SWAROVSKI

Application Manual 2024

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DISCLAIMER “CRYSTAL”
The material manufactured by Swarovski is considered as "crystal glass", category 3, in accordance with European Council Directive 69/493 on the approximation of the laws of the Member States relating to crystal glass. Whenever referring to "crystal" in this document, Swarovski either refers to a singular component or product made of crystal glass, or the material crystal glass.



TO PREDICT THE FUTURE, WE INVENTED IT.

Stay ahead with our Advanced Crystal. It is lead-free* and helps you to reach full compliance with current laws and regulations.

*Crystal glass and all other materials containing 0.004 % lead or less.

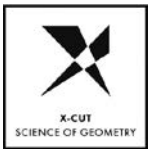
SWAROVSKI

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Why Swarovski

EXCELLENCE, THROUGH INNOVATION AND ORIGIN



X-CUT
Advanced optical measurement and high-precision manufacturing deliver premium cuts characterized by unmatched brilliance.



PLATINUM* PRO
With its new advanced foiling technique, Swarovski has set a new standard in the lifespan of crystals.



HOTFIX GLUE
The variable temperatures at which Hotfix glue can be activated enable the application of crystals on a broad range of textiles.



CRYSTALS – MADE IN AUSTRIA
The combination of innovation with sustainability and respect for individual wellbeing means that quality is always assured.

PREMIUM, BY SERVICE AND DESIGN



DESIGN SERVICE
Throughout its global network of Design Centers, Swarovski offers exceptional service provided by the industry's best creative talent.



APPLICATION SERVICE
A comprehensive range of application services means customers benefit from the extensive experience of leading international experts, as well as internal specialists.



GLOBAL SERVICE
Swarovski's Global Service Network provides customers with dedicated personal assistance on a local level.



CUSTOMIZED SERVICE
Choose new variations by going beyond Swarovski's tremendous standard assortment of crystal components and forward integrated elements.

COMPLIANCE, WITH INTEGRITY



ADVANCED CRYSTAL
Swarovski's patented lead-free** formula has changed the DNA of crystals while still offering the same sparkle, dependability, and variety for which Swarovski is famous.



OEKO-TEX
Oeko-Tex® Standard 100 Class II (direct contact with skin) certification creates confidence in chemical safety of textile applications.



CLEAR
Regular legal monitoring of chemical requirements and reasonable testing provide customers with the comfort of trust in Swarovski's products.



COMPLIANCE SERVICE
Assessments regarding substance limitations as well as compliance information and advice to support customers in complying with relevant laws, regulations,and voluntary standards.

* Silver mirror coated with a platinum-colored protective layer
** Crystal glass and all other materials containing 0.004 % lead or less.



1

General Information

Swarovski offers a comprehensive range of services, tailored to customers' requirements, for the application of Swarovski products.

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Application Manual

This Application Manual offers extensive information on the various Application Services provided by Swarovski. Thanks to their outstanding quality, and with the help of specially developed application techniques, Swarovski products can be processed easily and quickly to produce a high-quality finished product. The processes involved are described in this manual on a step-by-step basis, with photos and illustrations.
Each application method contains detailed information on the following areas:

Product Overview	Swarovski products that are suitable for the application technique in question
Machines and Tools	List of machines and tools necessary for application
Suppliers	Selection of suppliers that sell these machines and tools
Application	Detailed description of the entire application process and the product-specific procedure. Furthermore, the Hotfix Selector outlines extensive application parameters for suitable product and carrier material combinations
Useful Information	Advice and tips on working with Swarovski products
Quick Assistance	A checklist of typical application problems, along with possible causes and recommendations on avoiding them

Extensive care instructions and further information on laws, regulations, norms, and standards are featured at the end of the manual.

Application Online: https://b2b.ecommerce.swarovski.com

All the information contained in this manual is regularly updated on the Swarovski business website https://b2b.ecommerce.swarovski.com.

In addition, application techniques are demonstrated through animations and videos. The site is an excellent way to find out about Swarovski's application services and application techniques.

Application Techniques - Instruction Movies

For many application techniques and their most important process steps, Swarovski provides informative demonstration movies, where detailed instructions lead customers to a high quality application result.
This movies can be downloaded at https://b2b.ecommerce.swarovski.com



Application Services

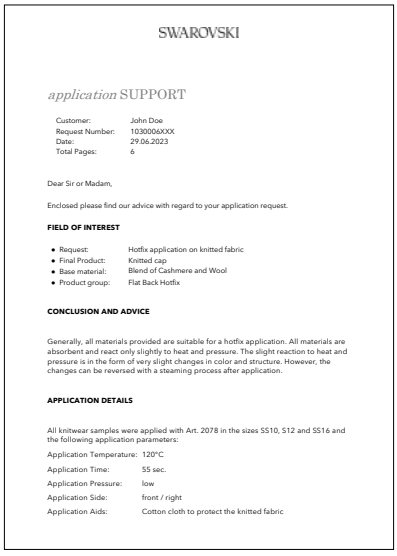
Swarovski offers a comprehensive range of services, tailored to your requirements, for applying Swarovski products. In doing so, the company aims to meet the needs of each industry, and to jointly offer flexible and integrated solutions.

- Technical enquiry service
- Compliance service
- Technical customer support – field services
- Application Partner Network

Technical enquiry service

Available worldwide, the technical enquiry service can help you in the following areas:

- Product information
- Technical drawing
- Care instructions
- Individual application information and tests based on customer samples
- Information on machines and tools
- 3D data



SWAROVSKI

application SUPPORT

Customer: John Doe
Request Number: 1030006XXX
Date: 29.06.2023
Total Pages: 6

Dear Sir or Madam,

Enclosed please find our advice with regard to your application request.

FIELD OF INTEREST

- Request: Hotfix application on knitted fabric
- Final Product: Knitted cap
- Base material: Blend of Cashmere and Wool
- Product group: Flat Back Hotfix

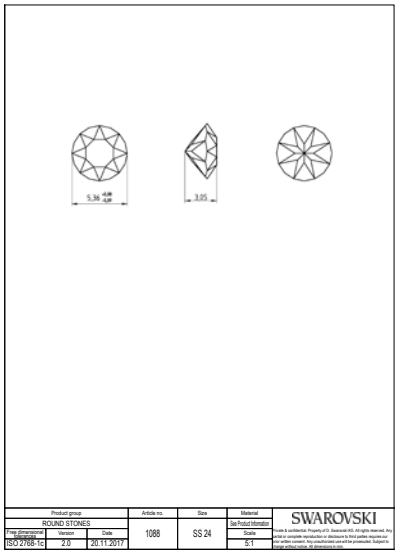
CONCLUSION AND ADVICE

Generally, all materials provided are suitable for a hotfix application. All materials are absorbent and react only slightly to heat and pressure. The slight reaction to heat and pressure is in the form of very slight changes in color and structure. However, the changes can be reversed with a steaming process after application.

APPLICATION DETAILS

All knitwear samples were applied with Art. 2078 in the sizes SS10, S12 and SS16 and the following application parameters:

Application Temperature: 120°C
Application Time: 55 sec.
Application Pressure: low
Application Side: front / right
Application Aids: Cotton cloth to protect the knitted fabric



Product group			Article no.	Size	Material
ROUND STONES			1088	SS 24	See Product Information
Freq. dimensional standard	Version	Date			Scale
ISO 2768-1c	2.0	20.11.2017			5:1

SWAROVSKI

Compliance service

The worldwide available compliance service can support you in the following areas:

- Certificates
- Information on laws and regulations
- Compliance information of Swarovski crystals
- Compliance statement to customer-specific requirements



D. SWAROVSKI KG
Swarovskistraße 30
6112 Wattens
Austria

OETI – Institut für Oekologie, Technik und Innovation GmbH
Siebenbrunnengasse 52A, Objekt 6
1230 Vienna, Austria

OEKO-TEX®

Certificate

OEKO-TEX® STANDARD 100

D. SWAROVSKI KG

is granted the OEKO-TEX® STANDARD 100 certification and the right to use the trademark.

SCOPE
Swarovski Crystals

PRODUCT CLASS
II (products with direct contact to skin) – Annex 4

STANDARD 100

This certificate 36047 is valid until 28.02.2025.

SUPPORTING DOCUMENTS
✓ Test report - VN0012360921
✓ Declaration of conformity in accordance with EN ISO 17050-1 as required by OEKO-TEX®
✓ OEKO-TEX® Terms of Use (ToU)

Rudolf Lücker
Managing Director

Helene Mahrhofer
Manager Department of Ecology

Further compliance information (REACH, SVHC, POP, GBT) etc.) can be found on oeko-tex.com/en/faq.

The certificate is based on the test methods and requirements of the OEKO-TEX® STANDARD 100 that were in force at the time of evaluation.

Vienna, 2024-03-07

OEKO-TEX Service GmbH Genferstrasse 23, CH-8002 Zurich

For further information, please contact your local Swarovski office.

Technical customer support – field services

Swarovski imparts its application expertise through customized **Application Trainings, Application Consultancy, Troubleshooting**, and **Technical Assessments**. These can take place either online, on customers premises or at Swarovski locations. The focus is always on customers' individual needs, the efficient use of Swarovski products, and on the quality of the application.
Our services have been created to take advantage of our comprehensive application expertise in the following areas: mastery of the relevant techniques, technical knowledge of Swarovski products, process-engineering competencies, and our experience of application equipment, together with our product manufacturing knowledge of various industries.

Service results (dependent on the particular individual service package)**:**

Prevention of increased development costs through technical input in:

- The correct choice of Swarovski products
- The correct technical design
- The correct application technique
- The correct integration of an application process into the entire process landscape
- Application process set-up

Prevention of cost complaints through technical input in:

- The correct positioning and arrangement of Swarovski products
- Learning how to check the quality of applications
- Suitability of the customer's equipment and tools

Prevention of increased staff development costs through:

- Staff training in appropriate application techniques
- Building your technical knowledge base, thereby enabling you to be self-sufficient

Application partner network

As a company with a global sales network and deep understanding of the market, Swarovski has comprehensive knowledge of various application companies and their services from around the world.
Based on this knowledge, Swarovski has developed a global Application Partner Network. These partners offer a wide range of technical and product-related services, as well as tailored production solutions.
In order to qualify and to get access to the Application Partner Network, certain criteria with regard to application techniques, know-how as well as product assortment need to be fulfilled by the application partners. Application partners can assist you with a variety of application techniques, such as gluing, Hotfix application, sewing, laser cutting of Crystal Fabric, and mechanical application. In addition, many partners can carry out technically complex solutions, such as Flat Back Leather, and the automated, mechanical application of products such as Rivets. The services offered by our partners range from product and design consultancy, to prototyping and carrying out production, and make up a key component of our customer focus.
If you are interested in becoming a partner or you need to find a partner, please contact the local Swarovski office.

Swarovski Products and suitable Application Techniques

		Soldering	Stone Setting	Plating	Gluing with additional adhesive system	Gluing Self-adhesive Elements	Epoxy Clay	Hotfix Application	Sewing	Hand Application (e.g. Beading, Wire Working, etc.)	Mechanical Application
Round Stones			✔		✔		✔				
Flat Backs No Hotfix			✔		✔		✔				
Flat Backs Hotfix								✔			
Sew-on Articles									✔	✔	
Crystal Buttons									✔	✔	
Fancy Stones			✔		✔		✔				
Beads									✔[1]	✔	
Crystal Pearls					✔[4]		✔[4]		✔[1]	✔	
Pendants					✔				✔[1]	✔	
Crystal Transfers	Hotfix Transfers							✔			
	Crystal-IT Infinity					✔					
Crystal Textures	with Hotfix film				✔			✔			
	with Coldfix film					✔					
	with IT film					✔					
	with Removeable foil					✔					
	with Foil Overlay Hotfix				✔			✔	✔		
Linked Crystal Components	Crystal Mesh				✔			✔	✔[3]	✔	
	Cupchains	✔[5]		✔					✔	✔	
	Multirow Cupchains	✔		✔					✔	✔	
	Crystal Fishnet Bandings								✔	✔	
Crystal Rivets and Rose Pins	Crystal Rivets										✔
	Rose Pins										✔

1 These products should be sewn by hand

2 Only for Foil Overlay

3 Crystal Fine Mesh, Crystal Mesh Colorée & Crystal Mesh Colorée Mini has a very tight structure and should therefore be sewn by hand

4 Only for no hole and half hole pearl

5 Only unplated cupchains can be used for soldering

General Product Information

This list offers an overview of Swarovski products that are suitable for the application methods described. Product categories/descriptions are based on the 2023 Collection.

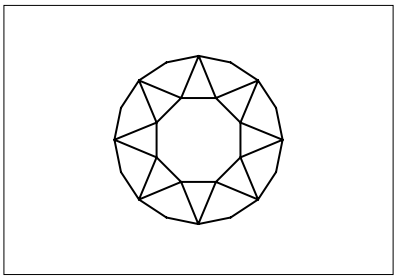
Round Stones	Round Stones are incredibly versatile, loose elements, with many possessing a pointed reverse side allowing for effortless application in pre-set cavities or metal claws. Featuring various cuts, and an extensive range of sizes, the assortment encompasses the XERO Chaton, the smallest existing size, and the innovative XIRIUS Chaton, renowned for its unparalleled brilliance in a celebration of high art and technical expertise. Merging a gemstone-inspired cut with richly varied colors, and Platinum[PRO] colored foiling for exceptional durability, XIRIUS ensures crystals come one step closer to a diamond.
Flat Backs No Hotfix	Flat Backs No Hotfix are loose crystals backed with platinum foiling for extra brilliance, and protection. Available in a multitude of sizes, colors, shapes and cuts, they are easy to apply to a variety of carrier materials using standard one or two component glues. The most coveted and famous item in this product group is article 2088 XIRIUS Rose. Incredibly progressive, and completely unique, multi-layer cutting technology is used to create the inspiring XIRIUS star design allowing for superior shine and rich, well-balanced light refraction redefining the market standard. A reflection of Swarovski's innovation expertise is the 1098 Xirius Light, a groundbreaking hybrid that fuses our most exceptional Swarovski cuts. Combining the height and weight of a Flat Back with additional 8 facets on its backside, it possesses the vigor of a Chaton while maintaining the convenient application of a Flat Back. Swarovski‘s outstanding quality is underlined by the highest precision in table size, and diameter.
Flat Backs Hotfix	Flat Backs Hotfix possess a flat reverse side, and are pre-coated with a heat sensitive glue. They are easily applied to a large range of textiles producing a shimmering, durable and long-lasting design. The captivating beauty of the Flat Back Rose, Xilion and Xirius Rose is crafted by a unique silver mirror coating on its reverse side, resulting in amplified light refleciton and a warmer appearance. The most coveted and famous item in this product group is article 2078 XIRIUS Rose. Incredibly progressive, and completely unique, multi-layer cutting technology is used to create the inspiring XIRIUS star design, allowing for superior shine, and rich, well-balanced light refraction, redefining the market standard. Swarovski‘s outstanding quality is underlined by the highest precision in table size and diameter.
Sew-on Articles & Crystal Buttons	Sew-On Articles are loose crystals with holes offering convenient sewing options, either sewn by hand, or applied with a standard or industrial embroidery sewing machine. Effortlessly attached to various textiles, they craft beautiful creative embellishment possilbities. The standout products within this product group are the art. 3188 XIRIUS Lochrose and art. 3288 XIRIUS Sew-on Stones. Completely unique, these items boast innovative multi-layer cutting technology to create the inspiring XIRIUS star design, setting them apart as the most progressive and distinctive designs available in the market.
Fancy Stones	Fancy Stones are available in a wide range of inspiring shapes from traditional gemstone-inspired cuts to progressive, contemporary stones. Available in a captivating assortment of various sizes and colors, they offer endless creative possiblity. Showing either a faceted or non-flat reverse side, Fancy Stones can be glued into pre-cast cavities or used in metal settings. With their precision-cut facets, Fancy Stones deliver unparalleled brilliance to infuse designs with a uniquely captivating shine.

Beads	Swarovski Beads set the benchmark for excellence in the market. Meticulously crafted, precision-cut with a clear hole, and extraordinary brilliance, the rounded edge of the hole reduces the wear on threads to increase design durability. Available in a wide range of shapes and cuts, from classically elegant through to playful and modern, they offer myriad creative possibilities. With a large assortment of vibrant colors, and effects they are predominantly applied using beading, wiring, stringing and weaving. Various hole diameters open up new, unlimited application, and design possibilities, particularly for apparel and accessories embellishment.
Crystal Pearls	Exquisite replicas of natural pearls, the shimmering luster of Crystal Pearls open up endless design possibilites. Either used alone or in combination with the vibrant Crystal Components collection, they bring grace and elegance to any design. A luxurious addition to jewelry, textiles, and even interior décor their soft sheen adapts to skin texture. Created from a distinctive core crafted from crystals, they are then enveloped with an innovative pearl coating to produce a flawless, silky smooth rounded surface. Encompassing myriad hues, from timeless classics to contemporary iridescent shades in a range of shapes and sizes, our stunning assortment offers unparalleled perfection, and extreme versatility. With an extensive selection of hole options, various application methods are made possible for seamless design integration: Full Hole Pearl (5810 Crystal Round Pearl, 5821 Crystal Pear-Shaped Pearl, 5824 Crystal Rice Pearl, 5841–5844 Crystal Baroque Pearls, 5860 Crystal Coin Pearl), Half Hole Pearl (5817 Crystal Cabochon Pearl, 5818 Crystal Half Hole Pearl,) and No Hole Pearl (5809 Crystal No Hole Pearl).
Pendants	Exuding timeless elegance, available in a large range of classic, and avant-garde cuts and shapes, Pendants are offered in a captivating variety of colors and effects. Unlocking multiple design arenas with their easy application – the top hole requires only a jump ring or pinch bail with a chain or cord – the diverse size range ensures Pendants are perfect for jewelry sets, as well as apparel, and accessories.
Crystal Transfers	Swarovski Crystal Transfers are captivating motifs made from Swarovski Flat Backs Hotfix, utilizing XIRIUS and XILION Roses, Creation Stones, as well as Cabochons or Metallics in varying designs. Able to incorporate up to 18 different elements or colors in the one motif, with a seamless and effortless application process for myriad textiles, sparkling creativity has never appeared so easy. Swarovski Crystal Transfers prove to be an excellent choice for Hotfix application on a wide range of apparel and accessories. Moreover, the self-adhesive Crystal IT Transfers can be affixed to hard, non-washable surfaces. Our range of Inspirational Motifs is designed to offer a glimpse into the vast array of Transfer possibilities, and may be ordered as they are or modified to the customer's desire, with our Design Experts able to assist in realizing any unique customization requirement. The assortment is a balanced mix of large and small motifs in all price categories, as well as a good representation of all the different elements that can be used in Crystal Transfer motifs.

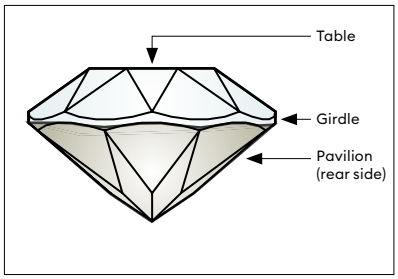
Crystal Textures	Our Crystal Textures solutions offer a uniquely differentiated look to unlock unlimited design potential. Merging the sparkle and brilliance of crystals into integrated, harmonic designs they provide maximum customization flexibility, and highly personalized solutions that perfectly fit with our client needs in terms of design freedom, application differentiation, and technological advancement. These versatile products combine elegant crystals from Swarovski with different gluing systems, each optimized for certain carrier materials and fields of application. Swarovski Crystal Textures solutions are ideal for use in the textiles, interior design, jewelry, DIY, and accessories segments, and offer numerous creative options. Crystal Fabric is an inventive product, that consists of a carrier material that is completely covered with millions of tiny cut and uncut crystals. Crystal Intarsia gives Crystal Textures a new level of radiance in sensational 3D looks, thanks to the fusion of Crystal Fabric, and Flat Backs. Crystal Rocks, Crystal Fine Rocks and Crystal Ultrafine Rocks, are innovative, and stunning design elements that showcase different sizes of double-pointed chatons. Through the implementation of Graphic technology, Crystal Fabric/Ultrafine Rocks/Fine Rocks and Rocks undergo a remarkable transformation, converting any image into a dazzling array of crystals. Offering a remarkable, innovative solution, Crystal Lacquered Foils transform any chosen Pantone hue into the Crystal Fabric and Crystal Rocks family, providing a perfect design color match. Available in a wide range of colors and effects, Crystaltex Chaton Bandings craft luxurious fashion and design statements adding a touch of excitement to lavish ensembles.
Crystal Textures	These versatile products open up a multitude of creative design possibilities through their numerous application techniques. They combine elegant crystals from Swarovski that can be applied using Hotfix technology with synthetic carrier materials. They are ideal for use in the textile, interior design, jewelry, and accessories segments. Synthetic Coldfix is a product developed especially for materials that are not suitable for Hotfix application. Besides Hotfix application, Crystal Textures Foil Overlay can be applied easily using the sewing or gluing technique.

Linked Crystal Components		Linked Crystal Components are made of loose crystals linked together, either with thread or metal. Divided into three sub-categories: Bandings, Crystal Mesh and Cupchains, they are suitable for use in a wide range of segments, from textiles to accessories.
	Crystal Mesh	Crystal Mesh is a flexible metal mesh carrier with integrated loose crystals. The product is available in a wide range of colors and casings, either as a Hotfix version, which can be applied using heat, or as a No Hotfix version, which can be hand or machine sewn. Crystal Mesh has an extremely smooth and graceful look and feel making it ideal for usage in apparel, accessories, footwear and jewelry. Choose from single standard colors, standard motifs, or customize designs by incorporating up to nine colors, depending on the mesh type chosen. Crystal Mesh can be ordered in sheets or in rows. First launched in 1993, Swarovski now presents a distinctive range of six Crystal Mesh variations, providing unparalleled design flexibility to accommodate a wide array of specific creative requirements.
	Cupchains	Incorporating a Round Stone, Cupchains have a metal chain base, and are offered in a large variety of colors and sizes. They can be soldered, plated, and sewn by hand or machine
	Bandings	Bandings consist of crystals set into cups that are held together by thread. They are available in different thread colors, and can be applied by sewing or gluing. Available in different casings, and colors.
Crystal Rivets & Rose Pins		Crystal Rivets and Rose Pins are forward integrated products that can be mechanically applied onto different fabrics, leather, or other materials. Offering flexibility and versatility in designs, they are bestsellers in textile, footwear and accessory segments, due to the wide range of application possibilities.

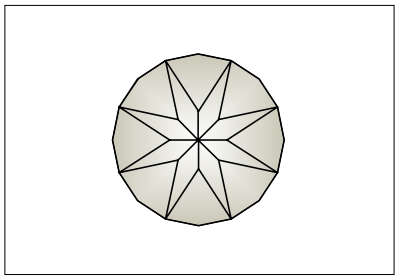
Specifications



Front view



Side view



Rear view (Pavilion)

Foiling

Foiling is the process of mirror coating the reverse side of the crystals.



Silver Foiling (A)
A silver mirror finish for XIRIUS and XILION Hotfix articles only.



Platinum* Pro Foiling (F)
A silver mirror finish that is coated with a platinum-colored protective layer of the highest quality (e.g. art. 4120).



Aluminum Foiling (M)
An aluminum mirror finish is applied using a vacuum coating process (e.g. art. 2303 Flat Back HF).



Protective Layer (P) for Beads and Pendants
Protective layer is a transparent lacquer system that is applied over the effects. This lacquer is designed to protect the effects from scratches, fingerprints, and other damage, and also helps to prevent moisture that can lead to corrosion (e.g. perspiration) penetrating into the effect layer when jewelry is designed to incorporate crystals that are not set in casings/settings.



Unfoiled (U)

Effects

Vacuum Coating Effects

Vacuum coating processes on the outside of crystals produce either a special **surface** or a **translucent** effect, according to the application methods used.
Please find below a list of all Swarovski effects followed by an explanation of the special vacuum coating processes.

Surface Effects

(Vacuum coating on the front side of the crystal)



EFFECT CODE	NAME
AB	Aurore Boreale
ANTP	Antique Pink
BLSH	Blue Shade
CAL	Comet Argent Light
GSHA	Golden Shadow
HEM	Hematite (only on Jet)
LTCH	Light Chrome
MLGLD	Metallic Light Gold
METSH	Metallic Sunshine
MOL	Moonlight
NIFA	Nightfall
PARSH	Paradise Shine
ROGL	Rose Gold
SHIM	Shimmer
SSHA	Silver Shade
TRA	Transmission

Translucent Effects

(Vacuum coating on the reverse side of the crystal, effect shines through the transparent crystal)



EFFECT CODE	NAME
BBL	Bermuda Blue
HEL	Heliotrope
IGNIT	Ignite
SINI	Silver Night
VL	Vitrail Light
VM	Vitrail Medium
VOL	Volcano

Crystal Lacquer^{PRO} Effects

A premium opaque varnish that is applied to the reverse side of the crystal instead of foiling, resulting in an opalescent appearance.

Crystal Lacquer^{PRO} Ignite Effects

EFFECT CODE	NAME
001 L165I	Crystal Agave Ignite
001 L111I	Crystal Dark Grey Ignite
001 L166I	Crystal Denim Ignite
001 L162I	Crystal Flamingo Ignite
001 L164I	Crystal Linen Ignite
001 L152I	Crystal Mango Ignite
001 L160I	Crystal Maroon Ignite

*Silver mirror coated with a platinum colored protective layer.

