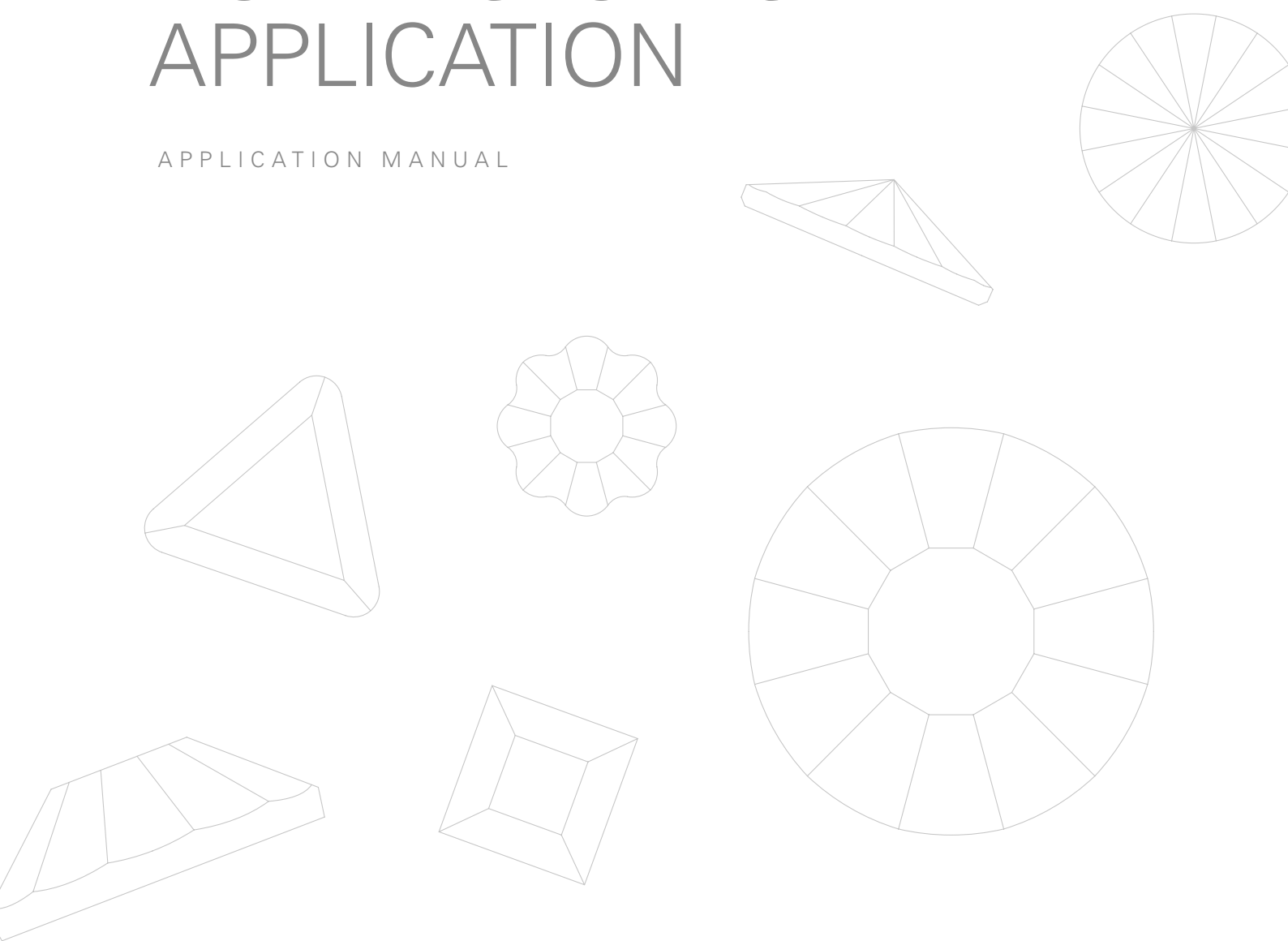


# HOTFIX STONES APPLICATION

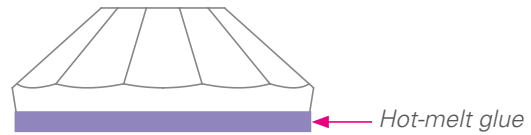
APPLICATION MANUAL





# Basic principles of the Hotfix technology

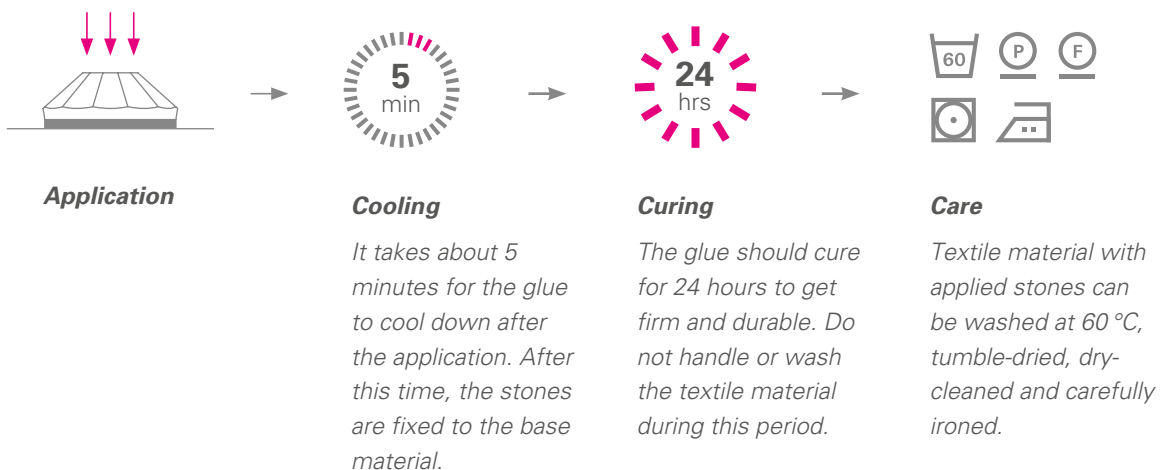
Hotfix stones have a glue layer on their back side. The heat-activated glue melts and turns liquid after being heated and returns into a solid state after cooling.




## PRECIOSA PRODUCTS SUITABLE FOR HOTFIX APPLICATION

COMPONENT		HOTFIX STONES APPLICATION
Flat Back Stones	Hotfix Stones	✓

## PROCEDURE



## Technological requirements

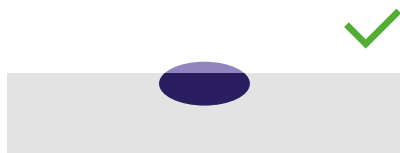
 To take a full advantage of the outstanding qualities of Preciosa stones, it is necessary to observe certain rules for their application:

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

# Material qualities for the application of Preciosa Hotfix stones

## **ABSORPTION QUALITIES OF THE MATERIAL**

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



*Good absorption qualities  
– the droplet soaks into the material*



*Bad absorption qualities – the droplet  
stays on the material surface*

## **Unsuitable base materials and surface treatments**

- ✗ Teflon surface treatments.
- ✗ Treatments increasing the dirt resistance.
- ✗ Some dyes (dyes with metal pigments).
- ✗ Enzymatic treatments.
- ✗ Treatments for easy maintenance.
- ✗ Very soft materials, e.g. organdie.
- ✗ Very compact textile materials.
- ✗ 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.

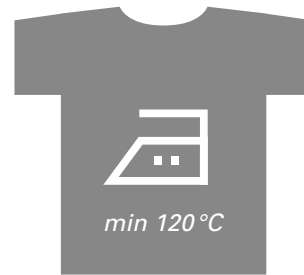


Bad absorption qualities of the material caused by improper surface treatments (softening agents in particular) can be sometimes eliminated by washing the material prior to hotfix stone application.



