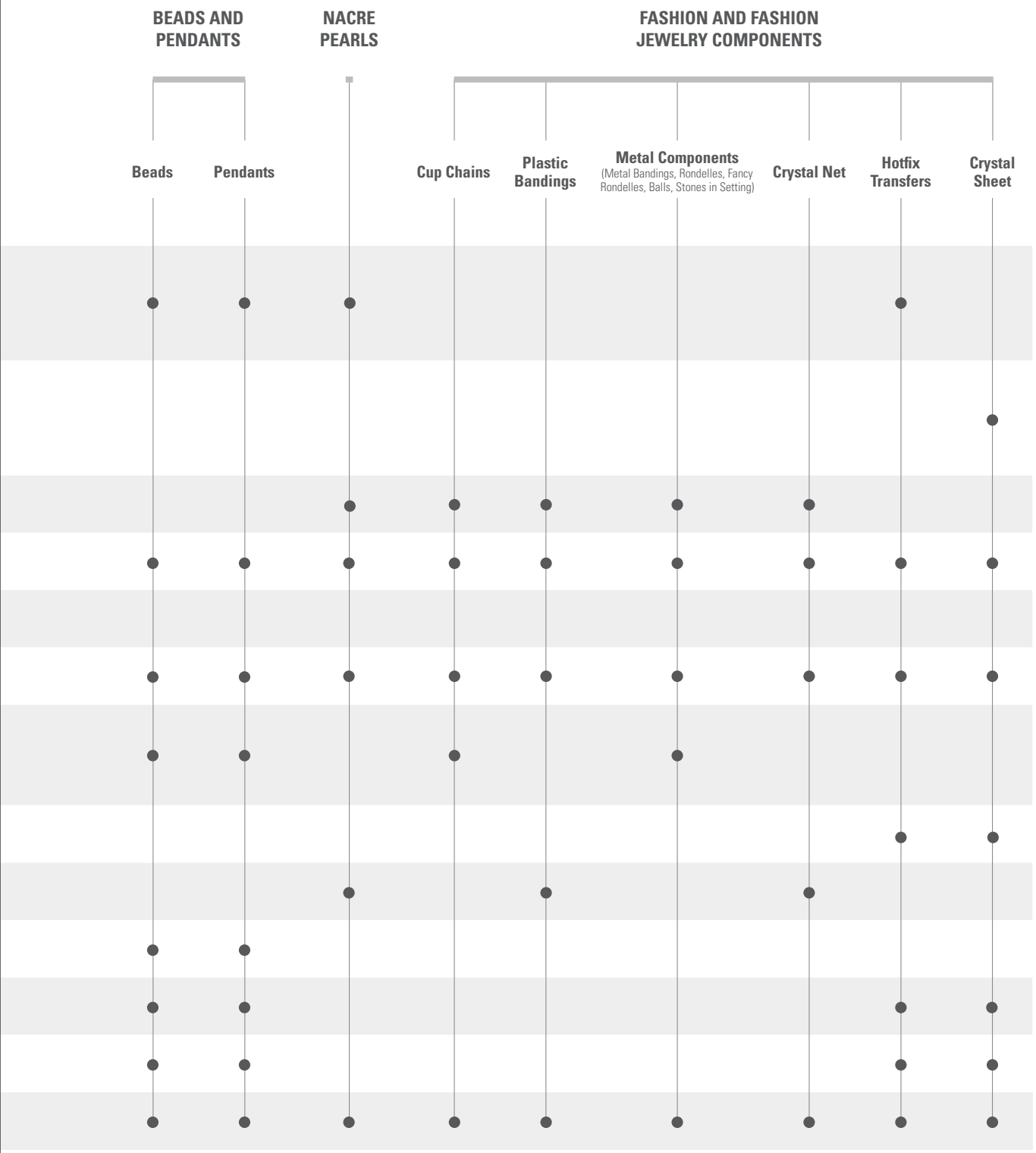
- For optimal adhesion, it is recommended to cover the motif with a cotton cloth after the transparent foil is removed and press for an additional 15 seconds with the same pressure and heat.

- If the transfer has been applied correctly, after removal of the transparent foil let the motif cool and check the adhesion by trying to pull the stones away. Use moderate strength. Single rhinestones that are missing or were loose can be applied manually with a tweezer and then the heating press procedure should be repeated. Always keep in mind that the cover needs to be covered with a cotton cloth.

- For further information please refer to previous chapters of the manual - principles relevant to single stone application are also applicable to transfers.

GENERAL RECOMMENDATIONS

		FASHION JEWELRY STONES		FLAT BACK STONES		
		Round Stones, Channel	Fancy Stones, Ball	No Hotfix Stones	Hotfix Stones	Sew-on Stones
Stones with coatings – use only gentle wash cycle (30 °C).	Turn inside out, choose a gentle wash cycle and use mild laundry detergent. To protect the crystals as much as possible, the use of a soft wash bag is recommended.	●	●	●	●	●
	Turn inside out, choose a gentle wash cycle and use mild laundry detergent. To protect the crystals as much as possible, the use of a soft wash bag is recommended.					
	Turn inside out and use mild laundry detergent.					
	Do not use chlorine bleach!	●	●	●	●	●
	Turn inside out and dry at reduced temperature.					
	Do not tumble dry!	●	●	●	●	●
	Iron inside out using a silk/polyester viscose setting. Ironing the textile inside out and using a pressing cloth is recommended.					
	Iron inside out using a wool setting.			●	●	●
	Do not iron! Do not iron directly over the crystals.					
To protect the crystals as much as possible, the use of a soft wash bag is recommended.	The textile can be gently dry-cleaned using perchlorethylene. Turn inside out.	●	●			
	The textile can be gently dry-cleaned using hydrocarbon.	●	●	●	●	●
	The textile will withstand gentle professional wet cleaning. Turn inside out.	●	●	●	●	●
	The textile may not be dry-cleaned.	●	●	●	●	●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Pendants
Cup Chains
Plastic Bandings
Metal Components
(Metal Bandings, Rondelles, Fancy Rondelles, Balls, Stones in Setting)
Crystal Net
Hotfix Transfers
Crystal Sheet

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