001 L171I	Crystal Orchid Ignite
001 L159I	Crystal Orange Ignite
001 L170I	Crystal Pine Green Ignite
001 L161I	Crystal Purple Ignite
001 L163I	Crystal Sky Ignite
001 L168I	Crystal Soft Mint Ignite
001 L167I	Crystal Soft Rose ignite
001 L169I	Crystal Soft Yellow Ignite

Crystal Lacquer[PRO] DeLite Effects

EFFECT CODE	NAME
001 L149D	Crystal Dusty Pink DeLite
001 L106D	Crystal Ivory Cream DeLite
001 L142D	Crystal Laguna DeLite
001 L144D	Crystal Lavender DeLite
001 L145D	Crystal Lotus Pink DeLite
001 L143D	Crystal Ocean DeLite
001 L146D	Crystal Orange Glow DeLite
001 L110D	Crystal Royal Blue DeLite
001 L107D	Crystal Royal Red DeLite
001 L150D	Crystal Serene Gray DeLite
001 L147D	Crystal Silky Sage DeLite

Crystal Electric Lacquer[PRO] Effects

Neon-inspired lacquer colors that glow under the UV-Light

EFFECT CODE	NAME
001 L134I	Crystal Electric Blue
001 L135I	Crystal Electric Green
001 L136I	Crystal Electric Orange
001 L137I	Crystal Electric Pink
001 L148I	Crystal Electric Violet
001 L139I	Crystal Electric White
001 L138I	Crystal Electric Yellow

Variations on Surface Effects



2x
Both sides of the stone are treated with an effect (e.g. art. 5328 AB 2x).



B
Effects on three sides of a cube shape (e.g. art. 5601 AB B).



V
The effect is used in reverse. A surface effect is used like a translucent effect (e.g. art. 2303 NoHF GSHA V - Golden Shadow on resevse side).



Z
Only a part of the stone is treated with an effect (e.g. art. 4869 CAVZ (Comet Argent Light V Z)).

CAL′V′SI & CAL′VZ′SI
The effect CAL (Comet Argent Light) effect is also used as a mirror coating on the reverse side of the crystal instead of standard foilings (A, F, etc.) in special cases.

/G
Article with a partly (PF) or fully frosted (FF) surface.

Special Surface Effects

Swarovski has been able to achieve special surface effects by using special chemical and mechanical processes on the surface of the crystals.



EFFECT CODE	NAME
MAT	Matt Finish

The Matt Finish effect is achieved by performing a chemical matting process on the entire surface of the crystal. Small variations in the size of the articles may occur as a result of this chemical process.

Colors

- Crystal 001
- White Opal 234
- Light Silk 261
- Silk 391
- Light Peach 362
- Rosaline 508
- Rose Water Opal 395
- Vintage Rose 319
- Blush Rose 257
- Light Rose 223
- Rose Peach 262
- Padparadscha 542
- Indian Pink 289
- Rose 209
- Fuchsia 502
- Light Siam 227
- Scarlet 276
- Indian Siam 327
- Siam 208
- Ruby 501
- Burgundy 515
- Amethyst 204
- Iris 219
- Light Amethyst 212
- Violet 371
- Provence Lavender 283
- Tanzanite 539
- Purple Velvet 277
- Light Azore 361
- Aquamarine 202
- Light Sapphire 211
- Sapphire 206
- Capri Blue 243
- Majestic Blue 296
- Cobalt 369
- Dark Indigo 288
- Montana 207
- Denim Blue 266
- Indicolite 379
- Light Turquoise 263
- Blue Zircon 229
- Erinite 360
- Chrysolite 238
- Peridot 214
- Citrus Green 337
- Fern Green 291
- Emerald 205
- Jonquil 213
- Light Topaz 226
- Sunflower 292
- Golden Topaz 1003
- Light Colorado Topaz 246
- Topaz 203
- Light Amber 1002
- Smoked Amber 1001
- Greige 284
- Black Diamond 215
- Graphite 253
- Jet 280

Effects

- Crystal Moonlight 001 MOL
- Crystal Shimmer 001 SHIM
- Crystal Transmission Hotfix Transparent 001 TRA HFT
- Crystal Aurore Boreale 001 AB
- Crystal Antique Pink 001 ANTP
- Crystal Vitrail Light 001 VL
- Crystal Paradise Shine 001 PARSH
- Crystal Vitrail Medium 001 VM
- Crystal Volcano 001 VOL
- Crystal Heliotrope 001 HEL
- Crystal Bermuda Blue 001 BBL
- Crystal Blue Shade 001 BLSH
- Crystal Golden Shadow 001 GSHA
- Crystal Metallic Sunshine 001 METSH
- Crystal Rose Gold 001 ROGL
- Crystal Metallic Light Gold 001 MLGLD
- Crystal Light Chrome 001 LTCH
- Crystal Comet Argent Light 001 CAL
- Crystal Silver Shade 001 SSHA
- Crystal Silver Night 001 SINI
- Jet Hematite 280 HEM

Crystal Lacquer^{PRO} Effects

Crystal Lacquer^{PRO} DeLite Effects

- Crystal Ivory Cream DeLite
  001 L106D
- Crystal Dusty Pink DeLite
  001 L149D
- Crystal Orange Glow DeLite
  001 L146D
- Crystal Lotus Pink DeLite
  001 L145D
- Crystal Royal Red DeLite
  001 L107D
- Crystal Lavender DeLite
  001 L144D
- Crystal Ocean DeLite
  001 L143D
- Crystal Royal Blue DeLite
  001 L110D
- Crystal Laguna DeLite
  001 L142D
- Crystal Silky Sage DeLite
  001 L147D
- Crystal Serene Gray DeLite
  001 L150D

Crystal Lacquer^{PRO} Ignite Effects

- Crystal Linen Ignite
  001 L164I
- Crystal Soft Rose ignite
  001 L167I
- Crystal Flamingo Ignite
  001 L162I
- Crystal Orange Ignite
  001 L159I
- Crystal Maroon Ignite
  001 L160I
- Crystal Orchid Ignite
  001 L171
- Crystal Purple Ignite
  001 L161I
- Crystal Sky Ignite
  001 L163I
- Crystal Denim Ignite
  001 L166I
- Crystal Pine Green Ignite
  001 L170I
- Crystal Agave Ignite
  001 L165I
- Crystal Soft Mint Ignite
  001 L168I
- Crystal Soft Yellow Ignite
  001 L169I
- Crystal Mango Ignite
  001 L 152I
- Crystal Dark Grey Ignite
  001 L111I

Crystal Electric Lacquer^{PRO} Effects

- Crystal Electric White
  001 L139I
- Crystal Electric Orange
  001 L136I
- Crystal Electric Pink
  001 L137I
- Crystal Electric Violet
  001 L148I
- Crystal Electric Blue
  001 L134I
- Crystal Electric Green
  001 L135I
- Crystal Electric Yellow
  001 L138I

Shimmer Effects


White Opal Shimmer
234 SHIM


Silk Shimmer
391 SHIM


Rose Water Opal Shimmer
395 SHIM


Light Rose Shimmer
223 SHIM


Rose Shimmer
209 SHIM


Fuchsia Shimmer
502 SHIM


Light Siam Shimmer
227 SHIM


Scarlet Shimmer
276 SHIM


Siam Shimmer
208 SHIM


Amethyst Shimmer
204 SHIM


Light Amethyst Shimmer
212 SHIM


Tanzanite Shimmer
539 SHIM


Aquamarine Shimmer
202 SHIM


Light Sapphire Shimmer
211 SHIM


Blue Zircon Shimmer
229 SHIM


Erinite Shimmer
360 SHIM


Peridot Shimmer
214 SHIM


Emerald Shimmer
205 SHIM


Light Topaz Shimmer
226 SHIM


Light Colorado Topaz Shimmer
246 SHIM


Topaz Shimmer
203 SHIM


Black Diamond Shimmer
215 SHIM


Jet Shimmer
280 SHIM

AB Effects


Light Rose Aurore Boreale
223 AB


Rose Aurore Boreale
209 AB


Fuchsia Aurore Boreale
502 AB


Light Siam Aurore Boreale
227 AB


Siam Aurore Boreale
208 AB


Amethyst Aurore Boreale
204 AB


Iris Aurore Boreale
219 AB2


Violet Aurore Boreale
371 AB


Purple Velvet Aurore Boreale
277 AB


Aquamarine Aurore Boreale
202 AB


Light Sapphire Aurore Boreale
211 AB


Sapphire Aurore Boreale
206 AB


Capri Blue Aurore Boreale
243 AB


Blue Zircon Aurore Boreale
229 AB


Peridot Aurore Boreale
214 AB


Fern Green Aurore Boreale
291 AB


Jonquil Aurore Boreale
213 AB

Light Topaz Aurore Boreale
226 AB

Jet Aurore Boreale
280 AB

Ignite Effects

Crystal Ignite
001 IGNIT

Light Rose Ignite
223 IGNIT

Scarlet Ignite
276 IGNIT

Amethyst Ignite
204 IGNIT

Aquamarine Ignite
202 IGNIT

Emerald Ignite
205 IGNIT

Light Colorado Topaz Ignite
246 IGNIT

Nightfall Effects

Siam Nightfall
208 NIFA

Capri Blue Nightfall
243 NIFA

Emerald Nightfall
205 NIFA

Graphite Nightfall
253 NIFA

Cabochons

Crystal White Pearl
001 650

Crystal Nacre
001 191

Crystal Creampearl
001 291

Crystal Golden Shadow
001 GSHA

Crystal Rosaline Pearl
001 294

Crystal Dark Grey Pearl
001 617

Jet
280

Jet Hematite
280 HEM

Rimmed Flat Backs

Jet Light Chrome Z
280 LTCHZ

Sizes

PP 0
0.70–0.80 mm

PP 1 (SS 000)
0.80–0.90 mm

PP 2 (SS 00)
0.90–1.00 mm

PP 3 (SS 0)
1.00–1.10 mm

PP 4 (SS 1)
1.10–1.20 mm

PP 5 (SS 2)
1.20–1.30 mm

PP 6 (SS 2)
1.30–1.35 mm

PP 7 (SS 3)
1.35–1.40 mm

PP 8 (SS 3)
1.40–1.50 mm

PP 9 (SS 4)
1.50–1.60 mm

PP 10 (SS 4)
1.60–1.70 mm

PP 11 (SS 5)
1.70–1.80 mm

PP 12 (SS 5)
1.80–1.90 mm

PP 13 (SS 6)
1.90–2.00 mm

PP 14 (SS 6)
2.00–2.10 mm

PP 15 (SS 7)
2.10–2.20 mm

PP 16 (SS 7)
2.20–2.30 mm

PP 17 (SS 8)
2.30–2.40 mm

PP 18 (SS 8)
2.40–2.50 mm

PP 19 (SS 9)
2.50–2.60 mm

PP 20 (SS 9)
2.60–2.70 mm

PP 21 (SS 10)
2.70–2.80 mm

PP 22 (SS 10)
2.80–2.90 mm

PP 23 (SS 11)
2.90–3.00 mm

PP 24 (SS 12)
3.00–3.20 mm

PP 25 (SS 13)
3.20–3.30 mm

PP 26 (SS 13)
3.30–3.40 mm

PP 27 (SS 14)
3.40–3.50 mm

PP 28 (SS 14)
3.50–3.60 mm

PP 29 (SS 15)
3.60–3.70 mm

PP 30 (SS 15)
3.70–3.80 mm

PP 31 (SS 16)
3.80–4.00 mm

PP 32 (SS 17)
4.00–4.10 mm

PP 33 (SS 17)
4.10–4.20 mm

SS 18
4.20–4.40 mm

SS 19
4.40–4.60 mm

SS 20
4.60–4.80 mm

SS 21
4.80–4.90 mm

SS 22
4.90–5.10 mm

SS 23
5.10–5.27 mm

SS 24
5.27–5.44 mm

SS 25
5.44–5.61 mm

SS 26
5.61–5.78 mm

SS 27
5.78–5.96 mm

SS 28
5.96–6.14 mm

SS 29
6.14–6.32 mm

SS 30
6.32–6.50 mm

SS 31
6.50–6.68 mm

SS 32
6.68–6.87 mm

SS 33
6.87–7.07 mm

SS 34
7.07–7.27 mm

SS 35
7.27–7.48 mm

SS 36
7.48–7.70 mm

SS 37
7.70–7.93 mm

SS 38
7.93–8.16 mm

SS 39
8.16–8.41 mm

SS 40
8.41–8.67 mm

SS 41
8.67–8.95 mm

SS 42
8.95–9.23 mm

SS 43
9.23–9.53 mm

SS 44
9.53–9.85 mm

SS 45
9.85–
10.19 mm

SS 46
10.19–
10.54 mm

SS 47
10.54–
10.91 mm

SS 48
10.91–
11.30 mm

SS 49
11.30–
11.72 mm

SS 50
11.72–
11.97 mm

SS 55
12.97–
13.22 mm

SS 60
14.22–
14.47 mm

SS 65
15.47–
15.72 mm

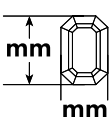
SS 70
16.72–
16.97 mm

SS 75
17.97–
18.22 mm

Various measurement abbreviations are used to classify the jewelry stones.



PP, SS
Pearl Plate (PP), Sieve Size or Stone Size (SS) for round crystals.



mm
Metric figures in millimeters for components and geometric forms.



2

Soldering, Stone Setting, and Plating

Swarovski offers an ideal product selection for soldering, allowing for simple and problem-free production of state-of-the-art poducts. Further techniques such as stone setting and plating complement the comprehensive and diverse application options offered by Swarovski.

24 Product Overview
24 Machines and Tools
26 Suppliers
27 Application
38 Quick Assistance

Product Overview

The following products are suitable for soldering, stone setting, and plating:

	SOLDERING[1]	STONE SETTING	PLATING[1]
Round Stones		✔	
Fancy Stones		✔	
Flat Backs No Hotfix		✔	
Cupchains	✔		✔
Multi-Row Cupchains	✔		✔

1 It is recommended to use the unplated version (Z) of Cupchains.

Machines and tools

The following machines, tools and aids can be used for soldering Swarovski crystals:



Micro soldering kit



Propane gas burner



Blow torch



Solder wire
It is recommended that solder wire with a flux core is used, which guarantees an even flow of solder.



Solder paste
Solder paste containing flux must be applied at exactly the right spot to create a clean solder joint.



Solder pellets
Solder pellets should be placed in an acid flux before being used. This ensures that the solder will flow correctly.



Soldering molds
J-board, express cement, impression material, putty



Polishing machine



Gloves



Protective eyewear

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
Micro soldering kit	Horbach Rio Grande	www.horbach-giesstechnik.de www.riogrande.com
Propane gas burner	Horbach Rio Grande	www.horbach-giesstechnik.de www.riogrande.com
Blow torch	Rio Grande Siegfried Remschnig SRA Soldering Products	www.riogrande.com www.remschnig.at www.sra-solder.com
Solder wire	Alpha Ögussa Rio Grande SRA Soldering Products	www.alphaassembly.com www.oegussa.at www.riogrande.com www.sra-solder.com
Soldering paste	Alpha Ögussa Rio Grande SRA Soldering Products	www.alphaassembly.com www.oegussa.at www.riogrande.com www.sra-solder.com
Solder pellets	Ögussa Rio Grande SRA Soldering Products	www.oegussa.at www.riogrande.com www.sra-solder.com
Flux	Alpha Ögussa Rio Grande SRA Soldering Products	www.alphaassembly.com www.oegussa.at www.riogrande.com www.sra-solder.com
J-board (solder mold)	SRA Soldering Products	www.sra-solder.com
Impression material / (dental) putty	3M	www.3m.com
Settings	E.H. Ashley & Company, Inc. Franz Simm Metall- und Zinkdruckgusswaren GmbH Rio Grande Snow Findings Company Whiting & Davis	www.ehashley.com www.simm-metallwaren.de www.riogrande.com www.snowfindings.com www.whitinganddavis.com

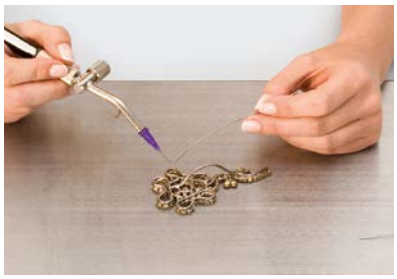
Application

Solder mold production

A solder mold is required to reproduce production pieces. First the original model of the piece is soldered. This is then used to make an impression in a suitable impression material (J-board, express cement). Depending on the size of the piece and mold medium, this impression can be made several times.



1 Solder the original model.



2 Strengthen the rear of the original model with wire.



3 Press the original model into a suitable impression material.



4 Once the material hardens, the original model can be removed.

Note: The solder mold must be designed in such a way that hardly any pressure is needed to position the Cupchain segment into the mold. The crystals may be damaged if there are high levels of mechanical stress on the cups, or if they are deformed.

Soldering Preparation

Materials and tools should be clean, and particularly **free of any grease**, to ensure proper application. When soldering and plating, adequate ventilation is essential. In addition, it is recommended that protective clothing, protective eyewear and protective gloves are worn in line with the manufacturer's safety information sheets. Wearing protective gloves also prevents tools from getting dirty.

Selecting the optimum solder and flux

When selecting solder, the working temperatures and flow characteristics are particularly important. Solder is available from various manufacturers in wire form, with or without a flux core, as a paste and as pellets.

> **Note:** Only soldering alloys with a working temperature up to 280 °C (536 °F) should be used for soldering Cupchains. The higher the working temperature of the solder material used, the more precise workmanship and exact temperature control are necessary to avoid damaging the crystal and the foiling.

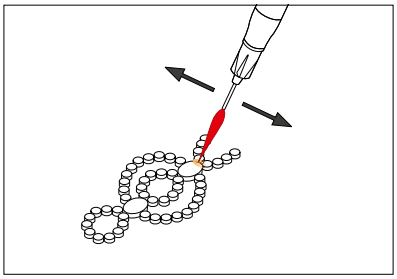
When soldering Cupchains, solder wire with a flux core is more suitable. If solder pellets are being processed, or the wire used does not have a flux core, the flux should be adapted according to the solder manufacturer's instructions, while any corrosive effects on the foiling should be checked via pre-testing. These effects should be assessed after plating, as damage done during soldering is often only visible at this point.
For soldering Cupchains we suggest using one of the following lead-free solder wires:

NAME	COMPOSITION	MELTING RANGE	SUPPLIER
Envirosafe	96.5% Sn, 3.45% Cu, 1% Sb, 0.05% Ag	215 – 220 °C 419 – 428 °F	www.sra-solder.com
Silox 227	99% Sn, 1% Cu	227 °C 440 °F	www.oegussa.at

Soldering

Soldering time and temperature

The right flame size and the time it is applied are important criteria when manufacturing soldered Cupchain pieces. The size of the flame must comply with the instructions for use provided by the tool's supplier. Only heat the part of the jewelry piece in which the solder should flow. If the flame is held too long on the jewelry piece, the piece and the crystals may become overheated and therefore damaged or destroyed.

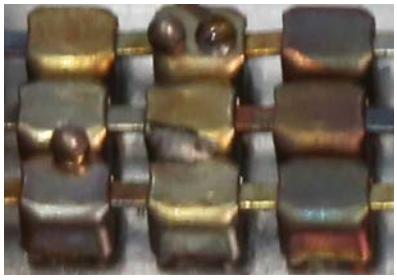


Note: A sudden drop in temperature after the soldering process should be avoided (e.g. shock cooling), as this could damage the crystal (e.g. chipping).

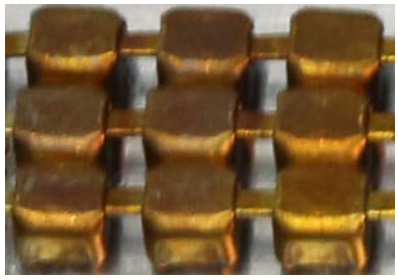
Color during soldering



1 Optimum temperature

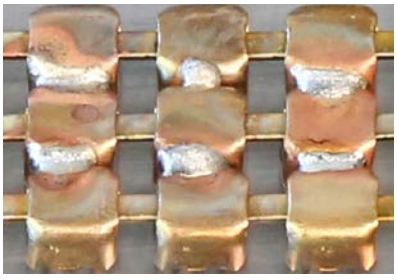


2 Too high temperature

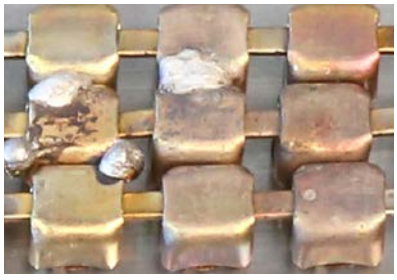


3 Too low temperature

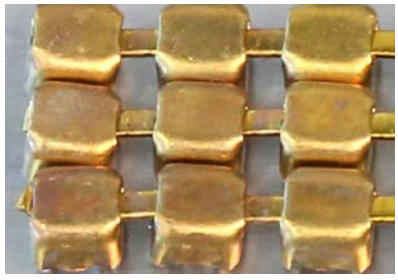
Color after soldering



1 Optimum temperature



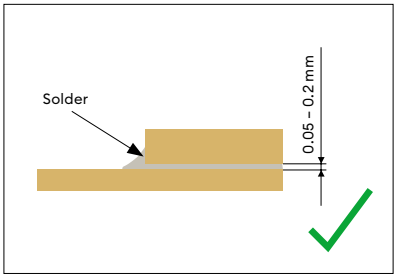
2 Too high temperature

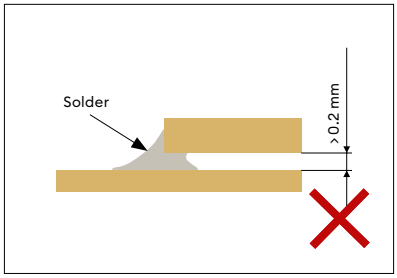


3 Too low temperature

Optimum soldering joint

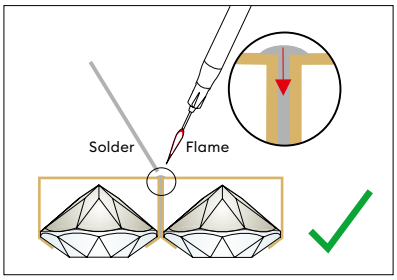
The width of the joint to be soldered should be between 0.05 mm and 0.2 mm. If the joint is wider than 0.2 mm, the solder will not fill the joint sufficiently. A joint that is too narrow will also not contain enough solder to make it strong and neat.

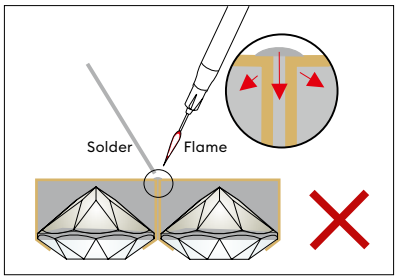


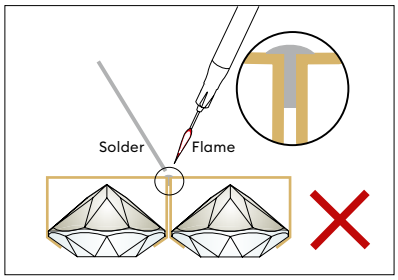


Optimum solder quantity

The right amount of solder ensures strong and clean soldered joints, which can then be cleanly plated. Correctly applied solder flows into the joints of the jewelry piece and provides a strong connection. Either too much or too little solder can damage the creations or result in unwanted discoloring of the crystal.

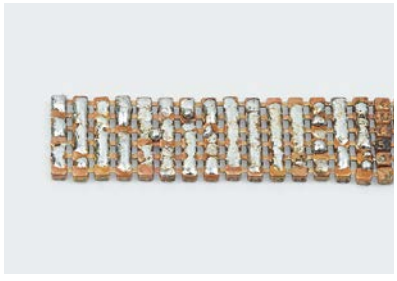




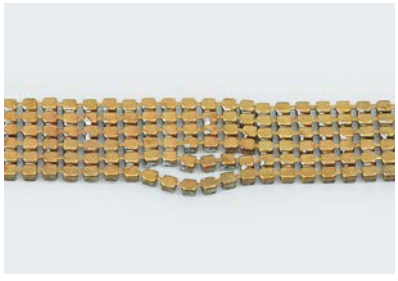




Exact amount of solder
The solder is drawn into the solder gap via capillary action.



Too much solder
Too much solder results in the cup back-filling, with the hot solder damaging the foiling. This damage creates a corroding surface following plating, and the foiling is destroyed. As such, these types of soldering errors are only really visible after plating.



Too little solder
Too little solder means the soldering gap is not completely filled, and the joint is weakened.

Soldering



1 Cut the Cupchain to the required length.



2 Put the Cupchain in the solder mold.



3 Solder the required spots.

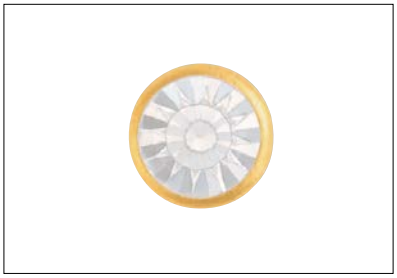


4 Remove the soldered Cupchain from the mold.

Stone setting

Stone setting is the art of securely setting or attaching crystals by creating positive-locking connections. Alongside the application methods outlined in this manual, Swarovski products can also be employed using metal settings. Crystals can be set manually (using pliers, metal spatulas, or punching tools) or by machine. According to how the crystals are integrated into the metal settings, there are various types of settings, both plated and unplated. Whenever possible, the crystals should be set before plating the settings. Crystals can be set after plating as well, depending on the shape and geometry of the finished product. Please be aware that a selected range of Swarovski crystals cannot be plated. For further information on this, please see the current Swarovski Components Collection.

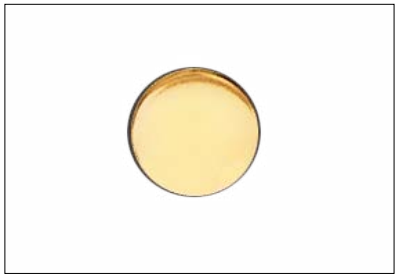
Setting types



Bezel settings
With bezel settings, the crystals are bezelled in to remain in the cup.



Prong settings
With prong settings, crystals are held in position by claws. In most cases there are four prongs. Settings with flaps have significantly broader claws. The advantage here is that the broader claws are much less likely to damage very sensitive carrier material.