## HEAT RESISTANCE OF THE MATERIAL

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



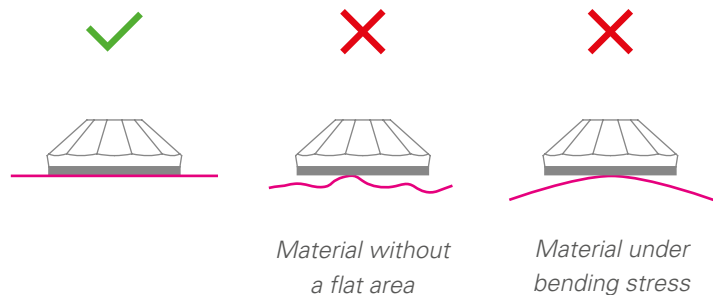
## PRESSURE RESISTANCE

The material should be resistant to the pressure used in an equipment for stone applications. A deformation of the material can occur under an excessive pressure. Test the pressure in advance on a material sample.



## SHAPE OF THE BASE MATERIAL

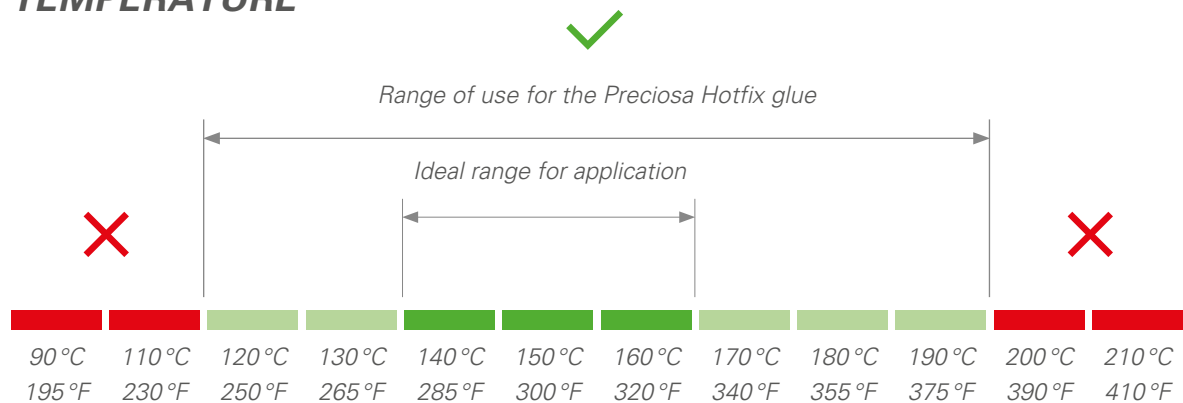
Base material without a flat area (rounded, dome-shaped surface) or under bending stress in the application area (e.g. shoes, zippers) is not suitable for applying big stones in particular.



# Technological parameters for application Preciosa Hotfix stones

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

## TEMPERATURE



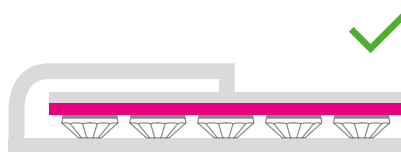
### Warning:

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 by closing the press plates is longer the unheated plate is cooled and the temperature affecting the glue during application can be lower than expected. If the time delay by closing the press plates is short the temperature affecting the glue is higher.

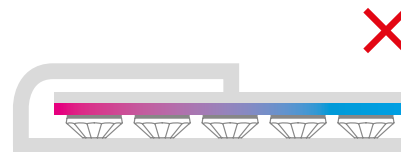
We recommend to pre-heat the unheated press plate before starting the work, i.e. before the first application. Switch on the press and leave it closed and empty (without any textile material). The pre-heating procedure should last approximately three times longer than the application itself (the temperature 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 recommend to check the temperature regularly with a laser thermometer.