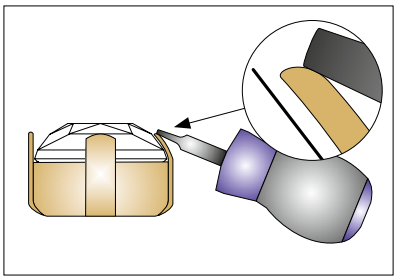


Settings for gluing
In this type of setting (crystal) elements are glued in.

Setting by hand

1. Depending on the shape and size, the cup is held using tweezers, flat nose pliers, or flat head pliers, without deforming it.
2. Place the crystal in the setting using a pair of tweezers or vacuum tweezers.

2a. Bezel setting: Press the cup shut using a setting closer. Setting closers are available from jewelry suppliers.
2b. Prong setting: The prongs of round cups can be pressed in place using a suitable setting closer. For all other forms, the prongs are individually closed in opposite positions, using a suitable pressing tool.



Prong settings

Note: After setting, the crystal should still be slightly movable in the setting. The setting must be constructed so that the crystal can be positioned into it without damaging the foiling. When settings are too tight or prongs are bent, the foiling or the protective lacquering can be damaged, possibly resulting in corrosion. If the setting is closed too strongly, the crystal can be damaged.

Additional information for setting of Fancy Stones and Round Stones into settings

When setting Swarovski crystals into proper settings, following criteria shows if the setting is done properly and the crystals are set secure and ready for further application steps such e.g. sewing:

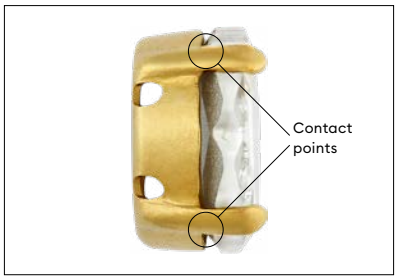
- Setting size must not be too big, to avoid crystal to drop into it
- Setting height should not be too low to avoid reverse side of the crystal to protrude from the setting's reverse side
- Functionality of the setting needs to be given after setting the crystal, for example a setting with holes must allow the sewing needle to fit easily and smooth through the holes of the setting, without being affected by the reverse side of the set crystal.
- Closing the prongs needs to be possible without high effort
- Length of prongs needs to be enough to hold the crystal secure without covering big areas of the crystal surface and the facets

The following pictures show an optimal example of a set crystal:



Topview:

- Only closed prongs are visible, no setting frame visible



Side view:

- Depending on the crystals geometry, the crystal lies only on the rim of the setting and is not fully countersink in the metal frame! Therefore a tiny excess at the setting's rim and a slight visibleness of the crystal's foiling may appear and is standard .
- The far apart positioning of the holes offer best possible stability in textile application.
- To gain an optimal crystal positioning, it is essential that the crystal only lies at 3 points directly on the setting! Dependent on the shape of the Fancy Stone, usually this contact points are in the front and backpart of the crystal (e.g. as marked in the picture above)

Working with end connectors

Plated Cupchains and Findings can easily be combined with end connectors in order to create striking finished pieces.







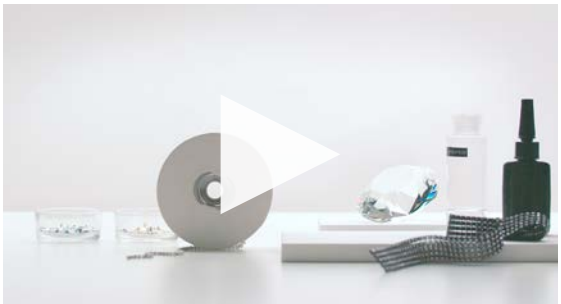


The end connectors can be attached to the end of the Cupchain with flat-nosed pliers and interconnected by either jump rings or lobster claws.

Application Instruction Movie

Attaching end fasteners

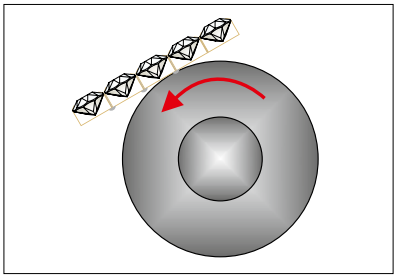
Watch instruction movie for further insights on how to properly work with end fasteners online at https://b2b.ecommerce.swarovski.com



Cleaning

To avoid corrosion, soldered items should be cleaned as soon as possible after the soldering process. This will make the plating process significantly easier. Care must be taken when using mechanical polishing devices.

Polishing media that are too hard or drums that rotate too quickly can damage the items and the crystals. Check the quantity, the polishing agents and time, the rotating speed, and the height of the fall, in order to keep mechanical stress levels as low as possible. In order to preserve the high quality of the creations, we recommend not using organic solvents and not exceeding a maximum temperature of 100 °C (212 °F).



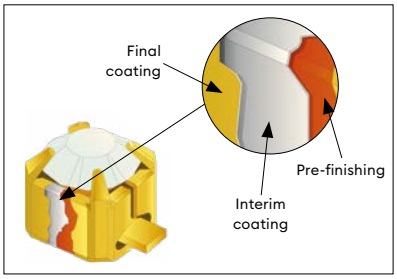
Removal of excessive solder alloy by polishing

Plating

Plating serves to finish the product piece. During this process, metallic coatings are electrolytically added to the surface of the material. The process can only be carried out if the material to be plated is conductive. During the design process, please ensure that individual colors and coating effects can withstand plating. For further information, please see the color overview in the current Swarovski Components Collection.

When plating items including crystals following **criteria are essential to avoid a chemical and/or mechanical damage to crystals** and to achieve an excellent finishing process:

- **no strong alkaline and cyanide solutions**
- **short exposure times in alkaline baths**
- **moderate ultrasonic cleaning**
- **moderate current densities**
- selecting reliable electrolyte suppliers who offer good service and who can provide detailed operating instructions
- selecting suitable high performance electrolytes
- careful maintenance of the unit and the electrolytes



Application

Short descriptions of the processing steps

- **Soak Cleaning:** Here, most of the surface pollution (e.g. dirt, grease, soldering flux) is removed.
- **Electrolytic degreasing:** Only cathodic degreasing, suitable for brass and non-ferrous metals, is recommended for fine cleaning Cupchain jewelry.
- **Acid Dip:** This part of the process serves to remove oxidization from the metal and also the remains of any scale left from the soldering process.
- **Cyanide copper plating:** This processing step serves to improve adhesive strength and conductivity.
- **Pyrophosphate copper plating:** Like cyanide copper plating, this process improves adhesive strength and conductivity. The advantage is that the process does not involve cyanide, though the disadvantage is that higher current densities and longer exposure times are required.
- **Bright copper plating:** The use of sulfuric bright copper plating is recommended because of its excellent ability to cover surface flaws and create an even finish.
- **Palladium coating:** Palladium is presently the only recommended replacement for nickel since the bronze electrolytes currently available on the market can, through their extreme alkalinity, lead to damage of the foiling.
- **Silver coating:** Shiny silver coatings are usually separated from cyanide solutions that contain alkali silver (I)-cyanide, alkali cyanide, alkali carbonate, and organic and/or inorganic additives.
- **Gold coating:** It is recommended to use phosphorus or citric acid electrolytes (pH~3–4), which contain potassium gold (I)-cyanide.
- **Rhodium coating:** Sulfur or phosphoric acid based electrolytes are used for rhodium plating, from which shining, nearly silver-white layers can be applied.
- **Tarnish protection**
  - **Temporary protection against tarnishing:** These are based either on wax mixtures in organic solvents or long-chained sulfuric organic compounds, which can be used as wet-on-wet aqueous emulsions.
  - **Permanent tarnishing protection systems:** Cataphoretic lacquering systems have been proven especially effective as a longer lasting protective system for Cupchain jewelry. They have the advantage over conventional dipping and spray lacquers based on acrylic or zapon varnish (cellulose lacquer) in that only the conductive surfaces are very evenly coated while the isolated facets of the crystals remain uncoated.

Example of a plating process for Cupchains

PREPARATION

Setting up the stand	
Soak Cleaning	t < 5 min, pH < 12.5, T < 55 °C (131 °F)
Rinsing	t < 30 sec, T < 25 °C (77 °F)

PRE-FINISHING

Electrolytic degreasing	t < 15 – 20 sec, 3 A/dm², pH < 12.0, T < 45 °C (113 °F)
Rinsing	t < 30 sec, T < 25 °C (77 °F)
Acid Dip	t = 15 – 20 sec, pH < 1
Rinsing	t < 30 sec, T < 25 °C (77 °F)

Cyanide copper plating	t = 1 min, 2 A/dm², pH < 10.5, T = 60 °C (140 °F)	Pyrophosphate copper plating	t = 3 min, 1 A/dm², pH = 9.2, T = 55 °C (130 °F)

Rinsing	t < 30 sec, T < 25 °C (77 °F)
Bright copper plating	t = 5 – 6 min, 3 A/dm², pH < 1, RT

INTERIM COATING

Palladium	t = 1 – 2 min, 1 A/dm², pH = 8 – 9, T = 25 – 30 °C (77 – 86 °F)	Silver	t < 1 min, 2 A/dm², pH < 12.0, RT
Rinsing	t < 30 sec, T < 25 °C (77 °F)	Rinsing	t < 30 sec, T < 25 °C (77 °F)

FINAL COATING

Rhodium	t = 1 min, 1A/dm²	Gold	t = 1 min, 1A/dm²	Tarnish protection (77 °F)	t < 30 sec, T < 25 °C
Rinsing	t < 30 sec, T < 25 °C (77 °F)	Rinsing	t < 30 sec, T < 25 °C (77 °F)	Hot rinsing and drying	t = 30 sec, T = 50 °C (122 °F)
Hot rinsing and drying	t = 30 sec, T = 50 °C (122 °F)	Hot rinsing and drying	t = 30 sec, T = 50 °C (122°F)		

AN ADDITIONAL EFFECT OR PROTECTIVE LACQUERING CAN ALSO BE APPLIED.

Quick Assistance

The following table outlines typical soldering, stone setting and plating problems, along with possible causes and recommendations on avoiding them.

PROBLEM	CAUSE
Metal components:	
The solder joints crack.	1, 2, 3, 4
The product piece has restricted movement.	2, 5
The metal surface is defective.	2, 6
The metal surface is uneven.	7
Defective finishing on the soldered areas.	8
Corrosion occurs on the metal.	9
Crystals:	
Crystals chips off.	10, 11, 12, 13
Crystals become discolored.	14, 15, 16, 17

CAUSE		RECOMMENDATION
1	Too little solder is used. This weakens the solder joint, as the soldering gap is not completely filled.	Use more solder.
2	Too much solder is used. A large solder joint can result in cracks, because any force applied to the piece directly affects the solder.	Use less solder, especially in the areas close to the moving parts. Too much solder at these parts restrict their flexibility.
3	The flow of the solder is insufficient.	The following factors contribute to a sufficient flow of solder: – The flame needs to be strong enough so that both solder and cup can heat up to the required working temperature. – To make sure the flux cannot vaporize, the soldering temperature must not exceed 280 °C (536 °F). A vaporized flux means that the solder is not able to cover the metal surface. – The melting temperature of the solder must not be higher than 280 °C (536 °F).
4	The metal surface, solder, flux, or solder mold is dirty.	Special attention must be paid to use clean (and above all grease-free) metal surfaces.
5	Exposure to the finishing process has been too long.	The exposure time for functional and flexible elements should be kept as short as possible. Optimizing the polishing processes and the use of high quality electrolytes is also recommended.
6	Insufficient cleaning after soldering.	Incorrect cleaning has a negative impact on the finishing process. Carefully check the cleaning process.
7	Poor quality of polishing. The metal surface shows irregularities like burns or an orange color.	Carefully polish the product and take care that the processor plating baths are set up correctly.

CAUSE		RECOMMENDATION
8	Unsightly finishing on the solder areas can have several causes: – incorrect soldering – insufficient cleaning after the soldering process – the use of sulfuric acid in the pickling process (if lead-containing solder has been used) – the absence of or incorrect use of copper plating	Carefully follow the soldering steps described in this chapter.
9	Insufficient rinsing or using contaminated rinsing water can cause tarnishing or corrosion.	The transfer times between the individual stages of the process should be kept as short as possible. Rapid tarnishing of silver can be prevented by using effective tarnishing protective systems (e.g. coatings, wax, lacquer etc.).
10	Poor quality of solder mold.	The solder mold must be designed in such a way that hardly any pressure is needed to position the Cupchain segment into the mold. The crystals may be damaged if there are high levels of mechanical stress on the cups, or if the cups are deformed.
11	Thermal shock during the soldering or cooling process can cause tension in the crystals.	Avoid extreme differences in temperature during and after the soldering and cooling process.
12	When using polishing drums, the surface of the crystals can be damaged through hard polishing components in the rotating machine.	Mechanical stress levels should be kept as low as possible. Check the quantity of articles used, the polishing agents and time, as well as the rotating speed and the height of the fall.
13	Using barrel plating can damage crystals in heavy or sharp Cupchains due to the Cupchains‘ size or shape.	In general it is recommended that Cupchain items should be finished on a plating rack. If using a barrel plating, choose the best type of drum and optimize the rotation and the fall height. When the drum is between the different stages of the finishing process and contains no liquid, the items being plated inside the drum may damage each other.
14	The soldering temperature is too high.	If the soldering flame is too strong or the soldering times are too long, there is the danger to overheat the solder joints. This can damage the crystals. It can be helpful using a solder that melts at a lower temperature.
15	Too much solder is in the cups. This can damage the crystals‘ foiling and subsequently leads to discoloring.	To make sure the right amount of solder is used, remove one crystal from the cup. If there is any solder left in the cup, reduce the amount of solder. This can be achieved by using a solder wire with a maximum diameter of 1 mm or by reducing the time the solder is in contact with the cups.
16	Incorrect cleaning with ultrasonic can damage the foiling of the crystals.	Take care not to use the ultrasonic too intensively or for too long time.
17	Faults occured during the finishing process.	Check the alkalinity, current density, exposure times, and temperatures of the plating baths used. Further mistakes could be incorrect rinsing and post processing techniques.



3

Gluing

Swarovski products can be glued to a wide range of materials in a variety of application areas. The greatest quality is ensured by following the entire application process.

42 Product Overview
42 Machines and Tools
46 Suppliers
48 Application
71 Useful Information
75 Quick Assistance

Product Overview

The following products are suitable for gluing:

	GLUING WITH ADDITIONAL ADHESIVE SYSTEM
Round Stones	✔
Fancy Stones	✔
Crystal Pearls	✔
Pendants	✔
Flat Backs No Hotfix	✔
Crystal Textures	✔
Linked Crystal Components: Crystal Mesh	✔

Machines and tools

The following machines, tools and aids can be used for the various processes involved in gluing Swarovski products:



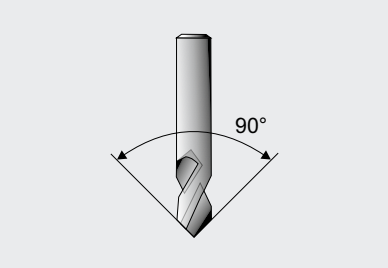
CNC milling machine



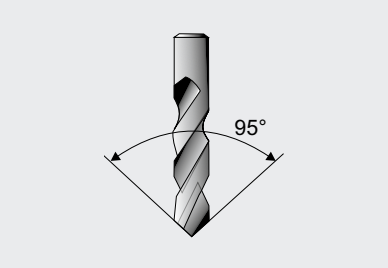
Box column drill



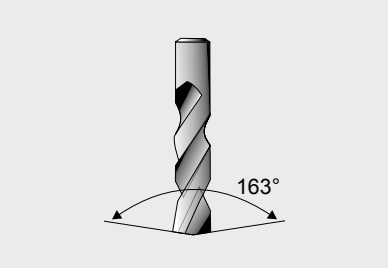
Hand drill



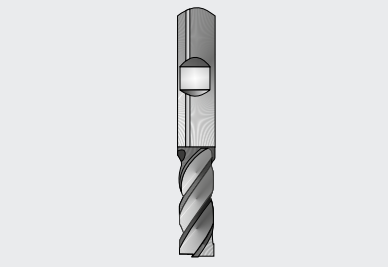
Twist drill 90°/ NC drill 90° for XILION Chatons



Twist drill 95°/ NC drill 95° for XIRIUS Chatons



Twist drill 163°/NC drill 163° for XIRIUS Light Chatons



Milling cutter



Test Pen (art. 9030/000)



Isopropyl alcohol/Acetone



Blow torch



Corona treater



Plasma cleaner



Precision balance



Plastic gloves



Protective eyewear



Dispensing robot



Courtesy of I&J Fisnar, Inc.

Fluid dispenser



Dispensing gun



Dispensing syringes with dispensing tips



Mixing Nozzle (art. 9030/126)



CG 500 (A+B)
Two-component epoxy resin glue: 50 ml cartridge (25 ml resin + 25 ml hardener)



CG 500 (A+B)
Two-component epoxy resin glue: 100 ml tube (50 ml resin + 50 ml hardener)



CG 500 (A+B)
Two-component epoxy resin glue: 2 l box (1 l resin + 1 l hardener)



CG 610 (A+B)
Two-component epoxy resin glue: 50 ml cartridge (33.3 ml resin + 16.7 ml hardener)



CG 610 (A+B)
Two-component epoxy resin glue: 750 ml box (500 ml resin + 250 ml hardener)



Different glues



Chaton Sieve



Vacuum pump with silicone hose (art. 9040/022), can be adapted to a pick-up system by attaching a dispensing tip (to be ordered separately).



Tweezers



Wax stick



UV light



Drying oven

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
90°/95° NC drill/milling cutter	Dixi Holding SA Hahn & Kolb GmbH Hoffmann GmbH Reich Präzisionswerkzeuge Wedco	www.dixi.ch www.hahn-kolb.de www.hoffmann-group.com www.reich.at www.wedco.at
Test Pen	Arcotest Swarovski: art. 9030/000	www.arcotest.de https://b2b.ecommerce.swarovski.com
Fluid dispenser (with/without vacuum suction)	Epoxy & Equipment Technology Pte Ltd Hottemp (M) Sdn. Bhd. I & J Fisnar, Inc. Vieweg GmbH Musashi Engineering Europe GmbH	www.eet.com.sg www.hottemp.com.my www.fisnar.com www.dosieren.de www.musashi-engineering.co.jp
Mixing Nozzle for CG 500 (A+B) and CG 610 (A+B) (10 pcs.)	Swarovski: art. 9030/126	https://b2b.ecommerce.swarovski.com
CG 500 (A+B) Two-component epoxy resin glue	Swarovski: art. 9030, CG 500 (A+B) 50 ml cartridge, Asia, Europe/America art. 9030, CG 500 (A+B) 100 ml tube, Asia, Europe/America art. 9030, CG 500 (A+B) 2 l box, Asia, Europe/America	https://b2b.ecommerce.swarovski.com
CG 610 (A+B) Two-component epoxy resin glue	Swarovski: art. 9030, CG 610 (A+B) 50 ml cartridge, Asia, Europe/America art. 9030, CG 610 (A+B) 750 ml box, Asia, Europe/America	https://b2b.ecommerce.swarovski.com
Araldite® adhesives	Huntsman International LLC	www.huntsman.com
3M™ Scotch-Weld™ adhesives	3M	www.3m.com
DELO adhesives	DELO Industrial Adhesives	www.delo.de
Elastosil® adhesives / MS Clear HS	Wacker Chemie AG	www.wacker.com
Loctite® adhesives	Henkel Ltd.	www.loctite.com
C. Kreul Hobby Line Schmuckstein Kleber	C. KREUL GmbH & Co KG	www.c-kreul.com
CHRISANNE CLOVER Crystal Glue	Chrisanne Ltd	www.chrisanne.com
Tile glues / joint sealers	PCI Augsburg GmbH KERAKOLL Spa ARDEX GmbH	www.pci-augsburg.de www.kerakoll.com www.ardex.com
RBC adhesive 2K	RBC Industries, Inc.	www.rbcepoxy.com
HS 34 S 233 and HS 34 S 77	Adhesive Products GmbH	www.ap-adhesives.com
Vacuum pump with silicone hose, can be adapted to a pick-up system by attaching a dispensing tip	Swarovski: art. 9040/022	https://b2b.ecommerce.swarovski.com

MACHINES & TOOLS	SUPPLIER	CONTACT
Vacuum pick-up system	I & J Fisnar, Inc. Epoxy & Equipment Technology PTE., Ltd. Hottemp (M) Sdn. Bhd. PT. SKT International	www.fisnar.com www.eetdispensing.com www.hottemp.com.my www.sktisolution.com
Pick-up stick	Crystal Ninja	www.crystalkatana.com
Dispensing gun	Vieweg GmbH Perigee Direct	www.dosieren.de www.epoxysupply.com
Dispensing tip for adapting a vacuum pump	Gonano Dosiertechnik GmbH Vieweg GmbH	www.dosieren.net www.dosieren.de
UV light	DELO Industrial Adhesives Dr. Hönle AG Heraeus Holding GmbH Herbert Waldmann GmbH & Co. KG	www.delo.de www.hoenle.de www.heraeus.com www.waldmann.com
Drying oven	Heraeus Holding GmbH VWR International, LLC.	www.heraeus.com www.vwr.com
Plasma treatment	PINK GmbH Thermosysteme	www.pink.de

Application

When gluing Swarovski crystals, optimal results are obtained by **coordinating the entire application process**. Following the application steps in the right order is very important.

Experience has shown that the most common reasons for crystals becoming detached are inappropriate areas of application, poorly produced cavities, unsuitable gluing systems, and insufficient quantities of glue. **Product-specific application instructions** are detailed later in this section.

Cavity production

Many Swarovski crystals require cavities in order to be applied to materials. A properly produced cavity in combination with a suitable gluing system ensures a stylish, long-lasting application. The cavity makes it easy to glue properly and ensures higher **protection of the crystal against mechanical and chemical stress**. There are several different production methods and cavity types. Always take into consideration the requirements and base material of the finished product when choosing the appropriate cavity, pre-treatment method, and kind of glue.

Please note: Swarovski provides 3D data in various formats and technical drawings with dimensions and tolerances for all crystals. Should you require these, please contact your Swarovski representative.

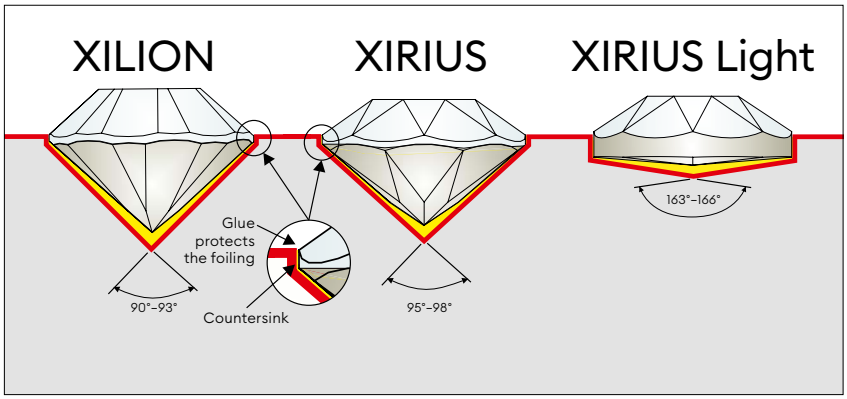
Production methods

- **Casting:** To reproduce cavities, particularly in the jewelry sector, the cavities can be made when the metal component is cast. When following this process, the cavities must be cut into the original model. To prevent the bottom of the cavity being rounded off, which would result in the crystal sitting too high, it is recommended that an additional indentation is made when producing the original model.
  - Lost wax in jewelery manufacturing
  - Rubber mold process in jewelery manufacturing
- **Injection molding:** Is the most commonly used manufacturing process for the fabrication of plastic and metal parts. A wide variety of products are manufactured using injection molding, which vary greatly in their size, complexity, and application. The injection molding process requires the use of an injection molding machine, raw plastic or metal material, and a mold. The plastic or metal is melted in the injection molding machine and then injected into the mold, where it cools and solidifies into the final part.
- **Milling** is when materials are machined using a milling machine and milling cutter. Milling machines can be fitted with appropriate tools depending on the materials, e.g. for working with metal and plastic, wood, or natural stone. Modern CNC machining centers offer the greatest precision and can be used to produce **cavities of every shape** necessary. Please note that when machining natural stone, ceramic, or glass, for example, special diamond-tipped tools must be used.
- **Drilling** is when materials are machined using a power drill and drilling tool.
- **Water jet cutting** allows materials to be separated via a high-pressure jet of water. Economic reasons make water jet cutting machines ideal for certain stone shapes that are integrated into flat materials. Please note that only **end-to-end cavities** can be produced in this way. In addition, materials that swell through water cannot be worked with. Absorbent materials must be fully dried before gluing the crystal.

Cavity types

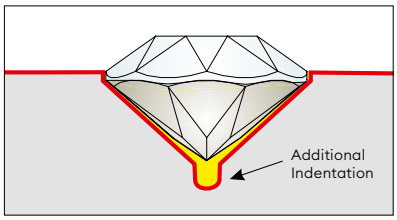
Depending on the Swarovski products used, various cavity types can be made using the different production methods.

SWAROVSKI PRODUCTS	PRODUCTION METHOD	CAVITY TYPE
Round Stones	Milling Drilling	**Chaton cavity**

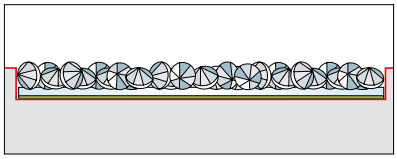
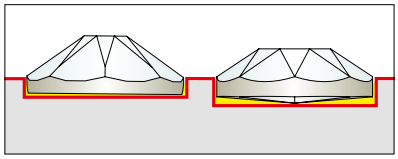
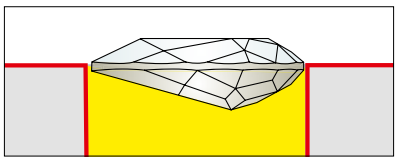
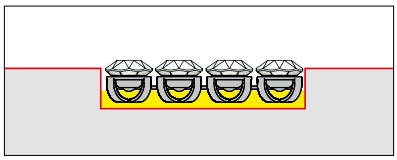
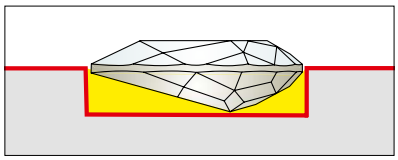
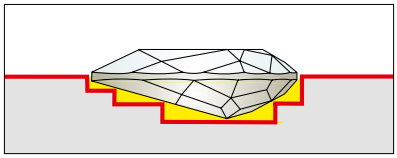


The optimal cavity for a XIRIUS Chaton is produced at an **angle** of **95°–98°**, for a XILION Chaton at **90°–93°,** for a XIRIUS Light an **angle** of **163°–166°.**
The cavity should have the same maximum diameter as the crystal plus at least 0.1 mm.
The stone sizes available for Swarovski crystals can be found on page 21.
For particularly large crystals with a prominent girdle, it is advisable to use an additional countersinking process.
Please find a cavity calculator on https://b2b.ecommerce.swarovski.com

Round Stones	Casting	**Chaton casting cavity**

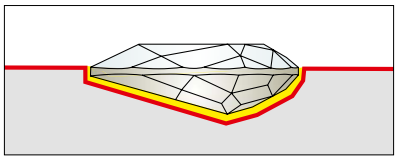


For items manufactured by casting, an **additional indentation** at the bottom of the cavity can be drilled to avoid a rounded tip, therefore preventing the crystal from being raised out of the cavity.

SWAROVSKI PRODUCTS	PRODUCTION METHOD	CAVITY TYPE
Flat Backs No Hotfix Crystal Textures*	Casting Milling	**Indentation**   When gluing an article with a **flat back** it is also advisable to create a cavity as shown here. This cavity ensures that the crystal is better protected against mechanical and chemical stress. The depth of the cavity depends on the height of the girdle (Flat Back) or the height of the Crystal Textures and the thickness of the base material.
Round Stones Flat Backs No Hotfix Fancy Stones	Milling Drilling Water jet cutting	**End-to-end cavity**  An end-to-end cavity is the **simplest option** when producing cavities. When selecting the glue (page 55), please note the additional instructions regarding the gluing gap.
Fancy Stones Linked Crystal Components: Crystal Mesh Crystal Fishnet Bandings	Casting Milling	**Blind hole**   A blind hole is another option when producing cavities. It allows Swarovski crystals in a variety of heights to be set and protected in the material. When selecting the depth of the cavity, ensure that there is still a **gap** between the lowest point of the crystal and the base material. When selecting the glue (page 55), please note the additional instructions regarding the gluing gap.
Fancy Stones	Casting Milling	**Step milling**  Compared to a simple blind hole, step milling offers **better hold** of the crystal with less glue. When selecting the depth of the cavity, ensure that there is still a gap between the lowest point of the crystal and the base material. When selecting the glue (page 55), please note the additional instructions regarding the gluing gap.

Application

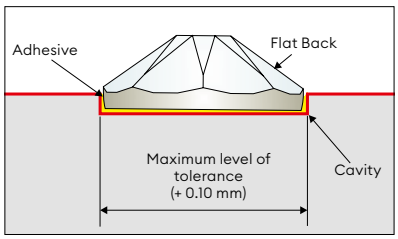
* for crystal texture (except from coldfix and removable foil)

SWAROVSKI PRODUCTS	PRODUCTION METHOD	CAVITY TYPE
Fancy Stones	Casting Milling	**3D milling**  3D milling offers an **optimum fit** with the smallest gluing gap. Due to the fact that the cavity is adapted to the contours of the crystal, CNC milling machines are required.

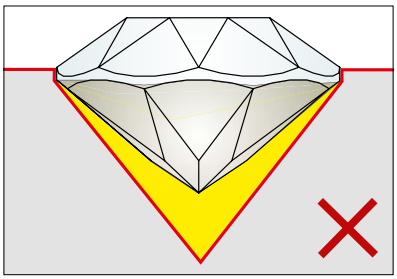
Production tolerances for cavities

When producing cavities, the dimensions should be based on the main dimensions, including the maximum tolerance for the crystals used, and the production tolerance.

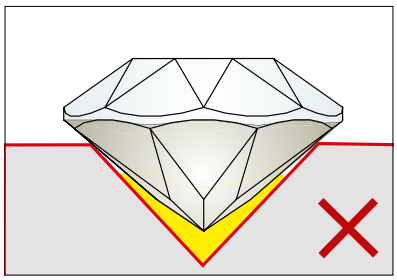
These dimensions can be requested from your Swarovski sales organization.



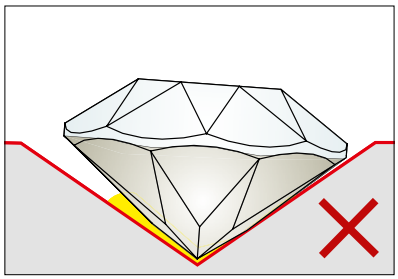
Incorrect cavities



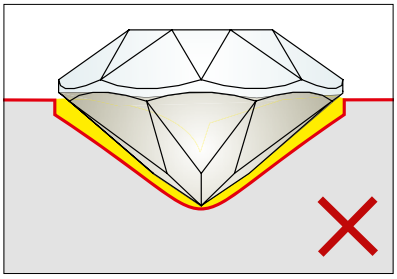
Angle too sharp



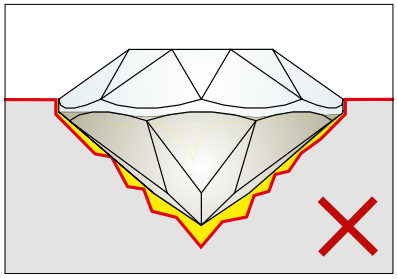
Crystal too large/cavity too small



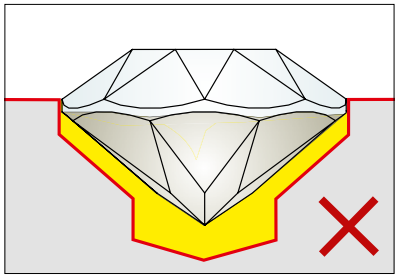
Angle too large



Rounded tip of the cavity



Cavity with uneven surface



Gap too big

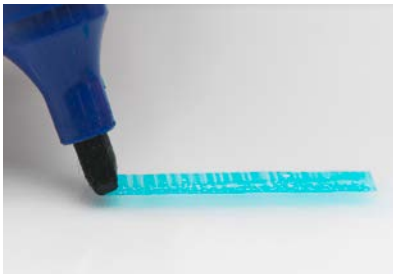
Checking surface tension and pre-treatment

Checking the surface tension

The surface tension is an indicator for the wetting properties of the surface to be glued. A surface tension of **at least 38 mN/m** is recommended for gluing Swarovski crystals. It should also be randomly tested during production. It is best to use the Test Pen (art. 9030/000) to measure the surface tension.



1 Before gluing, mark the surface.



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



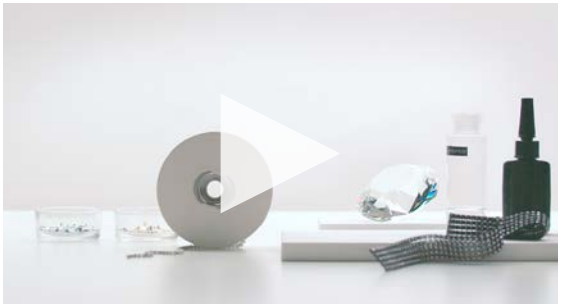
3 If the ink disappears or forms bubbles, the surface is not suitable for gluing. In this case, the pre-treatment cleaning methods should be checked.

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

Application Instruction Movie

Checking surface tension

Watch instruction movie on proper Test Pen usage online at https://b2b.ecommerce.swarovski.com



Pre-treatment

If the surface tension is below 38 mN/m, the following pre-treatment cleaning methods, applied in the correct order, can be effective in reaching the right level. After each cleaning process, the surface tension has to be checked again.

TYPES OF CLEANING		PRE-TREATMENT CLEANING METHODS
1	**Mechanical cleaning** This involves sanding, blasting, or brushing but is usually not necessary for jewelry.	– Removal of dirt, rust, scale, and residues of varnish – Roughening the surface
2	**Washing and degreasing** It is important to ascertain that the tensides do not contain silicone, as this would impair adhesion. When using solvents it is advisable to test the durability of the surface to be cleaned beforehand to avoid any damage. **Solvents containing substances with a high boiling point should not be used** due to the risk of residue. If using cleaning solvents, wait a few minutes to allow them to evaporate.	– Cleaning with tenside solutions, rinsing with de-ionized water – Cleaning with isopropyl alcohol/ethanol – Cleaning with acetone (MEK/ethyl acetate) – Cleaning with a cleaning solvent: should not contain high boiling point substances (risk of residue)
3	**Physical cleaning and activation** These cleaning methods can be applied if mechanical cleaning or washing and degreasing are either not possible or have not resulted in a surface tension of >38 mN/m. Therefore the pre-treatment cleaning method used should be done on a case-by-case basis.	– **Flame treatment via a blow torch** The surface to be treated is exposed to the flame of a torch very briefly. When using special gas mixtures, surface silication can also be carried out, so as to apply a more adhesive coating. – **Corona treatment** An electric corona discharge is briefly applied to the surface. – **Plasma treatment** Plasma treatment offers precise cleaning and activates the surface via an ionized gas.
4	**Chemical cleaning and primers** Applying a primer improves adhesion and helps to prevent corrosion.	– Applying small amounts of solvent and activating the surface. – Applying a primer.

Choice of glue

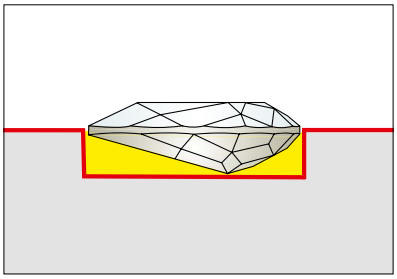
The selection of the best gluing system is the next stage in ensuring a long-lasting application.
When selecting the most suitable glue, the following factors should be considered:

– The type of cavities/the resulting gluing gap
– The size of the crystals/gluing surface
– The gluing properties and finish required
– The type of base material

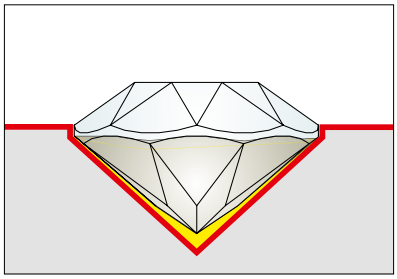
The type of cavities/the resulting gluing gap

When selecting an adhesive, it is also important to consider the gluing gap that results from the type of cavity chosen. For cavities offering a **large gluing gap, soft and gap-filling** glues such as silicone glue are recommended to avoid tension in the glue joint.

Epoxyethane/polyurethane glues offer **greater strength** and can be used for cavities with a **small gluing gap.**



Large gluing gap



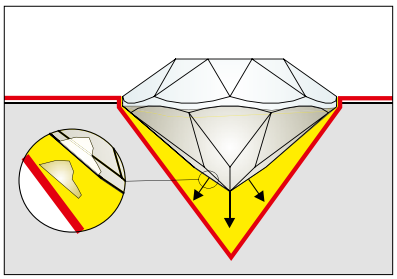
Small gluing gap

The size of the crystals/gluing surface

Please note that when gluing small crystals, glues with higher shearing strengths (e.g. CG 500 (A+B) two-component epoxy glue) should be used. Further information can be found in the manufacturer's technical data sheets.

The gluing properties and finish required

When selecting glues, it is important to consider properties such as **pot life, viscosity, color, curing time, ease of dosing, and shrinkage**. Further information can be found in the manufacturer's technical data sheets. Adhesives tend to shrink during curing. There will be a greater amount of **shrinkage** if the wrong glue has been chosen, it is hardened under the wrong conditions, or if there is an incorrectly sized cavity (too much space around the crystal). The tension thus created can damage the foiling and the crystals may even detach. Glues that are very hard after curing and shrink considerably are not suitable for Swarovski crystals with foiling.



The foiling is torn from the crystal because of excessive glue shrinkage (shown in yellow).

The type of base material

The following table provides a selection of commonly known and globally available adhesives that are suitable for different uses and materials. Application tests are advisable to make sure the chosen glue fulfills the specific needs of your application.

Viscosity: Measure of a fluid's resistance to gradual deformation by shear/tensile stress. It corresponds to the informal notion of 'thickness'

Color: Description of the glue's color type after curing.
Bonding: Depending on the carrier material, the bonding of the glues can vary.

Viscosity types

low	thin fluid
med	medium
high	pasty

Bonding types

+	sufficient or excellent bonding can be reached
o	sufficient bonding is possible
–	sufficient bonding is nearly impossible

	TWO-COMPONENT EPOXY RESIN GLUES						POLYURETHANE GLUES			CYANOACRYLATE GLUES	UV GLUES[1]			SILICONE GLUES	DOUBLE SIDED TAPES	DISPERSIONS & CONTACT GLUES	
	CG 500 (A+B)	CG 610 (A+B)	Araldite® 2011	RBC adhesive #118 A/B	DELO-DUOPOX® CR8021	3M™ Scotch-Weld™ DP 190	Araldite® 2028-1	3M™ Scotch-Weld™ DP 610	DELO-PUR 9895	LOCTITE® 401™	DELO-PHOTOBOND GB368	HS 34 S 233	HS 34 S 77	ELASTOSIL® N 2199	3M™	C. Kreul Hobby Line Schmuckstein Kleber	CHRISANNE CLOVER Crystal Glue
Color	translucent	translucent	beige	translucent	translucent	white/gray	transparent	transparent	beige	transparent	transparent	transparent	transparent	transparent	transparent	transparent	white
Viscosity	med	low	high	med	med	high	low	high	high	low	med	med	med	high	-	med	high
Glass	+	+	+	+	+	+	O	O	O	–	+	+	+	–	O		
Ceramics	+	+	O	+	+	+	+	+	+	–	–	+	+	O	O		
Stone	+	+	O	+	+	+	+	+	+	–	–	+	+	O	O		
Aluminum	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O		
Brass	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O		
Silver	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O		
Steel	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O		
PC	+	+	O	+	+	+	O	O	O	+	O	O	O	O	O		
PS	+	+	O	O	+	+	O	O	O	+	O	O	O	O	O		
PVC/ABS	+	O	O	+	+	+	O	O	O	+	O	O	O	O	O		
PMMA	+	O	O	O	+	+	O	O	O	+	+	+	+	O	O		
Paper	O	O	O	+	O	O	O	O	O	O	–	+	+	O	O	O	O
Cork	O	O	O	+	O	O	O	O	O	–	–	+	+	O	O		
Wood	O	O	O	+	O	O	O	O	O	–	–	+	+	O	O		O
Textiles[2]	–	–	–	–	–	–	–	O	–	–	–	+	+	–	–	O	O

[1] The second gluing part has to be UV transparent. [2] For permanent (wash-resistant) application a Hotfix application is suggested.

Applications on plastics

There are many types of synthetic materials. The following table contains information regarding the adhesive qualities of a selection of plastics.

PLASTICS	ADHESIVE QUALITIES
ABS	good
ASA	good
CA	good
EP	good
PA	very difficult
PC	good
PE	difficult
PET	difficult
PF	good
PIB	good
PMMA	good
POM	difficult
PP	difficult
PS	good
PTFE	very difficult
PVC-U	good
PVC-P	very difficult
SAN	good
SILICONE	very difficult
UP	good

CG 500 (A+B) Two-component epoxy resin glue

CG 500 (A+B) is a high-performance gluing system for both foiled and unfoiled Swarovski crystals, exclusively distributed by Swarovski for professional use within the jewelry segment and other industries such as accessories, interiors, and electronics.

Key features:
- Ideal mechanical resistance
- Ideal chemical resistance
- Future-oriented solution
- Diverse areas of application

Ideal mechanical resistance

CG 500 (A+B) **absorbs impacts and withstands distortion**. In addition, maximum elasticity protects the foiling.



XILION Chatons that have been glued with CG 500 (A+B) remain in the cavities after extreme mechanical stress due to **optimal shock absorbance** (up to 500%).



XILION Chatons that have been glued with a **standard epoxy resin** fall out of their cavities after extreme mechanical stress due to its **poor shock absorbance** (around 10%).

Ideal chemical resistance

CG 500 (A+B) OFFERS EXCELLENT CHEMICAL RESISTANCE AGAINST:	
Humidity	CG 500 (A+B) prevents infiltration of humidity into the glue and thus any corrosion. Jewelry pieces can be stored and worn in places with high humidity.
Perspiration	CG 500 (A+B) prevents infiltration of perspiration into the glue and thus avoids corrosion. The glued Swarovski products are not damaged by perspiration.
Salt and chlorinated water	CG 500 (A+B) protects Swarovski crystals when they are exposed to salt or chlorinated water. The glued Swarovski products are not damaged during swimming.

Diverse areas of application

CG 500 (A+B) OFFERS IDEAL ADHESION FEATURES ON:	
Metals	E.g. application of Swarovski products on plated surfaces, brass, stainless steel, titanium, gold, rhodium, and silver within the jewelry industry
Gluable synthetics and rubber	E.g. application of Swarovski crystals on ABS, PMMA, PVC etc. within the accessories and electronics industries
Glass, crystals, wood, stone, cork, and porcelain	E.g. application of Swarovski products in the interior and home décor industries

Technical data of CG 500 (A+B)

Mixture ratio (A : B), by volume	100 : 100 (resin : hardener)
Mixture ratio (A : B), by weight	100 : 86 (resin : hardener)
Pot life at room temperature (23 °C/73.4 °F), quantity applied: 1g	15 min.
Complete curing time at room temperature (23° C/73.4 °F)	24h
Complete curing time in oven (40° C/104 °F)	12h
Complete curing time in oven (80° C/176 °F)	2h
Complete curing time in oven (100° C/212 °F)	1h
Handling time at room temperature (23 °C/73.4 °F)	3h
Viscosity (mixed)	20,000 +/– 5,000 mPa*s

Mixing CG 500 (A+B) two-component glue tubes

The exact mixing of the two-component glue is especially important. Only a fully homogenous mixture leads to the desired results.

Care must be taken to follow the manufacturer's instructions.



1 Use an electric scale to weight out the two components at a ratio of 100 : 86 (resin : hardener).



2 Both components come in different color shades so that it is easy to see if they are thoroughly mixed.



3 Mix the two components until a homogenous result is achieved.



4 Put the glue in a dispenser.

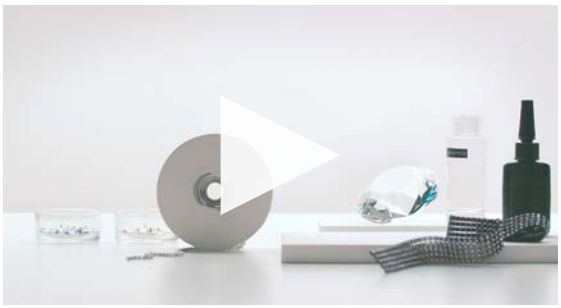


5 Attach the dispensing tip to the syringe.

Application Instruction Movie

Mixing two-component adhesive

Watch instruction movie how to mix the tube version of Swarovski Crystal Glue CG 500 online at https://b2b.ecommerce.swarovski.com



CG 610 (A+B) two-component epoxy resin glue

The CG 610 (A+B) two-component epoxy resin glue was specially developed for gluing Swarovski crystals of very small sizes, starting with PP 0. Depending on the area of application the adhesive can be used for crystals up to the size of PP 14.

Key Features:
- Suitable for gluing very small crystals (starting with size PP 0)
- Low viscosity allows an easier dosing of small glue quantities
- Cost saving due to long pot life (140 min.)

Technical data of CG 610 (A+B)

Mixture ratio (A : B), by volume	100 : 50 (resin : hardener)
Mixture ratio (A : B), by weight	100 : 48 (resin : hardener)
Pot life at room temperature (23 °C/73.4 °F), quantity applied: 1g	140 min.
Complete curing time at room temperature (23° C/73.4 °F)	72h
Complete curing time in oven (40 °C/104 °F)	18h
Complete curing time in oven (80 °C/176 °F)	4h
Complete curing time in oven (100 °C/212 °F)	1.5h
Handling time at room temperature (23 °C/73.4 °F)	24h
Viscosity (mixed)	1,750 +/– 250 mPa*s

Mixing CG 610 (A+B) two-component glue cartridgee

The **50 ml cartridge** of CG 610 (A+B) is designed in a way that the containing resin and hardener do not have to be mixed together by the user. Just attach a dispensing gun and the mixing nozzle (delivered with the 50 ml adhesive package) to the cartridge and start gluing.





When using glue of the **750 ml box**, resin and hardener have to be mixed in a different way. First, weigh the two glue components at a ratio of 100 : 48 (resin : hardener). It is very important to keep an exact mixing ratio of the two components to achieve maximum adhesion. Mix the two components well for at least one minute. Only a fully homogenous mixture leads to the desired results. When a homogenous mixture is achieved, put the glue into a dispenser/syringe and attach a dispensing tip.







Dosage and setting

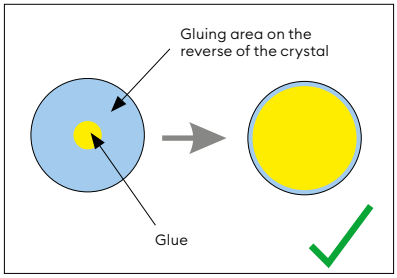
Dosage

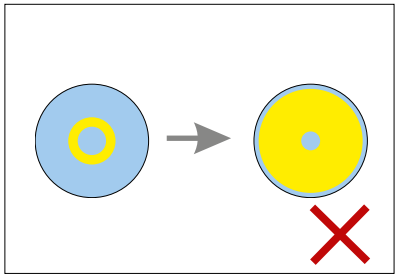
The glue can be precisely dispensed via a variety of dosage systems. Dispensers with a vacuum connection prevent the glue from dripping and reduce the amount of cleaning needed. The correct amount of glue will additionally protect the foiling from external influences. Attention must be paid to the application and quantity of the glue.

Glue application

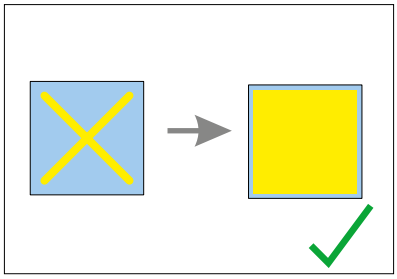
Irrespective of the shape of the gluing area, the glue should be applied as follows:

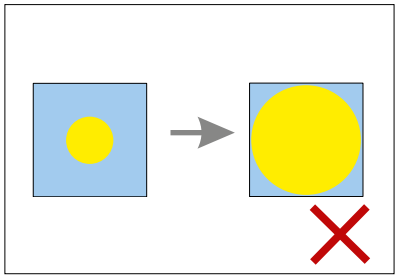
With a **round** gluing area, a dot of glue in the centre is sufficient. When the crystal is applied, the glue will be evenly distributed in the gluing gap. To glue a single spot, aim the dispensing needle just above the spot to be glued and lift it slowly upward to avoid any glue spreading out sideways.





With a **square or rectangular** gluing area, apply a cross of glue to ensure it is evenly spread into the corners.

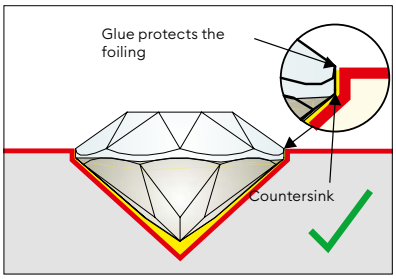


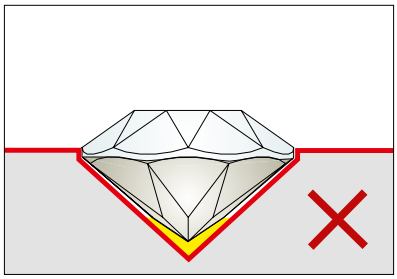


Glue quantity

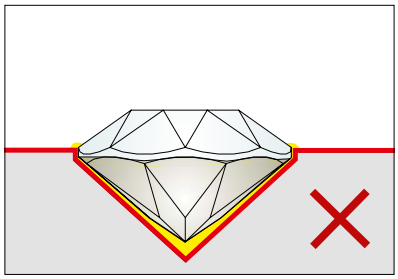
When selecting the amount of glue to dispense, ensure that when setting and pressing down on the crystal, the glue spreads to the edges, thus offering additional protection for the foiling.

Round Stone



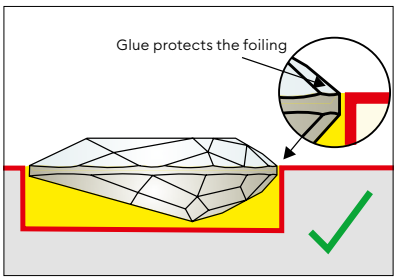


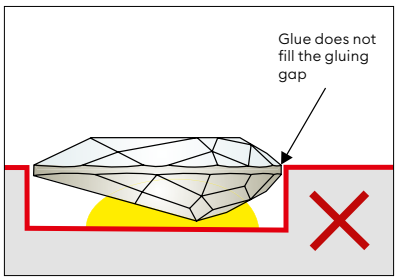
Too little glue



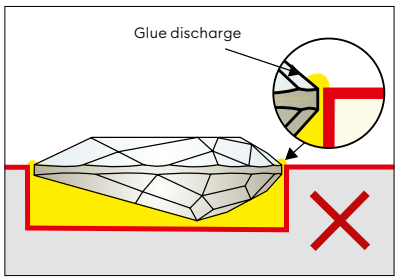
Too much glue

Fancy Stone





Too little glue



Too much glue

Application

Setting

Once the glue has been dispensed the Swarovski product can be positioned. Pick up the crystals, for example with a wax stick or tweezers, apply them to the gluing position, and press down gently.
For preparing **Chatons** for the positioning process, a **Chaton Sieve** can be helpful. Take the sieve according to the Chatons' sizes. Place some crystals onto the sieve. By slightly shaking the tool and wiping over it with glove-covered fingers, the majority of Chatons automatically turn into the suitable position for gluing (table pointing upwards).