### The temperature distribution in the heat press



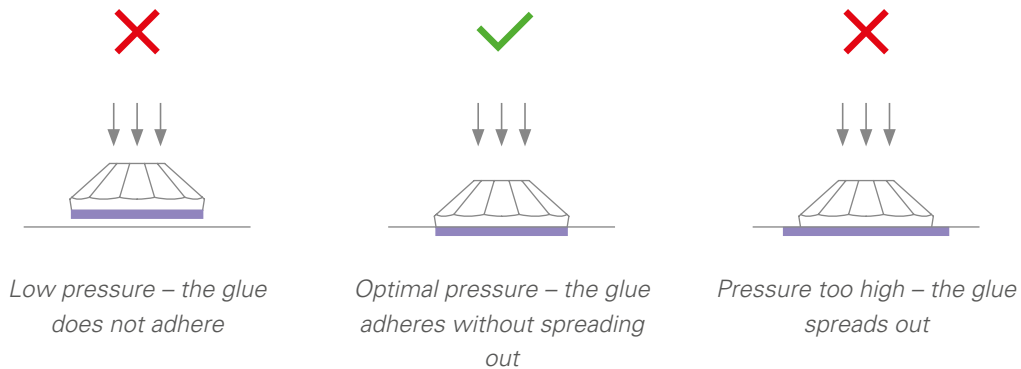
The heat is evenly distributed in the whole plate of the heat press



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

## PRESSURE

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



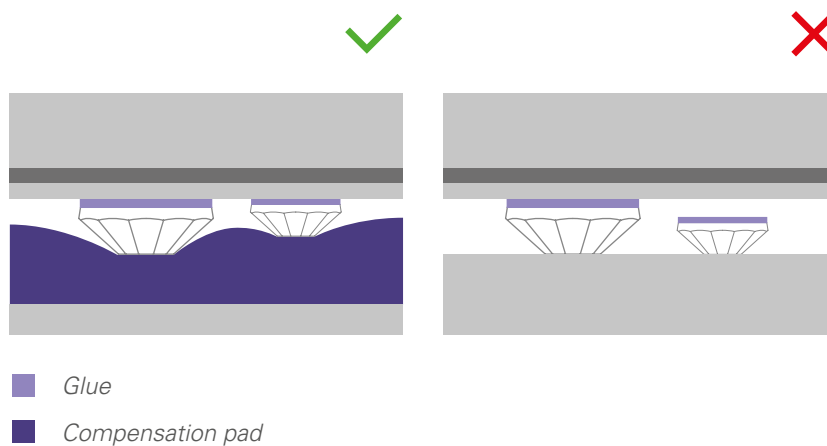
### **Pay attention to the following:**

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



### **Recommendation:**

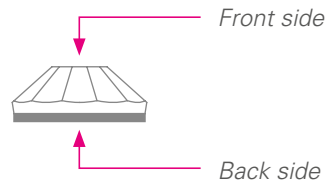
Use a compensation pad (e.g. silicon foam or foam rubber) to make the surface even; use the same pad when applying stones of different heights next to each other.



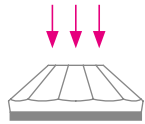
## APPLICATION TIME

The application time has to be long enough for the glue to melt appropriately and soak into the base material. Qualities of the base material, size and shape of the stones, used equipment and stone orientation – stones can be applied with their front or back side exposed to the heat – influence the application quality.

### Stone orientation



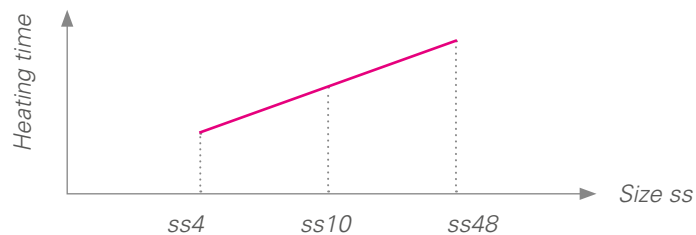
## Overview of temperature and time combinations for different materials (MC CHATON ROSE VIVA12® Hotfix ss10)



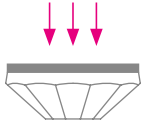
Front side (ss10)

Material	Weight (g/m <sup>2</sup> )	TEMPERATURE						
		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
Reference Fabric (100% Cotton)	120 – 150	38	32	25	20	17	14	12
Cotton jersey (100% Cotton)	130 – 170	38	32	25	20	17	13	11
Linen	170 – 210	40	35	28	23	18	13	10
Silk fabrics	30 – 50	40	32	25	20	17	13	10
Jeans (87% Cotton)	250 – 290	40	35	28	23	18	14	12
Wool – felt	330 – 370	42	35	28	23	18	15	12
Viscose	100 – 120	40	35	30	25	20	18	17
Chiffon	40 – 60	41	35	29	24	20	15	12
Lace (PES 100%)	80 – 100	42	35	28	23	18	16	14
Lycra	180 – 220	45	37	30	25	20	16	12
Taffeta (PES 100%)	230 – 270	45	37	30	25	20	16	14
Fleece (PES 100%)	200 – 220	42	37	30	25	20	16	14