Chaton Sieve

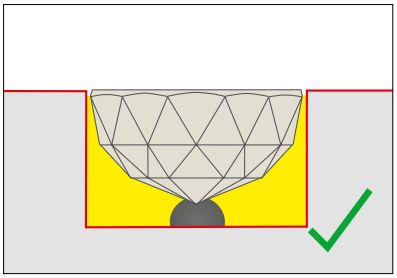
As a next step the Chatons can easily be picked up from the Chaton Sieve using a tool like the wax stick, tweezers, or a vacuum pick-up system.

The use of a silicone pick up tool is not recommended as this can impair the adhesion and the brilliance of the crystals.

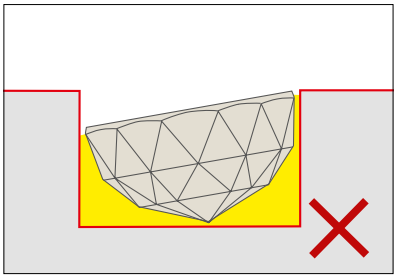
Apply the crystals to the gluing position and press down gently. When working with cavities with large gluing gaps, the following tools assist in ensuring the optimum positioning:



A cross (or a similar tool) prevents the crystal from tipping over. Press the crystal down flat on the material using the chosen tool.



To prevent the crystal from sinking or tipping during the hardening process, a small **plasticine ball** can be used to fix it in place.



Post-cleaning and curing

Post-cleaning

Excess glue that escapes during setting can be carefully removed using a cotton wipe that has been soaked in a solvent, e.g. isopropyl alcohol.

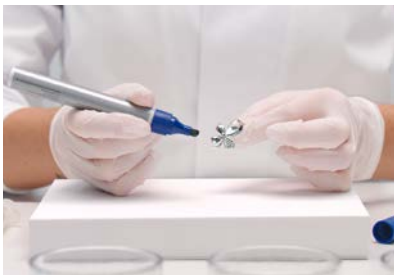
It must be removed **while the glue is hardening**, as dried glue cannot be fully removed. Remember to follow the glue manufacturer's instructions, as well as considering the resistance of the base material.

Curing

The curing time of the glue depends mainly on the **temperature**, or on the **humidity** in the case of silicone glues. Please note the glue manufacturer's instructions.

To minimize shrinking and tension during hardening, we recommend for standard two-component epoxy resin glues a **maximum curing temperature of 50 °C (122 °F)**, with the exception of CG 500 (A+B) and CG 610 (A+B). Both adhesives can be cured at a maximum temperature of **100 °C (212 °F)**, without any changes to its properties.

Overview of the simplified gluing process



1 Make sure that the surface on which you want to apply a crystal is suitable for gluing. Use the Test Pen (art. 9030/000) to check the material's surface tension.



2 The surface must be correctly pre-treated before gluing (e.g. cleaning, degreasing).



3 The glue should be applied with a dispenser.



4 Pick up the crystal, using e.g. a tweezer, a plasticine stick or a vacuum pick up system. Carefully place the crystal and press it down gently.

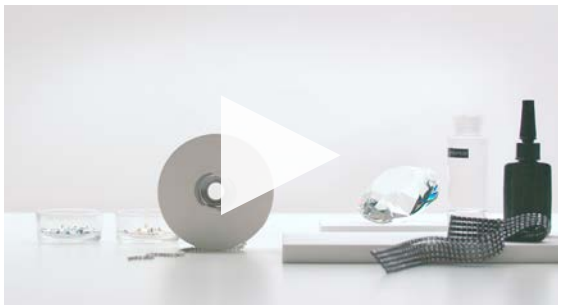


5 Remove excess glue with a cotton stick soaked in a solvent eg. Isopropyl alcohol. Let the glue cure according to the manufacturer's guidelines.

Application Instruction Movie

Gluing

Watch an example of an gluing process online at https://b2b.ecommerce.swarovski.com



Product-specific application instructions

Application Advice for Crystal Textures Foil Overlay

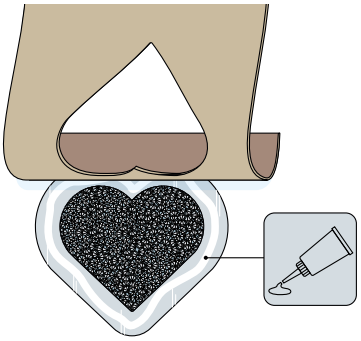
Crystal Textures Foil Overlay is a quick and easy way of applying products from the Crystal Textures assortment. In addition to Hotfix, the foil overlay has now made these products suitable for including in designs using the sewing or gluing technique.

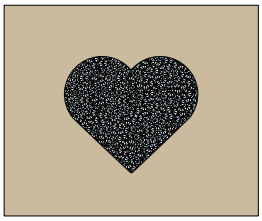
This makes these products the perfect solution for customers working with carrier materials that are not suitable for Hotfix application. Examples include materials that are pressure- or heat-sensitive, such as smooth leather or technical fabrics that do not absorb Hotfix glue.

Gluing technique

Using an additional gluing system, e.g., CG 500 or Araldite 2028, a Crystal Textures Foil Overlay motif can easily be included in designs.
The glue is applied to the reverse side of the motif or to the upper surface of the overlay foil. Solvent-based polyurethane adhesives can also be used, although we do not advise using a water-based polyurethane adhesive! Using a glue to add the Crystal Textures Foil Overlay to designs is recommended for industries that are not exclusively working with textiles. For instance, in the shoe industry, where mainly PU materials are processed, Crystal Textures Foil Overlay can be applied to the side of a midsole.
For all gluing methods, we strongly recommend carrying out tests in accordance with customers' needs and specifications.







Applying UV-transparent materials

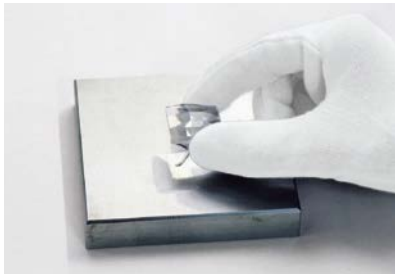
When using UV glue, **at least one part** of the materials must be translucent for **UV light**. On a metal surface for example, only crystals without foiling can be applied. Similarly, foiled crystals can only be glued to UV-transparent materials. Please note that some crystal and glass colors as well as UV-stabilized plastics absorb UV light and are thus unsuitable for UV glues.



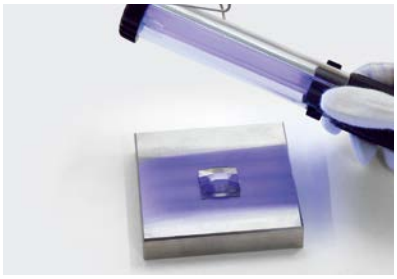
1 The surfaces to be glued must be properly pre-treated to achieve a sufficient surface tension. This can be tested via a Test Pen (art. 9030/000).



2 Dispense the UV glue.



3 Press down on the crystal, until the glue completely covers the gluing area.



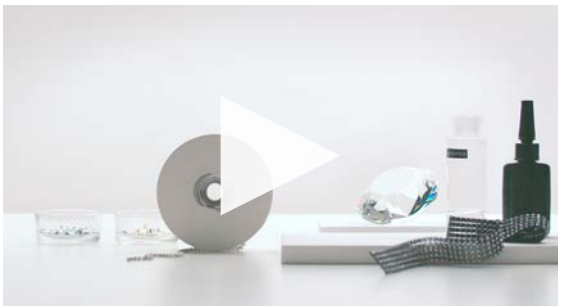
4 Cure the glue for a few seconds using a UV light (following the manufacturer's instructions), and remove any excess glue using a cleaning agent. The curing process can then be continued, according to the manufacturer's instructions.

Note: It is recommended that UV-protective eyewear is worn during curing, to prevent injury. Please follow the manufacturer's instructions.

Application Instruction Movie

UV gluing with pointed Chatons

Watch UV Gluing instruction movie online at https://b2b.ecommerce.swarovski.com



Applying Crystal Textures on solid surfaces (with additional gluing system)



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



2 Apply the correct amount of glue onto the carrier material.



3 Spread the glue equally on the material.



4 Position the motif in the desired location and press down firmly for a few minutes.



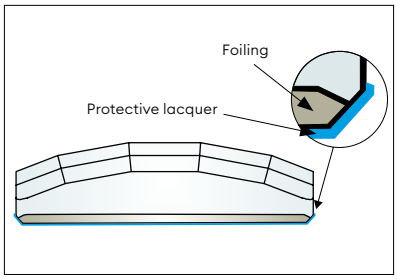
5 Glue that escapes during positioning can be carefully removed using a cotton wipe.



6 During curing it is suggested to put some weight on the motif.

Applying Flat Backs No Hotfix for mosaic tiles

Due to their dimensions (outer dimensions and height) and coating (protective lacquer), selected Flat Backs No Hotfix have been tailored specially for use in tiles and mosaics.

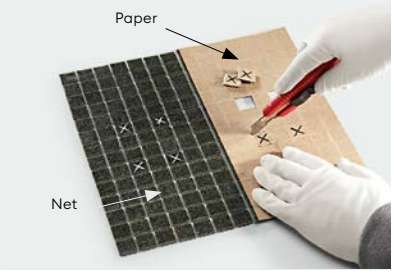


Protective lacquer is applied to the foiling of all crystals, and fully covers the reflective surface. Protective lacquer prevents moisture, cleaning agents, etc. from coming into direct contact with the reflective layer, which can lead to corrosion and damage the crystal.

Long-term, satisfactory solutions can only be achieved with **paper-glued** mosaic tiles and the use of recommended tile glues and joint sealers. When working with **net-glued** mosaics, their absorption and storage of moisture means the **support net** must be **completely removed** in the areas where the crystals are to be applied.
Find suppliers for tile glues and joint sealers on the supplier list on page 46. Solvent-resistant and alkaline tile glues and joint sealers are not recommended.

Unsuitable areas of application

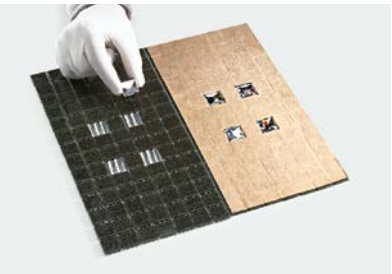
- In swimming baths and steam rooms
- In contact with chlorine and other aggressive cleaning agents
- In saunas, due to the high temperatures and moisture
- Outside



1 Cut out the marked tile area and remove it from the mosaic.



2 Apply the tile glue to the prepared base according to the manufacturer's instructions, then carefully position the mosaic tile and press down.



3 Place the individual crystals in the gaps and lightly press down.



4 Before curing, remove any excess glue with a damp sponge; follow the manufacturer's information regarding curing.



5 After curing, remove the paper support. Following this, the mosaic can be grouted with a soft rubber scraper.



6 Excess joint sealer can be removed with a wet sponge during curing.

Note: Please be aware that many tile glues and joint sealers can contain abrasive materials, which can lead to scratching of the crystals. To avoid damaging the crystals, these parts should be carefully cleaned with mild, pH-neutral cleaning agents and cleaning sponges.

Useful information

Applications on silver product

Without protection, silver product can turn yellow or black with time due to chemical reactions. To slow or stop these reactions the surface of silver items are often covered with a temporary (wax-based) or permanent protective coat (varnish-based). Tarnishing on the surface of the metal often results in a decline in the surface tension under the recommended 38 mN/m.

TARNISHING PREVENTION SYSTEMS

Temporary protection against tarnishing:	**Permanent protection against tarnishing:**
– Wax-based – Low surface tension	– Varnish-based – Surface tension depends on varnish
Recommendation: Protect the rest of the piece after gluing	**Recommendation:** Use a tarnishing protection system with sufficient surface tension

Protective film

A self-adhesive film can protect against dirt during the application process and aid in positioning.

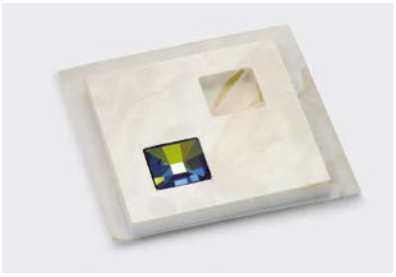
Blind hole



1 To protect the surface of the material used (e.g. metal, tiles, etc.) from dirt, a self-adhesive film can be applied.



2 It is then cut out along the previously produced cavities.



3 The crystal can now be glued into the cavity. Once any excess glue has been removed, the adhesive film can be removed following curing.

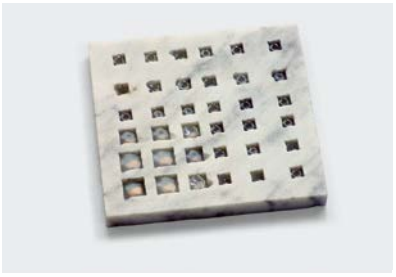
End-to-end cavities



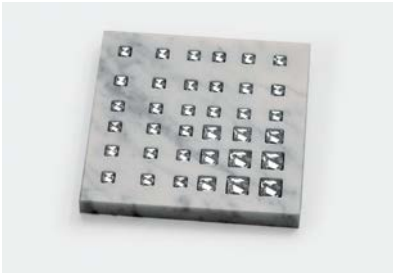
1 Apply a self-adhesive film to the front of the material.



2 Place the Flat Backs No Hotfix elements into the end-to-end cavity from the back.



3 Now fill the cavity with glue. The glue should cover the entire foiling of the crystal, so as to avoid corrosion. The self-adhesive film prevents the glue spreading onto the front.



4 Once the glue has cured, the film can be removed.

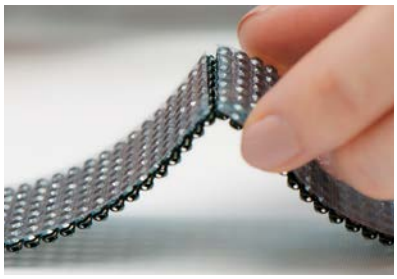
Note: Highly viscous glues are best suited for end-to-end cavities, as they do not spread through the cracks at the front.

Cutting and gluing Crystal Mesh

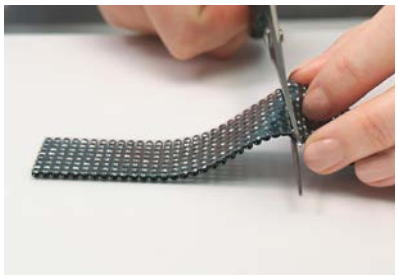
The transparent film should not be removed before gluing. The film allows the individual crystals to be aligned perfectly, and provides Crystal Mesh with the stability necessary for flawless application.



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

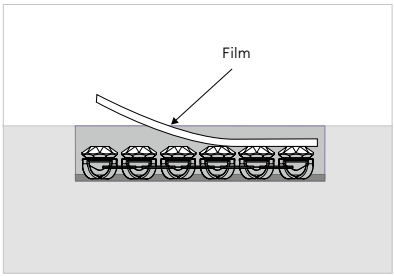


2 After cutting the film, there is some space between the rows which allows you further processing.



3 Cut the metal mesh with a scissor along the scored line, and remove the excess link rings. The Crystal Mesh is now ready for gluing.

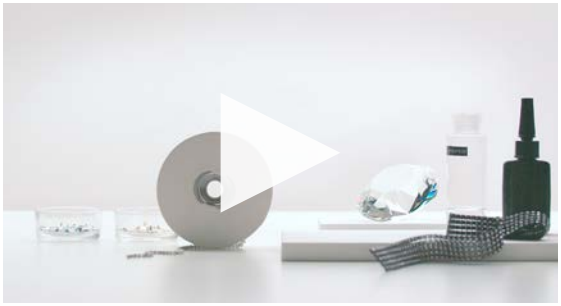
When gluing flexible Crystal Mesh products, do not remove the transparent film until the glue has cured to ensure the proper alignment of the mesh.



Application Instruction Movie

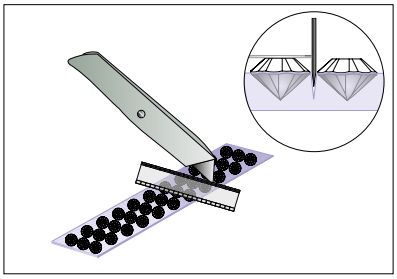
Cutting Crystal Mesh

Learn how to cut Crystal Mesh properly by watching our instruction movie online at https://b2b.ecommerce.swarovski.com

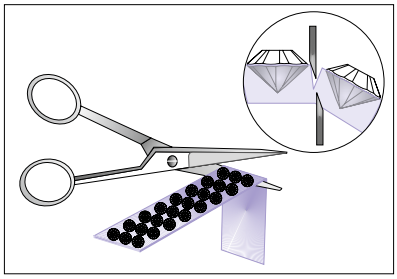


Cutting Crystaltex Chaton Bandings

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



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



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

Quick Assistance

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

PROBLEM	CAUSE
The crystal has become discolored:	
The crystal is matt or yellowed.	1, 2
The crystal seems black and dull compared to the surrounding crystals.	3
The crystal has been plated.	4
The crystal has detached from the cavity without the foiling:	
The crystal has become discolored.	5, 6
The crystal has detached with the mirror coating but without the platinum foiling or the glue.	7, 8, 9
The crystal has detached from the cavity with the foiling:	
Glue is attached to the crystal.	10, 11, 12, 13, 14
No glue is attached to the crystal anymore.	15, 16
Excess glue:	
Before hardening.	2
After hardening.	17

CAUSE		RECOMMENDATION
1	Glue residues have not been completely removed and have been smeared over the crystal.	Use a suitable dispenser to apply exactly the right amount of glue. Dispensers with a vacuum connection prevent the glue from dripping and reduce the amount of cleaning needed.
2	Too much glue was used.	Be sure to use the exact recommended dosage and to carefully remove any excess glue, e.g. using acetone or isopropyl alcohol.
3	The axis of the cavity was already off-center in the original model or the cavity was not drilled straight in the unfinished casting.	Use a special bit when drilling the original model. This offers more precise control of the direction and depth of the drilling.
4	The product was only plated after the crystals had been glued to it.	It is recommended to complete the plating before gluing the crystals.
5	A gluing gap that has not been completely filled is causing corrosion.	Make sure the exact dosage of glue is used.
6	Tensile stresses are reducing the adhesion of the mirror coating. Oxygen is penetrating between the stones and the mirroring and causing oxidization.	Use glue that is more elastic and that does not shrink as much.
7	An incorrect glue system was used.	Carry out tests with other glue systems.
8	Incorrect proportions of resin and hardener were used.	Follow the glue manufacturer’s mixing instructions.

	CAUSE	RECOMMENDATION
9	Cleaning agents have affected the glue and/or the protective coating.	Use less solvent or a different type of solvent.
10	Residues of polishing agent were not completely removed before plating.	Double check the type of cleaning process used.
11	A varnished piece of jewelry has not been correctly pre-treated before gluing.	Improve the adhesion of the glue, e.g. with low-pressure plasma treatment or flame treatment if necessary.
12	Too little glue was used.	Make sure the exact dosage of glue is used.
13	The cavity has the wrong shape after plating.	Re-work the original model to improve the cavity shape.
14	Electrolyte residues have not been completely removed.	Double check the type of cleaning process used.
15	The specified processing time was exceeded and as a result the glue has already hardened.	Reduce the processing time.
16	General glue problems.	Follow the manufacturer's instructions. Check the conditions under which the glue is stored. Excess solvent could have corroded the glue and/or the foiling.
17	The product piece was put under stress before the glue had hardened.	Make sure the glue has hardened, for example before transporting the jewelry.



4

Epoxy Clay Applications

For applications with epoxy clay, Swarovski advises the use of Ceralun from company AP Adesives. Therefore, the following content refers to the application and data of Ceralun.

80 Product Overview
81 Machines and Tools
83 Suppliers
84 Application
92 Useful Information
93 Quick Assistance

Product overview

The following products are suitable for application with Ceralun:

	CERALUN
Round Stones	✔
Fancy Stones	✔
Crystal Pearls	✔
Flat Backs No Hotfix	✔

Ceralun is a versatile and strong two-component, high-performance ceramic epoxy composite. This clay has been specifically developed and tailored to embed foiled and unfoiled crystals. It is an absolutely essential material for innovative design. Ceralun has a high level of hardness, rigidity, and shock absorbance. It is resistant to sweat, humidity, or climatic changes, and shows no aging.

Machines and tools

The following machines, tools and aids can be used for the various processes involved in the application of Swarovski products with Ceralun:



Test Pen (art. 9030/000)



Isopropyl alcohol/Acetone



Blow torch



Corona treater



Plasma cleaner



Precision balance



Plastic gloves



Protective eyewear



Ceralun (A + B)
Two-component ceramic epoxy composite (10 x 50 g)



Chaton Sieve



Vacuum pump with silicone hose (art. 9040/022), can be adapted to a pick-up system by attaching a dispensing tip (to be ordered separately).



Tweezers



Wax stick



Ceralun Release Agent
Contains high molecular liquid wax (100 ml)



Drying oven



Freezer

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
Test Pen	Swarovski: art. 9030/000	https://b2b.ecommerce.swarovski.com
Ceralun	AP Adhesives 5 x 20 g, Asia, Europe/America 100 g, Asia, Europe/America 10 x100 g, Asia, Europe/America 1 kg, Asia, Europe/America	www.ap-adhesives.com
Ceralun Release Agent	AP Adhesives	www.ap-adhesives.com
Vacuum pump with silicone hose, can be adapted to a pick-up system by attaching a dispensing tip	Swarovski: art. 9040/022	https://b2b.ecommerce.swarovski.com
Vacuum pick-up system	I & J Fisnar, Inc. Epoxy & Equipment Technology PTE., Ltd. Hottemp (M) Sdn. Bhd. PT. SKT International	www.fisnar.com www.eetdispensing.com www.hottemp.com.my www.sktisolution.com
Pick-up stick	Crystal Ninja, LLC	www.crystalkatana.com
Drying oven	Heraeus Holding GmbH VWR International, LLC	www.heraeus.com www.vwr.com
ELASTOSIL® M 4670 A/B RTV-2 (for preparation of the mold)	Wacker Chemie AG	www.wacker.com

Application

When working with Ceralun, optimal results are obtained by coordinating the entire application process. Following the application steps in the right order is very important. Experience has shown that the most common reasons for crystals becoming detached are inappropriate areas of application, the wrong mixing ratio of the two components, or not mixing them together long enough until a homogenous appearance is achieved.

Ceralun two-component ceramic epoxy composite

Ceralun was especially developed for the application of both foiled and unfoiled Swarovski crystals, for professional use within the jewelry segment and other industries such as accessories, interiors, and electronics.

Key features

- Specifically developed and tailored to embed foiled and unfoiled Swarovski crystals.
- High level of hardness, rigidity, and shock absorbance.
- Resistant to perspiration, humidity, or climatic changes and shows no aging.
- Allows new design possibilities.
- Perfect material to generate a large variety of surfaces and structures.
- Applicable on 3D-shaped surfaces.
- Alternative solution to gluing.

Technical data of Ceralun

Mixture ratio (A : B), by weight	1 : 1 (resin : hardener)
Pot life at room temperature (23 °C/73.4 °F)	max. 3 h
Complete curing time at room temperature (23 °C/73.4 °F)	72 h
Complete curing time in oven (40 °C/104 °F)	12 h
Complete curing time in oven (80 °C/176 °F)	2 h
Handling time at room temperature (23 °C/73.4 °F)	12 h
Humidity during curing	30 – 70%
Density	2.5 g/cm^3
Hardness (according to DIN 53505)	D82
Storage time at room temperature (23 °C/73.4 °F, 55% rel. hum.)	12 months
Lowest storage temperature	2 °C/35.6 °F

Checking surface tension and pre-treatment

Ceralun has optimal adhesive characteristics for applications on metal, glass, crystals, gluable plastic surfaces, rubber, wood, cork, and porcelain, unless the materials do not have the right surface tension.

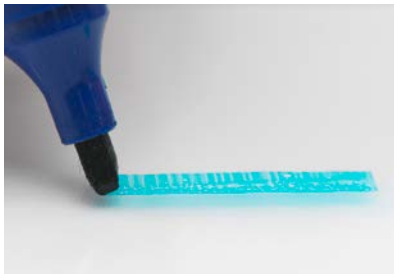
Checking the surface tension

The surface tension is an indicator for the wetting properties of the surface the Ceralun should be applied to.

A surface tension of at least 38 mN/m is recommended for working with Ceralun. It should also be randomly tested during production. It is best to use the Test Pen (art. 9030/000) to measure the surface tension.



1 Mark the surface.



2 If the ink remains visible for 2 seconds, the surface is suitable for working with Ceralun.



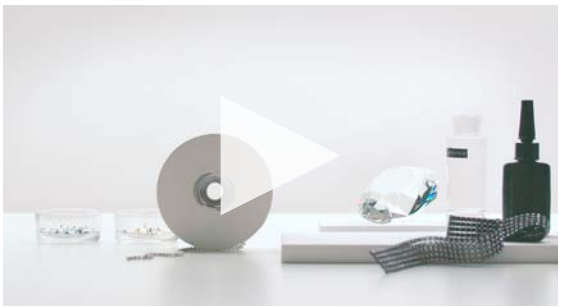
3 If the ink disappears or forms bubbles, the surface is not suitable for applying Ceralun. In this case, the pre-treatment cleaning methods should be checked.

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

Application Instruction Movie

Checking surface tension

Watch instruction movie on proper Test Pen usage online at https://b2b.ecommerce.swarovski.com



Pre-treatment

If the surface tension is below 38 mN/m, the following pre-treatment cleaning methods, applied in the correct order, can be effective in reaching the right level.

TYPES OF CLEANING	PRE-TREATMENT CLEANING METHODS
1 Mechanical cleaning This involves sanding, blasting, or brushing but is not usually necessary for jewelry.	– Removal of dirt, residues of varnish, rust and/or scale – Roughening the surface
2 Washing and degreasing Here it is important to ascertain that the tensides contain no silicone, as this would impair adhesion. When using solvents it is advisable to test the durability of the surface to be cleaned beforehand to avoid any damage. **Solvents containing substances with a high boiling point should not be used** due to the high risk of residue. If using cleaning agents, wait a few minutes to allow them to evaporate.	– Cleaning with tenside solutions, rinsing with de-ionized water – Cleaning with isopropyl alcohol/ethanol – Cleaning with acetone (MEK/ethyl acetate) – Cleaning with a cleaning solvent: should not contain high boiling point substances (risk of residue)
3 Physical cleaning and activation These cleaning methods can be applied if mechanical cleaning or washing and degreasing are either not possible or have not resulted in a surface tension of >38 mN/m. Therefore the pre-treatment cleaning method used should be done on a case-by-case basis.	– **Flame treatment with a blow torch** The surface to be treated is exposed to the flame of a torch very briefly. When using special gas mixtures, surface silication can also be carried out, so as to apply a more adhesive coating. – **Corona treatment** An electric corona discharge is briefly applied to the surface. – **Plasma treatment** Plasma treatment offers precise cleaning and activates the surface via an ionized gas.
4 Chemical cleaning and primers Applying a primer improves adhesion and helps to prevent corrosion.	– Applying small amounts of solvent and activating the surface. – Applying a primer.

Dosage, mixture and setting

Please pay high attention to not deviate from the recommended mixing ratio of 1:1 of the components (resin and hardener) and to mix the two components until a homogenous appearance is achieved.

Mixing Ceralun two-component ceramic epoxy composite



1 Cut off resin and hardener with a knife.



2 Weight the two components using an electric scale. The mixing ratio for Ceralun is 1:1 by weight.



3 Both components come in a different shade of color so that it can easily be recognized if they are already properly mixed together.



4 Mix resin and hardener until a homogenous appearance is achieved.

Application Instruction Movie

Ceralun

Watch instruction movie online at https://b2b.ecommerce.swarovski.com



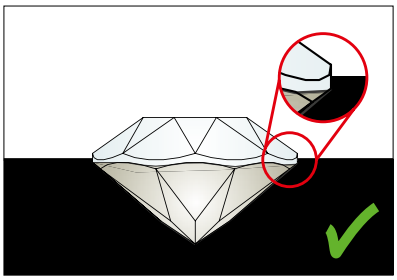
Proper setting of crystals

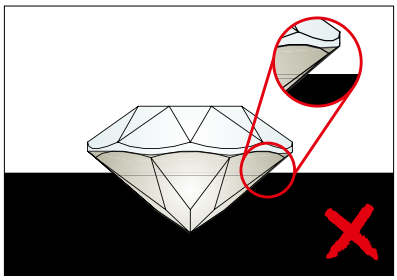
After mixing the two components together, the crystals can be set. To prepare Chatons for the positioning process, a **Chaton Sieve** can be helpful. Take a sieve according to the Chatons' size. Place some Chatons onto the sieve. By slightly shaking the tool and wiping over the crystals with glove-covered fingers, the majority of Chatons automatically get turned into the suitable position for gluing (table pointing upwards).
As a next step the Chatons can easily be picked up from the sieve using a tool like the wax stick, tweezers, or a vacuum pick-up system. The use of a silicone wax stick is not recommended as this can impair the adhesion and the brilliance of the crystals. Apply the Chatons to the desired position and press down gently.
We recommend a maximum working time of three hours at a temperature of 23 °C/73.4 °F to set the Swarovski products. It is not possible to set crystals at room temperature after a period of three hours because the required level of adhesion can no longer be achieved.

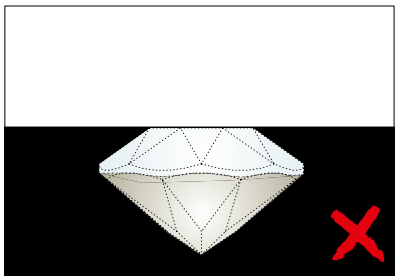


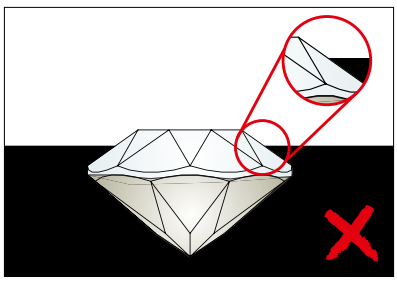
Using a Chaton Sieve can facilitate the setting of Chatons

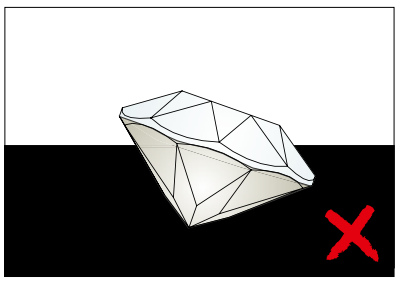
Please take care that the pavilion of the crystal is surrounded by Ceralun right up to the level of the stone's girdle. It is not necessary to leave any particular space between the crystals when setting them.











Processing methods

Different processing methods

Ceralun is the perfect material for generating a variety of surfaces and structures. Possible ways of processing are the **free forming method,** the **stamping technique** and the **3D silicone molds**.

Free forming



1 Place and press the clay onto the relevant area. Be careful not to trap air between Ceralun and the base material.



2 Mold the surface into the required shape.



3 Smooth the surface of the Ceralun with the Release Agent



4 Pick up the crystal with a vacuum pick-up system - or with a pair of tweezers or a wax stick. Carefully place the crystal and press it down gently.

Generating shiny surfaces with the free forming method

When a piece of jewelry is created where parts of Ceralun are visible, a smooth and shiny clay surface might be desired. In order to create a shiny surface, gently wipe and polish the clay with your silicone glove-covered finger using the recommended Release Agent or some water drops. The Ceralun surface can be polished up to 2 hours after the crystals have been set.

Stamping technique

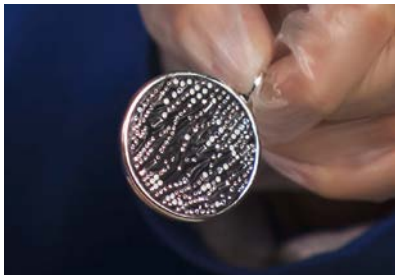
The stamping technique is suitable to produce structured surfaces.



1 Pre-treat the pattern cautiously with the Release Agent.



2 Gently press the pattern onto the surface.



3 After removing the pattern from the clay, the crystals can be set.

Generating shiny surfaces with the stamping technique

If a larger surface of shiny Ceralun is needed, the following tools are required: transfer foil, a pasta machine or rolling pin, and a freezer. Knead the clay and put it between two layers of foil. Smoothen it with the help of a pasta machine or with a rolling pin. Using the pasta machine is the recommended option, as a consistent height of the Ceralun is achieved easier than with the rolling pin. When the clay inside the foil is as flat as desired, put it into the freezer for approx. 15 minutes. The cold reduces the bonding between Ceralun and foil, so that the foil can easily be detached from the flat and shiny clay.

3D silicone molds

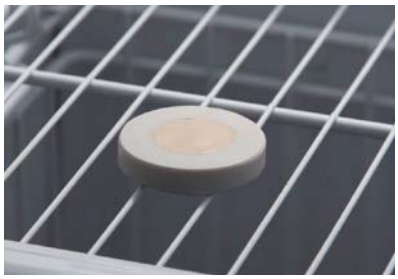
The work and cost saving method of using 3D silicone molds is recommended for larger production units. A 3D silicone mold is produced based on a master model. This can be re-used for several times.



1 First press the Ceralun into the 3D silicone mold to form the required shape.



2 Any overlapping material can be trimmed off with a knife.



3 In order to make it easier for you to remove the Ceralun from the mold, it should first be stored in the freezer.
The length of time the filled mold should remain in the freezer depends on the thickness and amount of the Ceralun used.



4 After taking the mold out of the freezer, the Ceralun can be removed from it and gently pressed into place on the chosen object.



5 Please be sure to remove any condensed water.



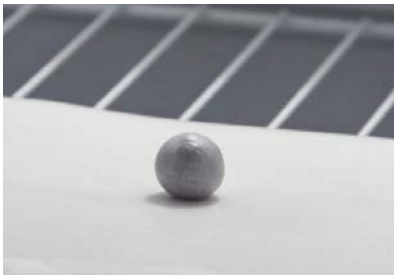
6 Once the Ceralun reaches a lukewarm temperature, you can proceed with setting the crystals.

Curing

The hardening time and final adhesion strength of Ceralun are dependent on the temperature. The total hardening time at room temperature of 23 °C (73.4 °F) takes 72 hours. This can be accelerated using heat of max. 80 °C (176 °F).

Useful information

Extension of pot life



1 Store already mixed Ceralun in a freezer to extend the pot life. Ceralun can be stored in a freezer for up to 24 hours at a temperature of around – 20 °C (– 4 °F).



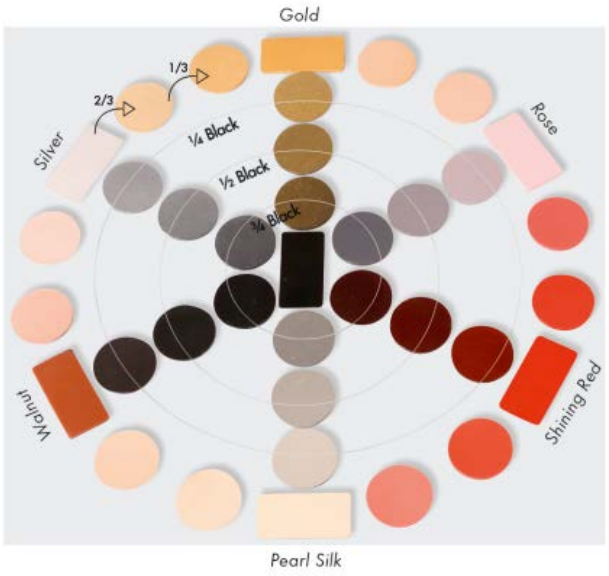
2 This makes it possible to interrupt the setting process and continue again later without losing the adhesion force.



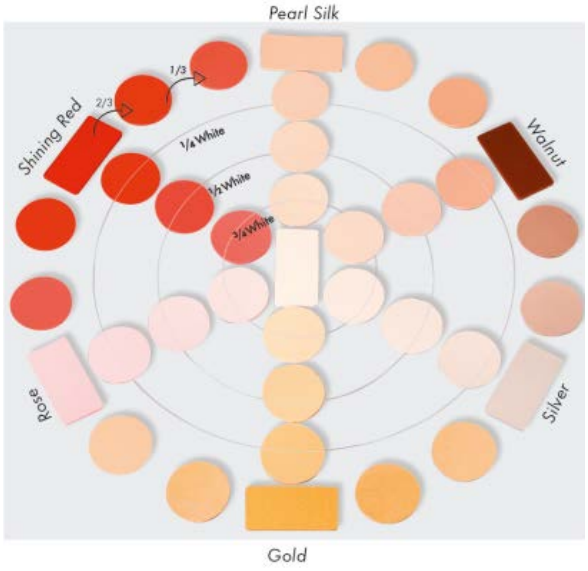
3 It is necessary to gently remove any condensed water that occurs during the defrosting process.

Mixing Different Colors of Ceralun

You can mix different colors together as you wish. Please consider that you have to separately mix the epoxy resin and hardener of each color before you mix them together. Below you find some examples of mixed colors and the corresponding mixing ratio.



Based on Black



Based on White

Quick assistance

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

PROBLEM	CAUSE
Ceralun does not cure.	1, 2, 6
Ceralun is not bonding with the base material.	1, 2, 3, 6
Crystals fall off.	1, 2, 4, 5, 6
Ceralun cannot be removed from the silicone mold.	7, 8
Using the stamping technique, Ceralun cannot be removed from the surface pattern.	7
Ceralun appears foggy/cloudy after curing.	5, 6, 7

CAUSE		RECOMMENDATION
1	An error has occurred during the calculation of the right mixing ratio between the two components (resin/hardener).	Do not deviate from the recommended mixing ratio of the components (resin/hardener), 1 : 1.
2	Resin and hardener have not been mixed until a homogenous appearance was achieved.	Be sure to use the exact recommended dosage and mix both components until a homogenous mixture is achieved.
3	The base material is not suitable for using Ceralun or it has been incorrectly pre-cleaned.	Check the surface tension. If the surface tension is below 38 mN/m, carry out pre-treatment cleaning methods.
4	The specified processing time was exceeded and as a result Ceralun has already hardened.	Reduce the processing time to a maximum of two hours at a temperature of 23 °C (73.4 °F).
5	If stored in the freezer, condensed water can occur during the defrosting process.	Take care to gently remove any condensed water that occurs during the defrosting process.
6	Ceralun has been stored for too much time in the freezer.	Make sure not to exceed the recommended time of 24 hours when Ceralun is stored in a freezer at a temperature of around – 20 °C (– 4 °F).
7	No or not enough Release Agent has been used.	The Release Agent is a useful tool to be able to remove Ceralun from any surface. Carefully dose the used amount of Release Agent.
8	Ceralun has not been stored in a freezer or has been stored for too little time.	Storing Ceralun in a freezer makes it easier for you to remove it from the mold.



5

Self-adhesive Elements

Self-adhesive Elements are eye-catching and innovative products that come ready-to-apply. Their glue-covered reverse side allows easy and fast application. When applied on paper and solid surfaces, they can create fantastic designs. Coldfix is a perfect alternative for leather and textiles which are not suitable for Hotfix application.

96 Product Overview and field of usage
98 Machines and Tools
99 Suppliers
100 Application
112 Quick Assistance

Product overview and field of usage

The following products are suitable for listed carrier materials:

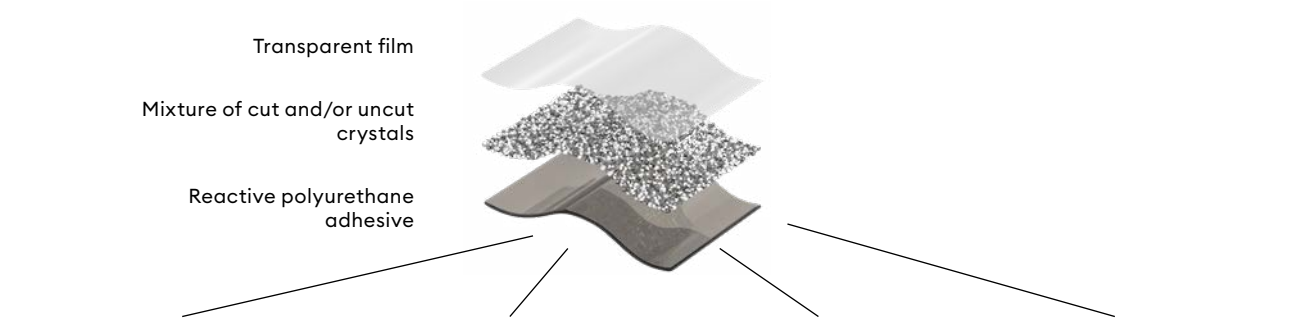
	APPLICATION ON SOLID MATERIALS*	APPLICATION ON TEXTILE MATERIALS AND LEATHER**
Crystal-it Infinity	✔	
Crystal Textures IT	✔	
Crystal Textures Coldfix		✔
Crysal Textures Removable	✔	

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

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

Self-adhesive Elements have a coating of a pressure-sensitive glue on the back, enabling swift, simple application. This glue is activated by pressure (applied either by hand, rubber roller or heat press), and bonds with the carrier material. Crystal-it Infinity Crystal Textures-it and Crystal Textures Removable foil motifs are suitable for the application on solid materials, while Coldfix is suitable for application on textile materials and leather which are not suitable for Hotfix application.

As Crystal Textures are available as Hotfix, IT, Coldfix and Removable version, please find here for a detailed overview the different material composition and proper fields of application for each product group. In general, all 4 versions are build-up very similar. The main difference will be in the adhesive used at the reverse side of the product.



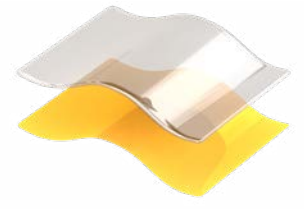
Hotfix film
(thermoplastic polyurethane)



White protective film

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

Coldfix film
(pressure sensitive adhesive)



Yellow protective film

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

IT film
(pressure sensitive adhesive)



White protective film

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

Removable foil
(pressure sensitive adhesive)



White protective film

- Solid materials which are suitable for gluing (surface tension of at least 38mN/m)
- Humidity and low temperatures (below 10°C) reduce adhesion force significantly.
- Can be reapplied up to 10 times without substantial adhesion reduction.

Please keep in mind: Coldfix is not a replacement for our Hotfix products – it is a new alternative for difficult carrier materials that are incompatible with Hotfix products.
If Hotfix is applicable, we recommend using Hotfix technique as the achievable bonding strength is higher than applying a Coldfix product.

Machines and tools

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

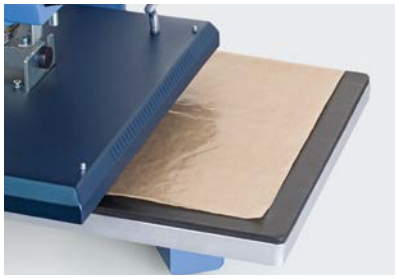
Especially for Coldfix application onto textiles and leather:



Rubber roller



Heat press



Teflon® foil (art. 9010/003)

Especially for IT- application onto solid materials:



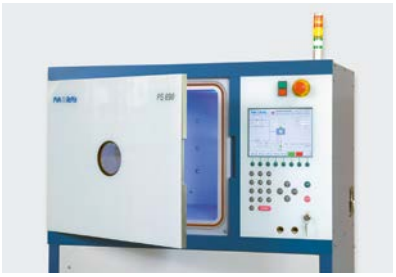
Test Pen (art. 9030/000)



Blow torch



Isopropyl alcohol/Acetone



Plasma cleaner



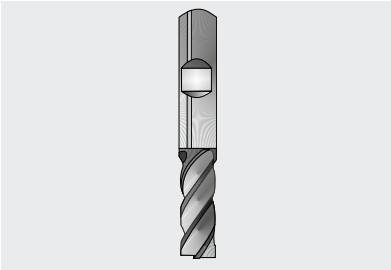
Corona treater



Plastic Gloves



CNC milling machine



Milling cutter



Protective eyewear

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
NC drill/milling cutter	Dixi Holding SA Hahn & Kolb GmbH Hoffmann GmbH Reich Präzisionswerkzeuge Wedco	www.dixi.ch www.hahn-kolb.de www.hoffmann-group.com www.reich.at www.wedco.at
Test Pen	Swarovski: art. 9030/000	https://b2b.ecommerce.swarovski.com
Heat press	Bestblanks Elna Press Hix Corporation Zhejiang Huangyan Garment Machinery Factory Nagel & Hermann OSHIMAKK Co., Ltd. Pro World RPL Supplies, Inc. STAHLS' Europe GmbH Teva	www.bestblanks.com www.elnapress.com www.hixcorp.com www.ji-feng.com www.strass.cc www.oshima.com.tw www.proworldinc.com www.rplsupplies.com www.stahls.de www.teva-organisation.com
Double heat press	Teva Wagner GmbH	www.teva-organisation.com www.beflockungsmaschinen.de
Teflon® foil (100 x 50 cm, 40 x 20 in)	Swarovski: art. 9010/003	https://b2b.ecommerce.swarovski.com
Rubber roller	AJC Tools & Equipment Co. Schäfer Shop	www.ajctools.com www.schaefer-shop.at

Application

When applying Swarovski Self-adhesive Elements, optimal results are obtained by coordinating the entire application process. Follow the application steps in the right order is very important. Experience has shown that the most common reasons for Crystal-it Infinity, Crystal Textures-it, Crystal Textures Coldfix and Crystal Textures Removable products becoming detached are inappropriate areas of application, not suitable carrier materials, and wrong application process (e.g. wrong angle when removing film, too less pressure during application). Before beginning the application process, you should always check whether the carrier material is suitable for application of Self-adhesive Elements.

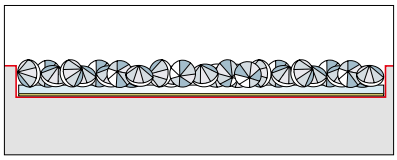
Cavity production

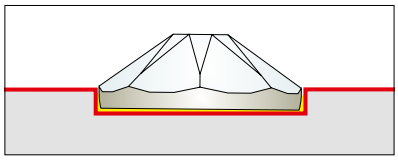
In order to be able to position Crystal-it Infinity, Crystal Textures-it and Crystal Textures Removable products more easily and to better protect them from mechanical and chemical influences, it is advisable to prepare a cavity for this purpose.

Production methods

- **Milling** is when materials are machined using a milling machine and milling cutter. Milling machines can be fitted with appropriate tools depending on the materials, e.g. for working with metal and plastic, wood, or natural stone. Modern CNC machining centers offer the greatest precision and can be used to produce **cavities of every shape** necessary. Please note that when machining natural stone, ceramic, or glass, for example, special diamond-tipped tools must be used.

SWAROVSKI PRODUCTS	PRODUCTION METHOD	CAVITY TYPE
Crystal-it Infinity Crystal Textures-it Crystal Textures Removable	Milling Casting	**Indentation**





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

Production tolerances for cavities

Note: When producing cavities, the dimensions should consider the tolerance of the product and the production tolerance. The tolerances of the product can be requested from your Swarovski representative.

Checking surface tension and pre-treatment

Before beginning the application process, you should always check whether the carrier material is suitable for application of Self-adhesive Elements.
There are different material checks necessary, depending if you want to apply a **Crystal-it Infinity**, **Crystal Textures-it** or **Crystal Textures Removable** on a solid material or a **Coldifx product onto a textile or leather carrier material.**
Nevertheless, please note that there are certain types of plastics used for **solid materials, textile and leather treatments** that are difficult for any gluing connection.
The following table contains a selection of materials that can cause problems for any glue application:

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

To increase the bonding strength of a Coldfix product onto leather surfaces, experience shows that in some cases it could be helpful to clean the carrier material with isopropyl alcohol before applying the Coldfix product. We strongly recommend carrying out test to check if the carrier material does not get effected/damaged due to the alcohol.

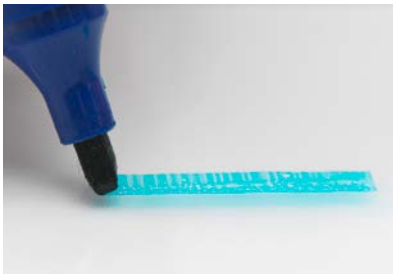
Material check and pretreatment for solid materials when using Crystal-it Infinity, Crystal Textures-it or Crystal Textures Removable Foil products

Checking the surface tension

The surface tension is an indicator for the wetting properties of the surface to be glued. A surface tension of **at least 38 mN/m** is recommended for gluing Swarovski crystals. It should also be randomly tested during production. It is best to use the Test Pen (art. 9030/000) to measure the surface tension.



1 Before gluing, mark the surface.



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



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

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

Application Instruction Movie

Checking surface tension

Watch instruction movie on proper Test Pen usage online at https://b2b.ecommerce.swarovski.com



Pre-treatment

If the surface tension is below 38 mN/m, the following pre-treatment cleaning methods, applied in the correct order, can be effective in reaching the right level. After each cleaning process, the surface tension has to be checked again.

TYPES OF CLEANING	PRE-TREATMENT CLEANING METHODS
1 Mechanical cleaning This involves sanding, blasting, or brushing but is usually not necessary for jewelry.	– Removal of dirt, rust, scale, and residues of varnish – Roughening the surface
2 Washing and degreasing It is important to ascertain that the tensides do not contain silicone, as this would impair adhesion. When using solvents it is advisable to test the durability of the surface to be cleaned beforehand to avoid any damage. **Solvents containing substances with a high boiling point should not be used** due to the risk of residue. If using cleaning solvents, wait a few minutes to allow them to evaporate.	– Cleaning with tenside solutions, rinsing with de-ionized water – Cleaning with isopropyl alcohol/ethanol – Cleaning with acetone (MEK/ethyl acetate) – Cleaning with a cleaning solvent: should not contain high boiling point substances (risk of residue)
3 Physical cleaning and activation These cleaning methods can be applied if mechanical cleaning or washing and degreasing are either not possible or have not resulted in a surface tension of >38 mN/m. Therefore the pre-treatment cleaning method used should be done on a case-by-case basis.	– **Flame treatment via a blow torch** The surface to be treated is exposed to the flame of a torch very briefly. When using special gas mixtures, surface silication can also be carried out, so as to apply a more adhesive coating. – **Corona treatment** An electric corona discharge is briefly applied to the surface. – **Plasma treatment** Plasma treatment offers precise cleaning and activates the surface via an ionized gas.
4 Chemical cleaning and primers Applying a primer improves adhesion and helps to prevent corrosion.	– Applying small amounts of solvent and activating the surface. – Applying a primer.

Material check for textiles and leather when using coldfix

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

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

Coldfix was developed for application on leather and textiles, which are not suitable for the Hotfix application process. To increase a Coldfix product's bonding strength on leather surfaces, experience shows that in some cases it could be helpful to clean the carrier material with isopropyl alcohol before applying the Coldfix product. We strongly recommend carrying out tests to check that the carrier material is not affected or damaged by the alcohol.

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

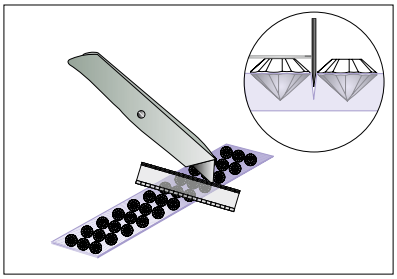
Preparation

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

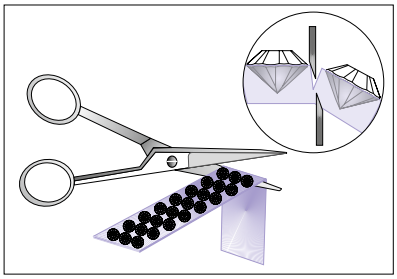
Preparation when applying Crystal Textures-it

Cutting Crystaltex Chaton Bandings

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



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



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

Preparation when applying coldfix motifs

Coldfix motifs are delivered on a sheet. Depending on the sizes and the shape of the motif, the quantity of motifs on a sheet can vary. Before separating the single motifs, its recommended to press the motifs using your hand or a rubber roller onto the transparent foil. Use a scissor to cut between the motifs.
Now the motifs are ready for further processing and application.