### Time of heating depending on the chaton rose size



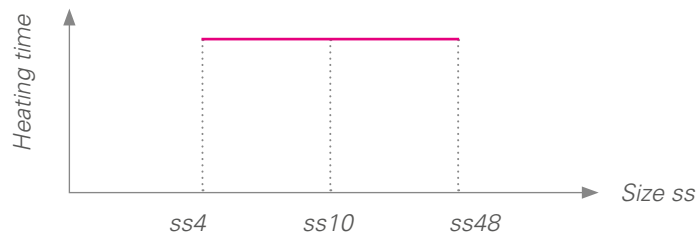




Back side (ss10)

Material	Weight (g/m <sup>2</sup> )	Time (sec.)								
		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
Reference Fabric (100% Cotton)	120 – 150	17	14	11	9	7	5	4	4	4
Cotton jersey (100% Cotton)	130 – 170	20	14	12	9	7	5	4	4	4
Linen	170 – 210	20	15	12	9	7	6	5	4	4
Silk fabrics	30 – 50	15	13	11	9	7	5	4	4	3
Jeans (87% Cotton)	250 – 290	27	24	22	18	16	13	10	8	6
Wool – cloth	180 – 200	34	25	20	17	15	12	10	8	6
Wool – felt	330 – 370	not recommended								
Viscose	100 – 120	22	15	12	9	7	5	4	4	4
Chiffon	40 – 60	18	12	10	8	6	5	4	4	3
Lace (PES 100%)	80 – 100	30	22	15	11	8	6	5	4	4
Lycra	180 – 220	34	25	17	13	10	8	6	6	5
Taffeta (PES 100%)	230 – 270	30	15	12	9	7	5	4	4	4
Fleece (PES 100%)	200 – 220	not recommended								

Time of heating depending on the chaton rose size



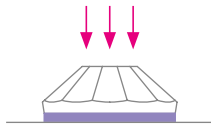
When using different base materials and stone sizes, it is necessary to make an application test of particular stones on the chosen base material.

## APPLICATION SIDE

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

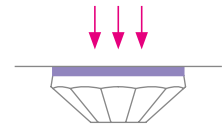
### Front side (heat penetrates through the stone)

Very thick materials or materials in multiple layers.

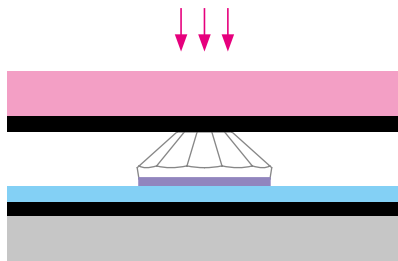


### Back side

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

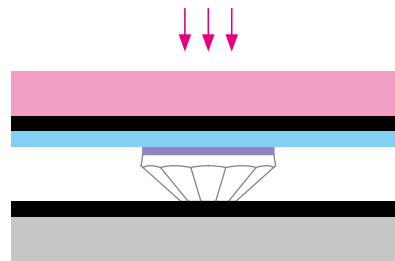


### Front side application



Front side of the material is exposed to the heat

### Back side application



Reverse side of the material is exposed to the heat

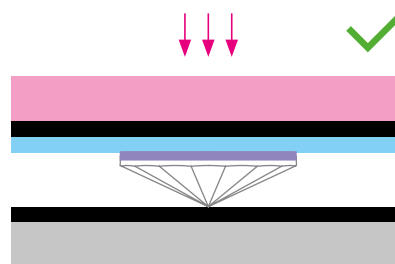
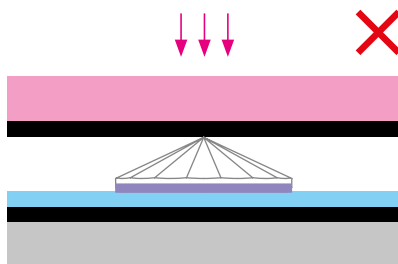
■ Heated press plate ■ Teflon pad