Application

Applying Crystal-It Infinity

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



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



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



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



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

Note: the minimum application temperature is 18 °C (64 °F) until the bonding strength for final use is reached. We recommend 72 hours. During this time, mechanical stress should be avoided.

If you face difficulties of the primal adherance on your desired surface, we recommend to use a heating plate with a bit of temperature (approx. 90° C for 60 seconds) to warm up the motif.

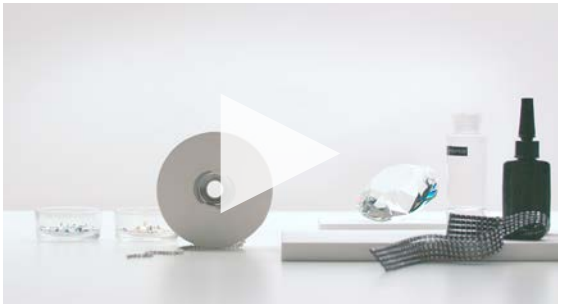
That will improve the adherance and simplify the application.

In case of issues when removing the transparent foil, be patient and take a little break before removing the foil. In example: If you are applying several motifs, apply them all, wait a few minutes and gently remove the foils.

Application Instruction Movie

Crystal-it Infinity

Watch instruction movie on how to apply Crystal-it Infinity online at b2b.ecommerce.swarovski.com



Applying Crystal Textures-it and Removable foil products

Crystal Textures-it products can be applied either wet or dry, whereas for the application of Crystal Textures Removable foil only dry application should be carried out.

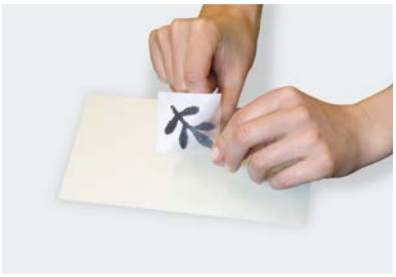
Dry application



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



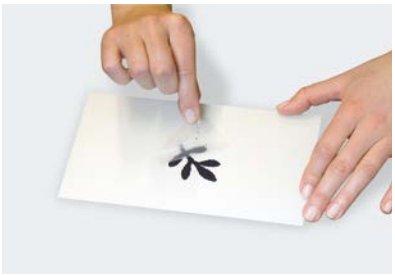
2 Press the motif onto the transparent film.



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

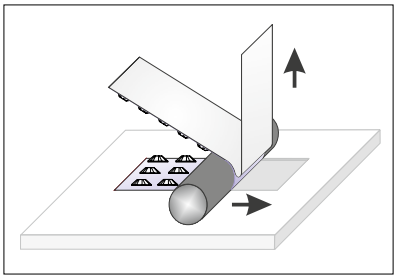


4 Position the motif in the location desired and press down firmly for around 10 seconds.



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

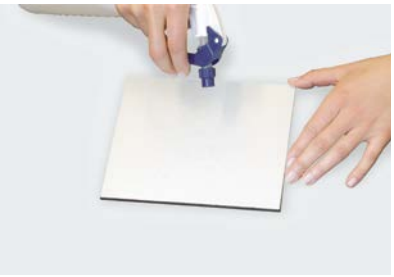
Note: Prevent the self-adhesive back from sticking together, as separating it can cause damage. The minimum application temperature for Crystal Textures-it is 18°C (64°F), with the glue fully hardening after 72 hours. The minimum application temperature for Crystal Textures Removable Foil is 10°C (50°F).



When applying Crystal Textures-it and Crystal Textures Removeable Foil remove the white protective film during application in the pre-produced cavity.

Wet application of Crystal Textures-it

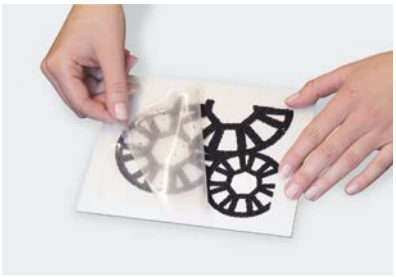
For larger motifs and those that must be positioned accurately on surfaces, a wet application is recommended. It is essential, however, that the base does not absorb the soap water that is used here.



1 Moisten the cleaned surface with soap water.



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



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



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

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

Applying Coldfix

There are two ways of applying Coldfix products depending on material and application field.
Cold application (room temperature) – Coldfix product is placed on a suitable carrier material and pressed down using a rubber roller. Final adhesive strength is reached after 72 hours.
Application using a heat press (90 °C/195 °F) – Coldfix is applied from the reverse side using a heat press. Final adhesive strength is reached after 12 hours.

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

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

CARRIER MATERIAL DESCRIPTION	ACHIEVABLE PEEL ADHESION*	
	Cold application (room temperature) Final adhesive strength reached after 72h	**Application using a heat press (90 °C/195 °F) Final adhesive strength reached after 12h**
Tamurakoma N2012 col23 40g/m²	3–4 N/cm	3–4 N/cm
Gabardine TC black 210g/m², 65% polyester, 35% cotton	3–4 N/cm	6–7 N/cm
Lycra GGAQ black 120g/m², 73% polyamide, 27% elastane	8–9 N/cm	9–10 N/cm
Alcantara® regular 5015 black 230 g/m², 68% polyester, 32% polyurethane	3–4 N/cm	8–9 N/cm
Grain leather, black	5–6 N/cm	6–7 N/cm
Artificial leather black, 100% polyurethane, 315 g/m²	4–5 N/cm	4–5 N/cm

* Tested following DIN 1939

Please note that achievable peel adhesion and bonding performance depend entirely on the characteristics of the carrier material used; it should be remembered that a gluing connection is only as good as the carrier material surface allows. Any oral, written, or test-based advice that Swarovski provides regarding techniques for the application of its products are recommendations based on Swarovski's current knowledge and the information provided by its suppliers. **Such advice does not discharge customers from carrying out their own tests on techniques they propose to use, and the suitability of these techniques for the intended application.** The application, use and processing of these techniques and products are solely the user's responsibility.

Cold application (room temperature 23 °C/73.4 °F)



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



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



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



4 Carefully remove the transparent film at an acute angle.



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

Note: Final adhesive strength is reached after 72 hours.

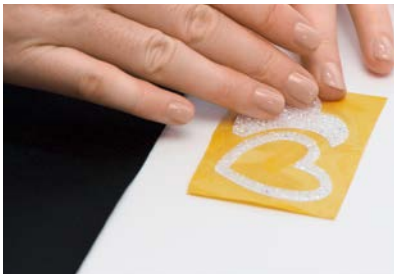
Application Instruction Movie

Cold application

Watch instruction movie on how to apply Coldfix at room temperature online at https://b2b.ecommerce.swarovski.com



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



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



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



3 Position the motif in the location desired.



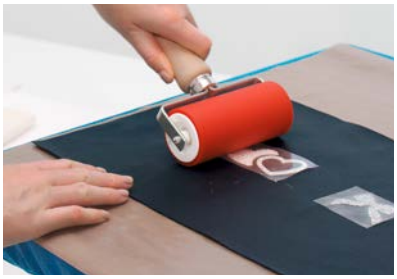
4 Place the carrier material with the motif facing down in a heat press.



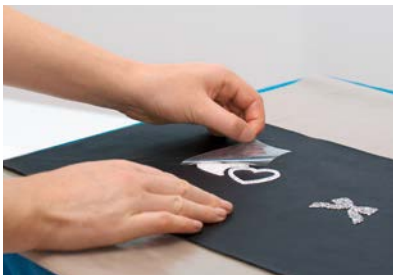
5 Use a Teflon® foil to protect the heat press.*



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



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



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

Note: Final adhesive strength is reached after 12 hours

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

Application Instruction Movie

Coldfix: application using a heat press

Watch instruction movie on how to apply Coldfix using a heat press online at https://b2b.ecommerce.swarovski.com



Additional application advice

It is possible to move or use the final product carefully right after the application, as long as it is not exposed to any mechanical or chemical stress until the final adhesive strength is achieved. The time until the final adhesive strength is achieved varies depending on the application method (72 or 12 hours). Please note that any washing or quality assurance should take place after this period.

Quick Assistance

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

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

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



6

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.

116 Product Overview
116 Machines and Tools
118 Suppliers
119 Application
130 Useful Information
135 Quick Assistance
136 Swarovski Hotfix Selector

Product overview

The following products are suitable for Hotfix application:

	HOTFIX APPLICATION
Flat Backs Hotfix	✔
Crystal Transfers	✔
Crystal Textures Hotfix	✔
Crystal Mesh	✔

Machines and tools

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



Heat press



Double heat press



Continuous fusing press



Ultrasonic device



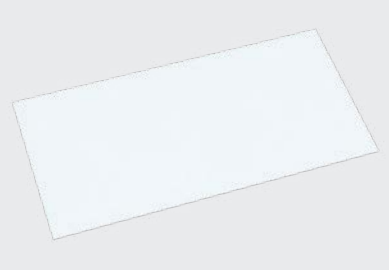
Stone setting machine



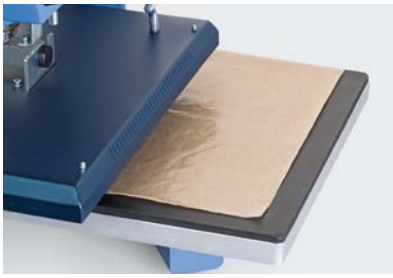
Iron



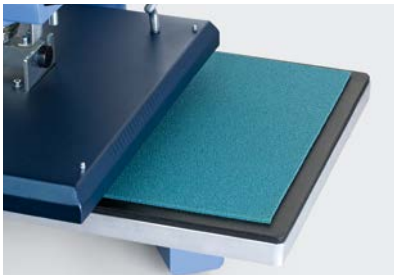
Applicator



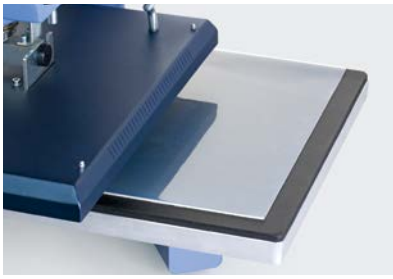
Silicone board (tool for designing Transfers (art. 9010/006))



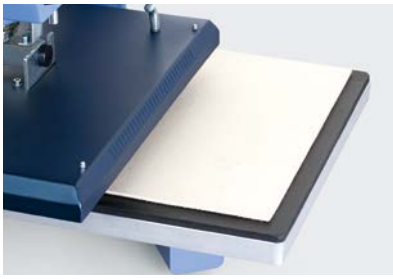
Teflon® foil (art. 9010/003)



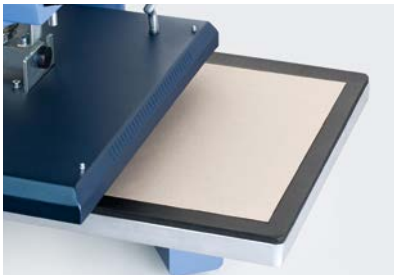
Silicone ironing pad (foam) (art. 9010/002)



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.

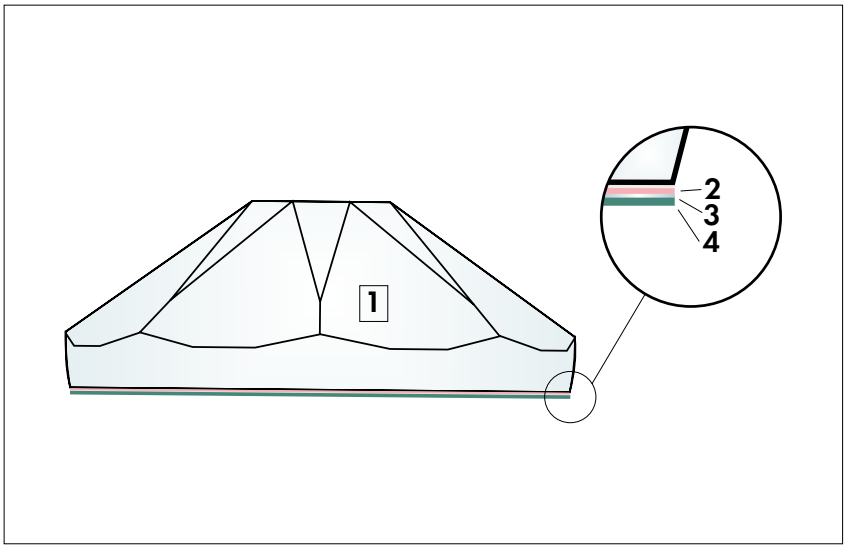
MACHINES & TOOLS	SUPPLIER	CONTACT
Heat press	Bestblanks Elna International Corp. AG Hix Corporation Zhejiang Huangyan Garment Machinery Factory Jesse J. Heap & Son, Inc. Nagel & Hermann OSHIMAKK Co., Ltd. Pro World ColDesi, Inc RPL Supplies, Inc. STAHLS' Europe GmbH Transmatic Thermopress Europe	www.bestblanks.com www.elna.com www.hixcorp.com www.ji-feng.com www.jesseheap.com www.strass.cc www.oshima.com.tw www.proworldinc.com www.rhinestonecamsmachines.com www.rplsupplies.com www.stahls.de www.transmaticsrl.com www.thermopress.com
Double heat press	Transmatic Wagner GmbH	www.transmaticsrl.com www.beflockungsmaschinen.de
Continuous fusing press	Maschinenfabrik Herbert Meyer GmbH	www.meyer-machines.com
Ultrasonic device	Ever Green Ultrasonic Co., Ltd. Zhejiang Huangyan Garment Machinery Factory Jesse J. Heap & Son, Inc. Perfecta Schmid Triopan AG ColDesi, Inc Transmatic	www.evergreen-taiwan.com www.ji-feng.com www.jesseheap.com www.perfecta.ch www.rhinestonecamsmachines.com www.transmaticsrl.com
Stone setting machine	Nagel & Hermann	www.strass.cc
Applicator	Donwei Machinery Industry Co., Ltd. Dreamtime Creations Hobbyring	www.donwei.com.tw www.dreamtimecreations.com www.hobbyring.de
Silicone board (tool for designing Transfers) (50 x 25 x 0.1 cm, 20 x 10 x 0.05 in)	Swarovski: art. 9010/006	https://b2b.ecommerce.swarovski.com
Teflon® foil (100 x 50 cm, 40 x 20 in)	Swarovski: art. 9010/003	https://b2b.ecommerce.swarovski.com
Silicone ironing pad (foam) (134 x 100 cm, 54 x 40 in)	Swarovski: art. 9010/002	https://b2b.ecommerce.swarovski.com
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	https://b2b.ecommerce.swarovski.com
Temperature measuring strips (40 pcs.)	Swarovski: art. 9010/007	https://b2b.ecommerce.swarovski.com
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 **Silver foiling (A):** silver mirror finish (only for XIRIUS and XILION Hotfix articles) or **aluminum foiling (M):** aluminum mirror finish
3 **Primer:** Silver foiling (A): Transparent primer improves the bonding between the hot-melt adhesive and the A-foiling. Aluminium foiling (M): Grey primer improves the bonding between the hot-melt adhesive and the M-foiling.
4 **Hot-melt adhesive:** This transparent adhesive, developed by Swarovski, allows the application of the crystals on a variety of different materials

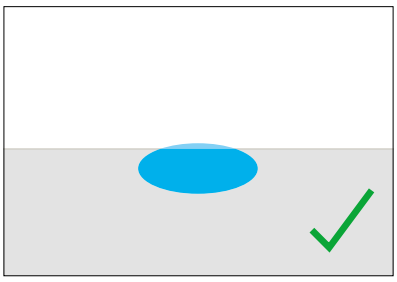
Material Check

Before beginning the application process, you should always check whether the carrier material is suitable for Hotfix application.
Please check the following criteria:

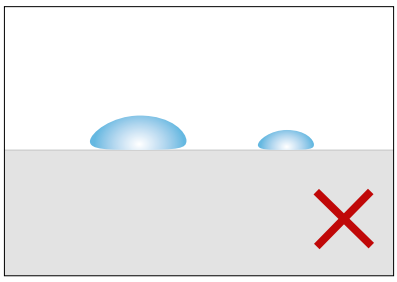
- Heat resistance (min. 120 °C/250 °F)
- Resistance against pressure
- Application area of the product
- Suitability of surface properties and absorbency

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

Note: 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.

Preparation

Generally, the following parameters are most important when carrying out Hotfix applications of Swarovski products, depending on the consistency of the base material:

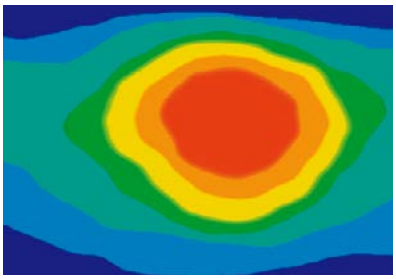
- Temperature
- Pressure
- Application time
- Application side

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

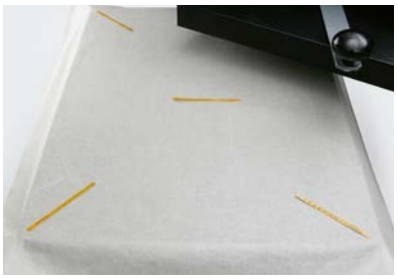
Temperature

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
= 120 °C (250 °F) = 100 °C (212 °F)



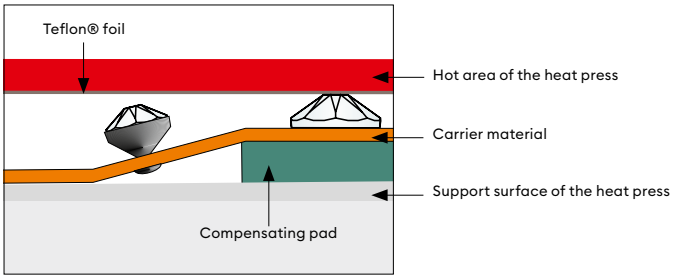
Test with temperature measuring strips
(art. 9010/007)

Pressure

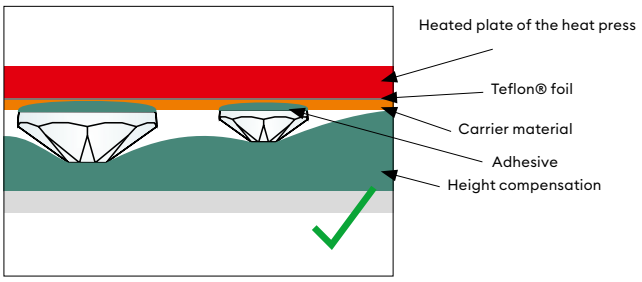
The pressure setting depends on the Hotfix elements to be applied, the carrier material, and the technical equipment (machines, etc.) available. Too much pressure can cause the adhesive to be spread out and can also affect the surface of the carrier material. Too little pressure, however, can result in a weak and insufficient bond between the crystals and the carrier material. In general, the pressure should be applied **directly to the crystals** (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.

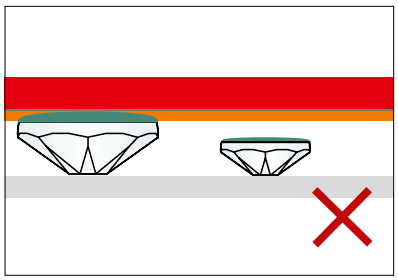


Jeans pocket



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

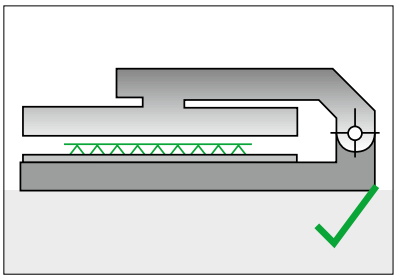


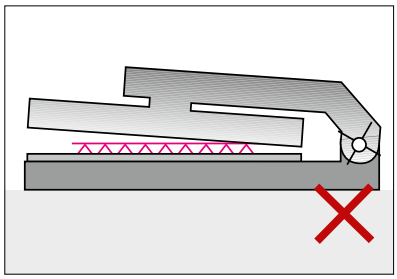


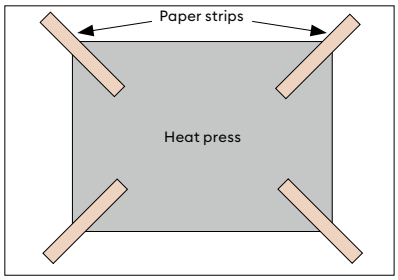
Height compensation with different Hotfix elements

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.

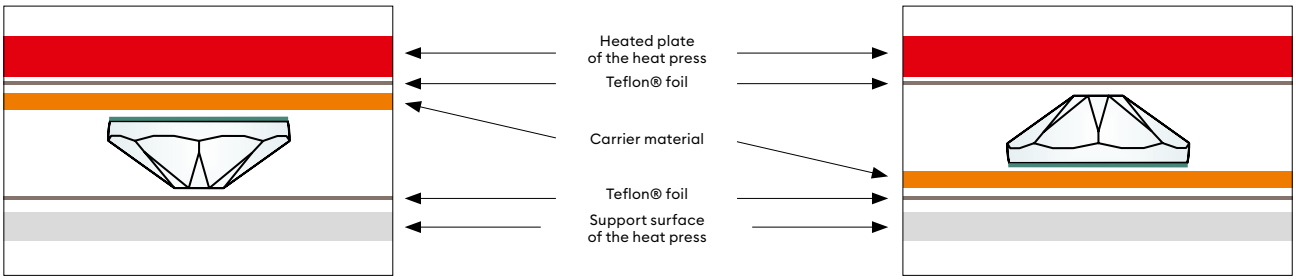
Application time

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

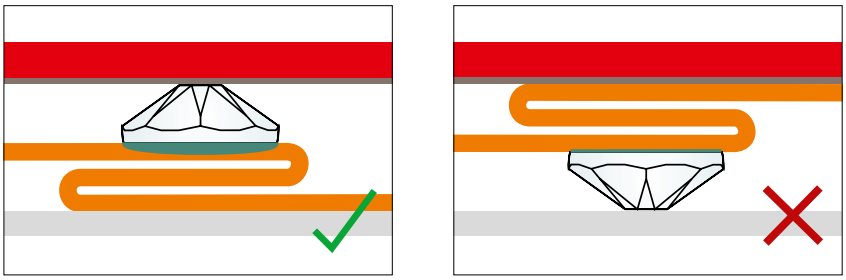


Application from the front

Rear (reverse) side of fabric is exposed to heat

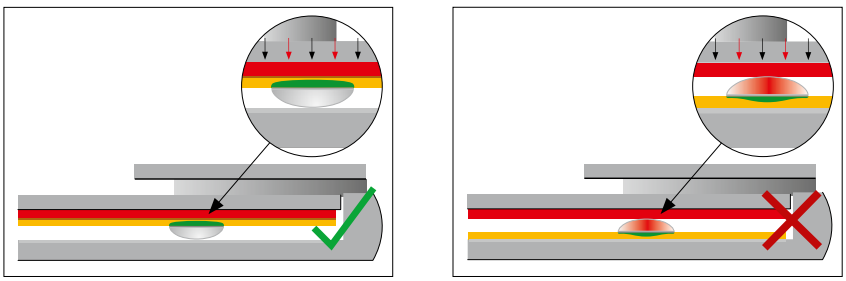
Front (right) side of fabric is exposed to heat

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

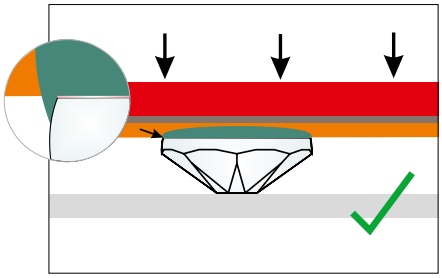
Note that the shape and size (causing irregular temperature penetration) of many items (e.g. Cabochon Transfers, Creation Transfers Plus) will only allow an application **from the back.** Further information can be found in the Hotfix Selector table at the end of this chapter.



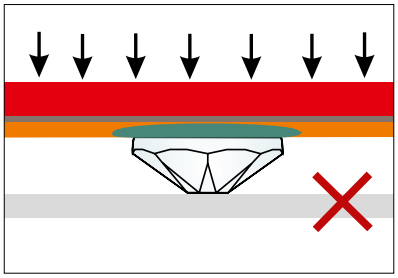
Certain Swarovski products can only be applied from the back.

Defining the optimum application parameters

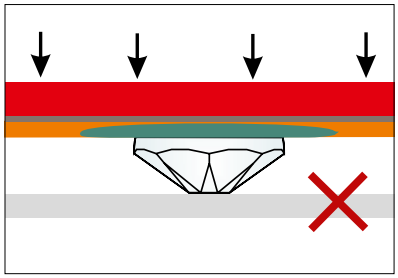
Adhesive has been successfully activated when, using a magnifying glass, it is possible to see a thin edge of glue formed around the crystal. On thin fabrics, the optimum application parameters are chosen when the glue will have lightly penetrated through the fabric and is lightly visible at the reverse.



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

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® foil.



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 Instruction Movie

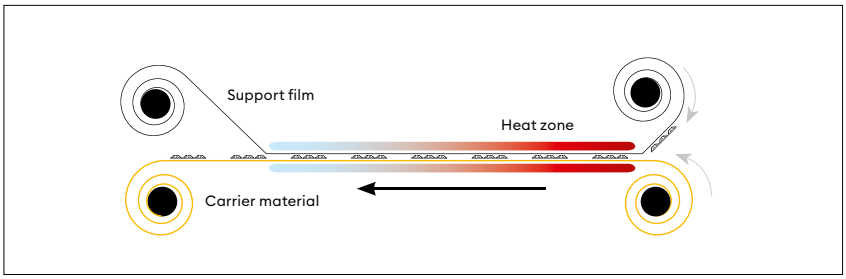
Transfer Hotfix application

Watch instruction movies how to apply Hotfix products online at https://b2b.ecommerce.swarovski.com



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. 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.