■ 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?**



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



If incorrect parameters are chosen (e.g. too high temperature and pressure or wrong application time) a considerable amount of the glue can melt and soak into the material getting thus away from the stone. 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 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 tables Application Time for setting approximate values.
- Please note that the glue is cured and the bond between the applied stone and the base material becomes ideally firm only after 24 hours from the application. Until then, products with Hotfix stones have to be handled with a special care; it is not recommended to check the bond quality or to wash the product.
- If stretch material is used for the stone application it is recommended to fix the material slightly stretched on a pad prior to the application.
- The Hotfix glue was developed especially for textile materials. It has been experienced, however, that Hotfix stones can be applied on other materials as well (e.g. wood, paper, metal). It is essential to check the surface quality and make 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 the surface tension. Low surface tension results in a poor surface wetting. The bond between the surface and the Hotfix glue is therefore not 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.

# Application types of Hotfix Preciosa stones

## APPLICATION IN A HEAT PRESS

A heat press is an 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.
- ✓ Setting of proper temperature and time.
- ✓ High efficiency of application.



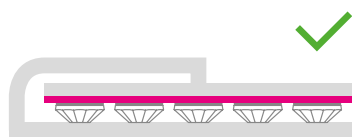
### Helpful tips:

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.

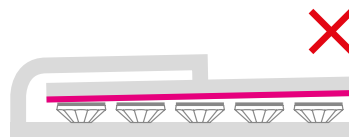


## Parallel position of the heat press plates

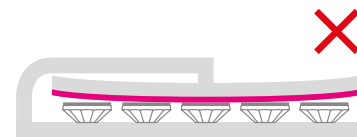
The upper and lower press plates should be in a parallel position which enables the pressure and temperature to be evenly distributed over the whole pressing area. The stones can be thus applied in a right way.



*Plates are parallel – pressure and temperature are same everywhere*

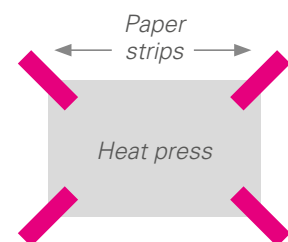


*Plates are not parallel – pressure and temperature are not same everywhere*



### Recommendation:

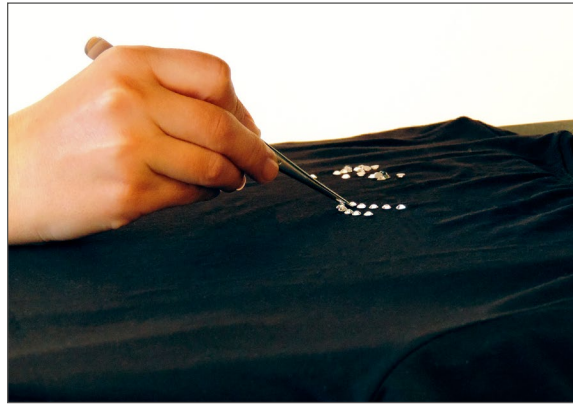
Paper strips can be used to check if the plates are parallel. Place the strips into the press and close it using the lowest possible pressure. Pull the strips out afterwards; if the same force is used for all four strips then the plates are parallel. If a different force has to be used when pulling the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



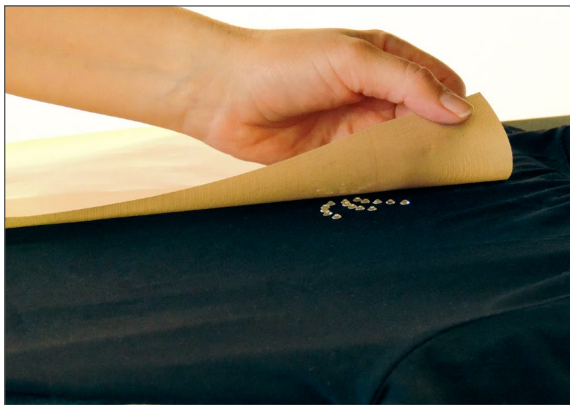
## Application procedure



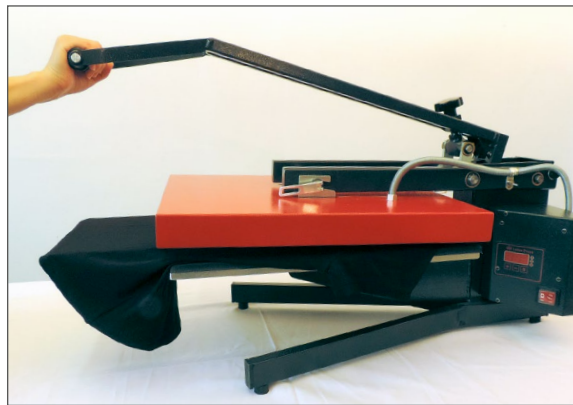
**1** Put the clothes on the lower press plate. Insert a pad inside the garment to protect the reverse side from staining. Recommended are teflon or silicon pads, possibly also a blank sheet of paper.



**2** Create a motif according to your fantasy using tweezers – use stones of the same size.



**3** Afterwards, cover the motif with a teflon foil carefully.



**4** Close the heated press and leave the garment with hotfix stones in the press according to the time and temperature given in the tables Application Time.



**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 AN 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** Stones can be applied with a suitable automatic equipment (here „heat“ on the left, „ultrasound“ on the right).



**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, ceramics, metal) and press on the stone.

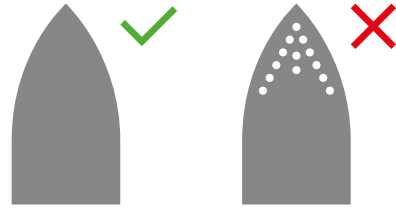
## APPLICATION WITH AN IRON

### Advantage:

- ✓ A normal iron can be used to apply all Hotfix chaton roses – best of all an iron without steam slots.

### Disadvantage:

- ✗ An application with an iron does not always bring the best results. It is recommended to use a heat press to achieve a repeatable application quality.



### Warning:

- The pressure and temperature regulations are not accurate.
- The accuracy of the pressure regulation depends on individual feelings 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 influence negatively the application and can even make it impossible).
- Carry out the application on a firm, flat and even pad always.

## 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 a teflon foil during the application to protect the iron surface from staining by glue spreads. 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***

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

<b>CAUSE</b>	<b>RECOMMENDATION</b>
<b>1</b> The application temperature is too low.	Increase the temperature by 10 °C (20 °F) at least.
<b>2</b> 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.
<b>3</b> The pressure is too low.	It can occur by application on a thick material. Increase the pressure.
<b>4</b> 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.
<b>5</b> The heat press closes askew.	Repair the heat press.
<b>6</b> The application pad is not suitable.	Test different application pads and choose the most suitable one.
<b>7</b> The application temperature is too high.	Lower the temperature by 20 °C (40 °F) at least.
<b>8</b> The application time is too long.	Shorten the application time.
<b>9</b> The pressure is too high.	Decrease the pressure of the heat press.
<b>10</b> The application pad is too hard.	Use a softer application pad.

# GENERAL RECOMMENDATIONS

## FASHION JEWELLERY STONES

## FLAT BACK 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.

Round Stones, Channel

Fancy Stones, Ball

No Hotfix Stones

Hotfix Stones

Sew-on Stones



Turn inside out and use mild laundry detergent.



Do not wash!



Chlorine bleach may be used.



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.



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.

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

**BEADS AND  
PENDANTS**

**NACRE  
PEARLS**

**FASHION AND FASHION  
JEWELLERY COMPONENTS**

Beads

Pendants

Cup Chains

Plastic  
Bandings

Metal  
Bandings

Rondelles  
and Balls

Fancy  
Rondelles

Stones in  
Settings

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**Preciosa Customer Centre**  
Opletalova 3197  
466 67 Jablonec nad Nisou  
Czech Republic

**T** +420 488 115 555  
**F** +420 488 115 665  
**E** [info@preciosa.com](mailto:info@preciosa.com)  
[www.preciosa.com](http://www.preciosa.com)

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August 2014