Continuous fusing press operation

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 the creation stone art. 2816 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.

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



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.



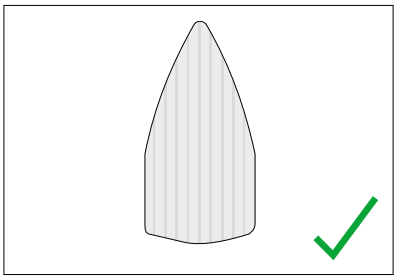
2 Heat the applicator to a suitable temperature and pick up the crystal.

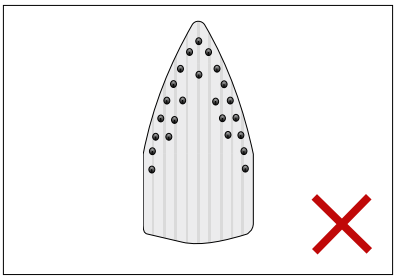


3 As soon as the Hotfix adhesive on the rear of the crystal has melted, position the element on the carrier material, which should be resting on a solid base (e.g. glass, metal).

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 crystals from marking the fabric.



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

Finishing

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

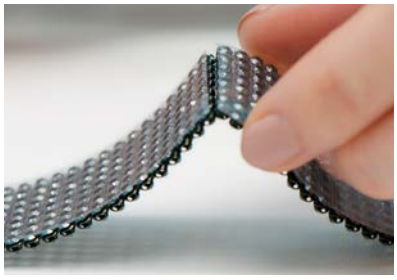
Experience has shown that the best results are obtained with applications on pre-cut fabric. In order to obtain optimum adjustment of all application parameters, advance testing on the materials to be used is strongly recommended before production begins.

Cutting Crystal Mesh

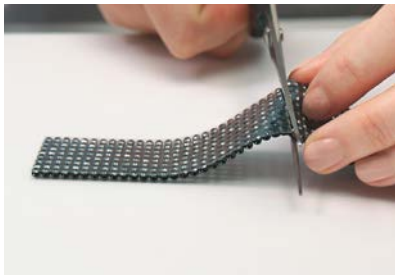
Before Hotfix application, the transparent film must not be removed. The film allows the individual crystals to be aligned perfectly, and provides Crystal Mesh with the stability necessary for flawless application.



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



2 After cutting the film, there is some space between the rows which allows you further processing.



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

Application Instruction Movie

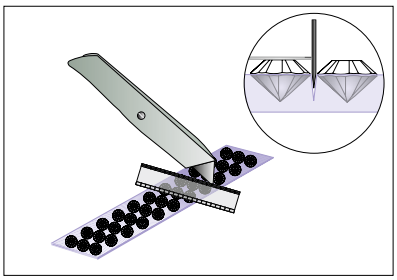
Cutting Crystal Mesh

Learn how to cut Crystal Mesh properly by watching our instruction movie online at https://b2b.ecommerce.swarovski.com

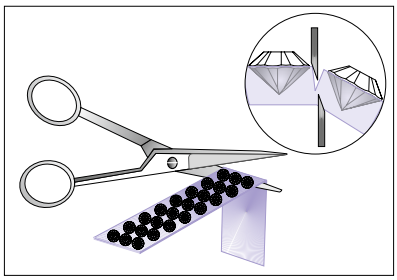


Cutting Crystaltex Chaton Bandings

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



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

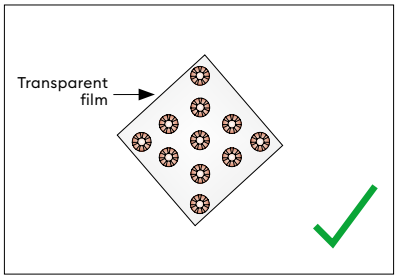


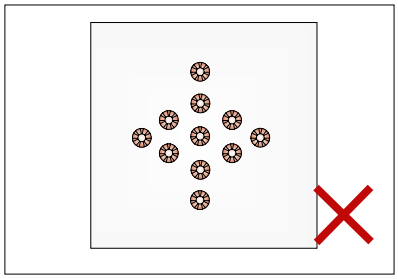
2 Snap and cut off the Crystaltex Chaton Banding along the scored edge.

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.

Application Instruction Movie

Avoiding Film Marks

Learn how to properly avoid film marks by watching instruction movie online at https://b2b.ecommerce.swarovski.com

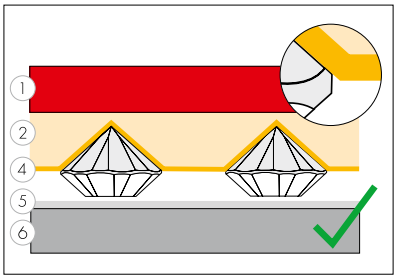


Hotfix application on other materials

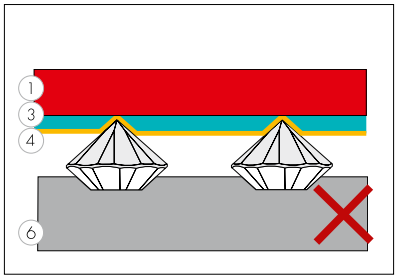
The Hotfix glue was specially developed for use with textiles. However, experience shows that Hotfix applications can also be carried out on other materials such as wood, paper or metal. In such cases it is very important to carry out application tests beforehand, and to check the surface properties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

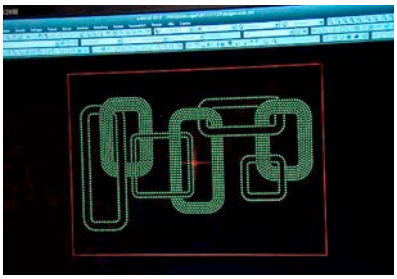


Without a pressure compensator, adhesion only occurs at the contact points with the heated plate.

1 Heated surface
2 Silicone pad
3 Pressing cloth
4 Carrier material
5 Hard cardboard
6 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 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 and the transfer is applied with low pressure.



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-PROFESSIONAL.COM

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 crystals 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	90°	0.10 mm	2.0 mm
PP 17	90°	0.10 mm	2.5 mm

Application Parameters for Crystal Diamond Transfers on solid materials

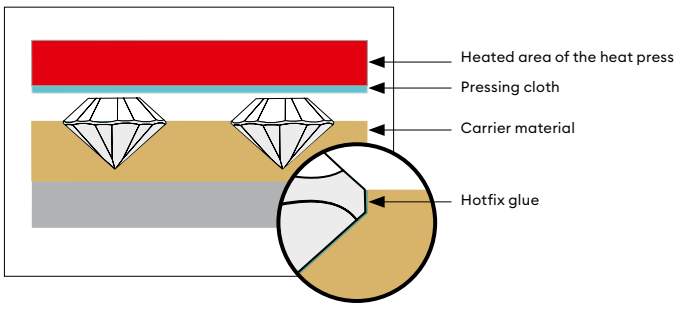
APPLICATION FROM THE FRONT

	Temperature/time required (in seconds) 110 °C 230 °F
Medium density fiberboard (MDF)	120
Veneered wood fiberboard	120
Laminated wood fiberboard (HPL)	120
Solid hardwood	120

Pressure: low
Tools: Teflon® foil, pressing cloth, silicone ironing pad

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 typical Hotfix application problems, along with possible causes and recommendations on avoiding them.

PROBLEM	CAUSE
The product does not adhere to the fabric.	1, 2, 3, 4, 5, 6, 14
Glue is oozing out around the crystals.	7, 8, 9
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 and 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.
14	The carrier material is not suitable for Hotfix application.	Some textiles and special finishes are unsuitable for Hotfix application, due to a lack of absorbency (e.g. very tightly woven textiles, smooth leather and smooth imitation leather, water-repellent treatments, etc.) Swarovski Coldfix products can be an alternative solution for these special materials.

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.

Crystal Transfers

PRODUCT	DESCRIPTION	TYPE OF SELECTOR
XILION, XIRIUS and XIRIUS Light Transfers	Transfers with XILION (art. 2038) and/or XIRIUS (art. 2078) Flat Backs Hotfix and/or XIRIUS Light (art. 1098 A HF)	Hotfix Selector 1, page 139
Creation Transfers	Transfers combined with Creation Stones (e.g. art. 2200, 2400) or Cabochons (art. 2080/4). Stone size: max. 8 mm	Hotfix Selector 2, page 139
Mezzo Transfers	Metallic Transfers combined with XILION and/or XIRIUS Flat Backs, XIRIUS Light, Cabochons or Creation Stones	Hotfix Selector 2, page 139
Cabochon Transfers	Transfers with Cabochons (art. 2080/4)	Hotfix Selector 2, page 139
Creation Transfers Plus	Transfers combined with Creation Stones Plus (e.g. 2740, 2555). Stone size:> 8 mm length or > 4 mm height	Hotfix Selector 3, page 140
Crystal Diamond Transfers	Transfers with Chatons (stone size: PP 7/12/17)	Hotfix Selector 4, page 140

* For application on textiles. For application on solid materials please find proper application parameter at page 134.

Crystal Textures

PRODUCT	DESCRIPTION	TYPE OF SELECTOR
Crystal Fabric*	Carrier material is completely covered with extremely small unfaceted and full-faceted crystals	Hotfix Selector 5, page 141
Crystal Rocks**	Carrier material is covered with large double-pointed Chatons (stone size: PP22)	Hotfix Selector 6, page 141
Crystal Fine Rocks***	Carrier material is covered with small double-pointed Chatons (stone size: PP14)	Hotfix Selector 7, page 142
Crystal Ultra Fine Rocks***	Carrier material is covered with very small double-pointed Chatons (stone size: PP9)	Hotfix Selector 7, page 142
Crystal Intarsia	Carrier material is completely covered with extremely small unfaceted and full-faceted crystals and Flat Back crystals	Hotfix Selector 8, page 142
Crystaltex Chaton Bandings	Small XILION Chatons embedded in a Polyurethane base material	Hotfix Selector 5, page 141

Crystal Mesh

PRODUCT	DESCRIPTION	TYPE OF SELECTOR
Crystal Mesh Standard	Flexible metal mesh carrier with integrated loose crystals (stone size: PP21)	Hotfix Selector 9, page 143
Crystal Fine Mesh	Flexible metal mesh carrier with integrated loose crystals (stone size: PP9)	Hotfix Selector 9, page 143
Crystal Light Mesh	Flexible metal mesh carrier with integrated loose crystals (stone size: PP21)	Hotfix Selector 9, page 143
Crystal Light Mesh Mini	Flexible metal mesh carrier with integrated loose crystals (stone size: PP14)	Hotfix Selector 9, page 143
Crystal Mesh Colorée	Flexible metal mesh carrier with integrated loose crystals and colored metallic plates (stone size: PP21)	Hotfix Selector 9, page 143
Crystal Mesh Colorée Mini	Flexible metal mesh carrier with integrated loose crystals and colored metallic plates (stone size: PP14)	Hotfix Selector 9, page 143
Crystal Caviar Mesh	Flexible metal mesh carrier with integrated loose crystal ball (ball size: 2,50mm)	Hotfix Selector 10, page 143

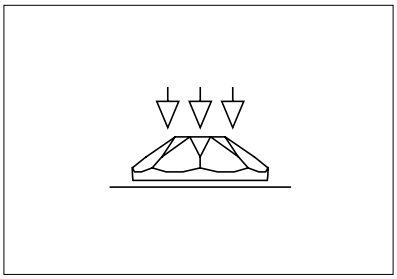
* Includes all Lacquered Foils versions, all Graphic versions, Crystal Fabric Unlimited (UL), and Foil Overlay

** Includes all Lacquered Foils versions, all Graphic versions, and Foil Overlay

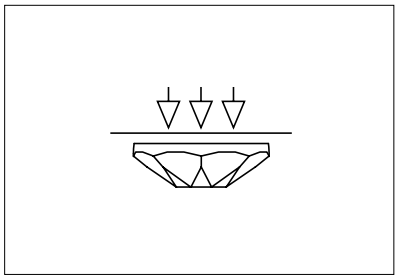
*** Includes all Lacquered Foils versions, all Graphic versions, Extra Small (XS) versions, and Foil Overlay

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.	Cotton, 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)

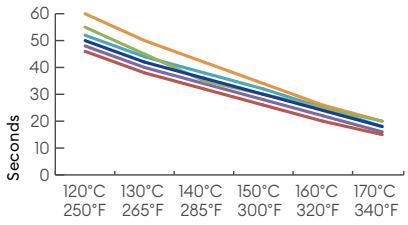
HOTFIX SELECTOR 1

XILION TRANSFERS / XIRUS 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
Cotton/ polyester blend	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

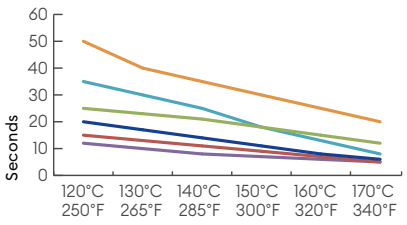
Pressure: low
Tools: Teflon® foil, pressing cloth, silicone foam
Note: The application time depends primarily on the size of the crystal. To offer an average, figures are given for size SS 20 (art. 2078).



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
Cotton/ polyester blend	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).



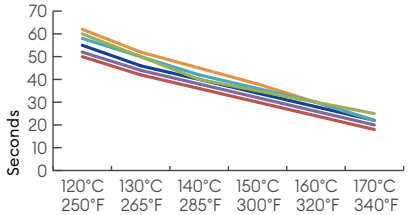
HOTFIX SELECTOR 2

CREATION TRANSFERS, MEZZO TRANSFERS & CABOCHON 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
Cotton/ polyester blend	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

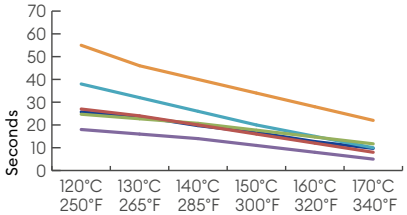
Pressure: medium
Tools: Teflon® foil, pressing cloth, silicone ironing pad
Note: The application time depends primarily on the largest element in the motif.



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
Cotton/ polyester blend	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 ironing pad



*Transfers with Cabochons (e.g. Cabochon Transfers) are NOT suitable for application from the front!

HOTFIX SELECTOR 3

CREATION TRANSFERS PLUS

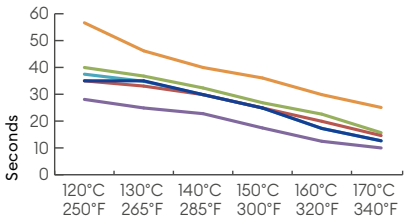
APPLICATION FROM THE FRONT

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
Cotton/ polyester blend	35	35	30	25	18	12
Silk, batiste, cotton jersey, thin linen fabrics, etc.	35	33	30	25	20	15
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.	57	46	40	36	30	25

Pressure: medium
Tools: Teflon® foil, pressing cloth, silicone ironing pad



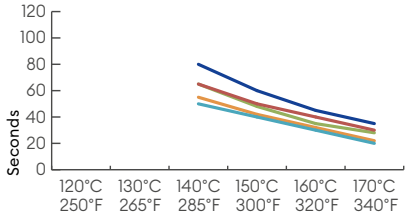
HOTFIX SELECTOR 4

CRYSTAL DIAMOND 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
Cotton/ polyester blend	–	–	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

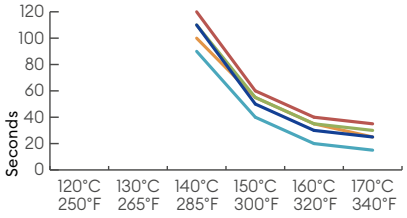
Pressure: high
Tools: Teflon® foil, pressing cloth, cardboard, preheated silicone pad
Note: Crystal Diamond Transfers are best suited to soft, voluminous fabrics.



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
Cotton/ polyester blend	–	–	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.



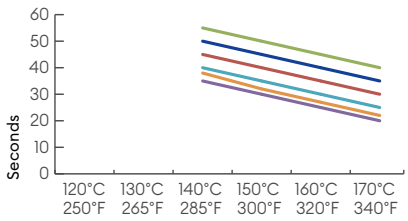
HOTFIX SELECTOR 5

CRYSTAL FABRIC, GRAPHIC FABRIC, CRYSTALTEX CHATON

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
Cotton/ polyester blend	–	–	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

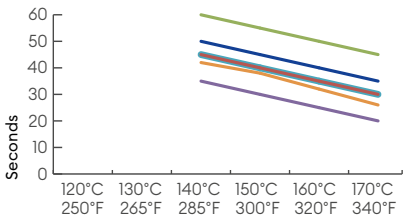
Pressure: medium
Tools: Teflon® foil, pressing cloth



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
Cotton/ polyester blend	–	–	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



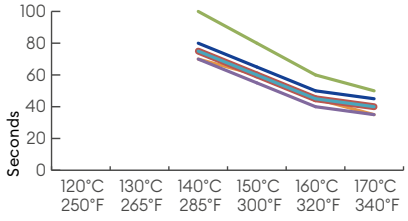
HOTFIX SELECTOR 6

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
Cotton/ polyester blend	–	–	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

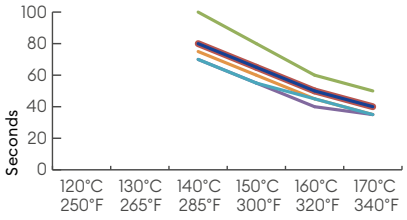
Pressure: medium
Tools: Teflon® foil, pressing cloth



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
Cotton/ polyester blend	–	–	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



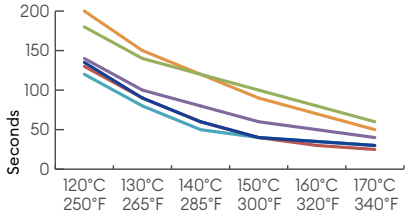
HOTFIX SELECTOR 7

CRYSTAL FINE ROCKS, GRAPHIC FINE ROCKS, CRYSTAL ULTRAFINE ROCKS & GRAPHIC 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
Cotton/ polyester blend	–	–	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

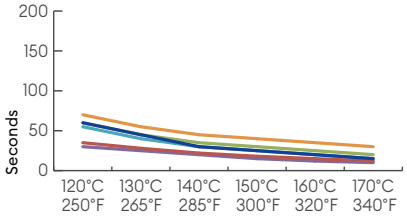
Pressure: medium
Tools: Teflon® foil, pressing cloth



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
Cotton/ polyester blend	–	–	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 8

CRYSTAL INTARSIA

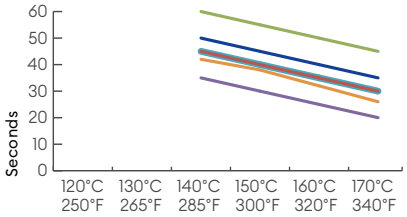
APPLICATION FROM THE FRONT

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
Cotton/ polyester blend	–	–	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: very high
Tools: Teflon® foil, pressing cloth, silicone ironing pad



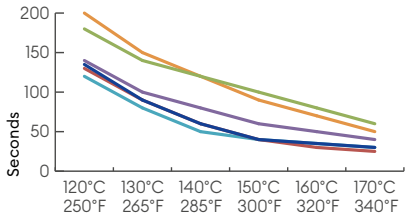
HOTFIX SELECTOR 9

CRYSTAL MESH STANDARD, CRYSTAL FINE MESH, CRYSTAL LIGHT MESH, LIGHT MESH MINI, MESH COLORÉE & COLORÉE MINI

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
Cotton/ polyester blend	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

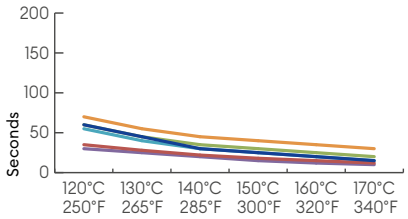
Pressure: high
Tools: Teflon® foil, pressing cloth



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
Cotton/ polyester blend	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



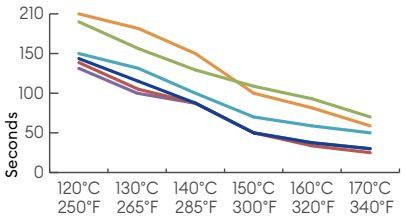
HOTFIX SELECTOR 10

CRYSTAL CAVIAR 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
Cotton/ polyester blend	145	115	80	50	45	40
Silk, batiste, cotton jersey, thin linen fabrics, etc.	140	110	80	50	43	35
Jeans,cord, loden, cloth, knitted fabrics, etc.	190	160	130	110	90	70
Viscose, satin, chiffon, organza, taffeta, etc.	130	100	80	50	45	40
LYCRA®, neoprene, etc.	150	130	100	70	60	50
Artificial fur, artificial leather, fleece, suede, etc.	210	180	150	100	80	60

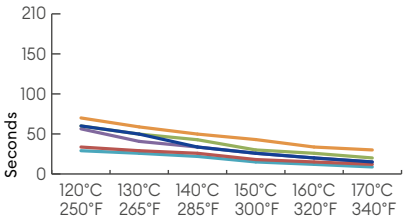
Pressure: high
Tools: Teflon® foil, pressing cloth



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
Cotton/ polyester blend	60	50	35	25	20	15
Silk, batiste, cotton jersey, thin linen fabrics, etc.	35	30	25	18	15	12
Jeans,cord, loden, cloth, knitted fabrics, etc.	60	50	40	30	25	20
Viscose, satin, chiffon, organza, taffeta, etc.	55	45	35	25	20	15
LYCRA®, neoprene, etc.	30	25	20	15	13	10
Artificial fur, artificial leather, fleece, suede, etc.	70	60	50	40	35	30

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





7

Sewing and Hand Application

There are many Swarovski products that are suitable for sewing and embroidering. These products can be easily applied either by hand, or with standard domestic or industrial sewing machine. Swarovski also offers an ideal selection of products for a variety of creative techniques by hand.

146 Product Overview
147 Machines and Tools
148 Suppliers
149 Application
157 Useful Information
158 Quick Assistance

Product overview

The following products are suitable for sewing (by hand or machine), or hand application (e.g. beading):

		SEWN BY HAND	SEWN BY MACHINE	HAND APPLICATION TECHNIQUES
Beads		✔		✔
Crystal Pearls		✔		✔
Pendants		✔		✔
Sew-on Articles		✔	✔	✔
Crystal Buttons		✔	✔	✔
Crystal Textures with Foil Overlay		✔	✔	
Linked Crystal Components	Crystal Mesh Standard	✔	✔	
	Crystal Fine Mesh	✔		
	Crystal Light Mesh	✔	✔	
	Crystal Light Mesh Mini	✔	✔	
	Crystal Mesh Colorée	✔		
	Crystal Mesh Colorée Mini	✔		
	Crystal Cavier Mesh	✔	✔	
	Cupchains	✔	✔	✔
	Bezel Chains	✔	✔	✔
	Multirow Cupchains size PP11	✔		✔
	Multirow Cupchains size PP14 to PP24	✔	✔	✔
	Crystal Fishnet Banding	✔	✔	✔

Machines and tools

The following machines, tools and aids can be used for sewing Swarovski products:



A **household sewing machine** offers a range of stitch types such as straight stitch, zigzag stitch and a program for sewing on buttons, and is therefore well suited to applying Swarovski products.



An **industrial sewing machine** is suitable for most sewing applications. However, a machine with a zigzag stitching program is necessary for some Swarovski products.



A **button sewer** can also be used for the application of some Swarovski Buttons.



Adapted presser feet/beading feet: standard presser feet, adapted by adding two metal plates.



By gluing on **small metal plates**, an adapted presser foot can be made.



For products with net-edge, a **zipper foot** is helpful. A **button foot** can be used for the application of Sew-on Articles.



Sewing machine needles sizes Nm 70–100.



Sewing thread (Nm 50 – 80); stronger synthetic thread is more suitable for sewing on items.



It is recommended that **protective eyewear** is worn when using a sewing machine, so as to prevent injury.

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
Sewing machines	Elna International Corp. AG Pfaff	www.elna.com www.pfaff.com
Beading foot	Elna International Corp. AG Pearl / Bead Foot Pfaff Beading Foot	www.elna.com www.pfaff.com
Machine needles	Ferd. Schmetz GmbH Groz-Beckert KG Prym	www.schmetz.com www.groz-beckert.de www.prym.com
Sewing threads	Amann & Soehne GmbH & Co. KG Coats PLC Madeira Garnfabrik KG Rayher Hobby GmbH	www.amann.com www.coats.com www.madeira.de www.rayher.com
Sew-on settings	E.H. Ashley & Company, Inc. Franz Simm Metall- und Zinkdruckgusswaren GmbH Rio Grande Snow Findings Company Whiting & Davis	www.ehashley.com www.simm-metallwaren.de www.riogrande.com www.snowfindings.com www.whitinganddavis.com

Application

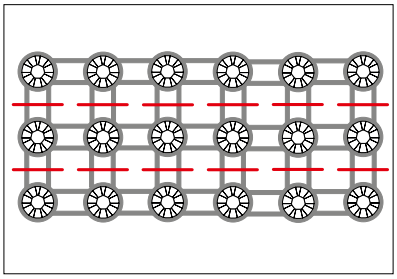
Selecting the optimum thread

When sewing Swarovski products, particularly Sew-on Articles and Beads, **synthetic multifilament threads with a thread count of Nm 50 – 80** are most suitable. Monofilament and pure cotton yarns are not recommended due to their limited abrasion resistance.

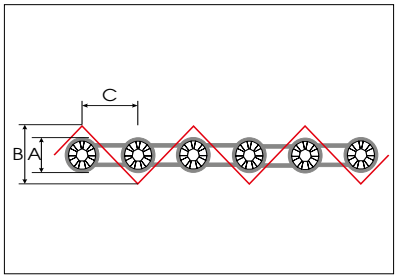
Selecting the stitch type and direction

In general, Swarovski products can sewn on using a variety of stitch types and direction.

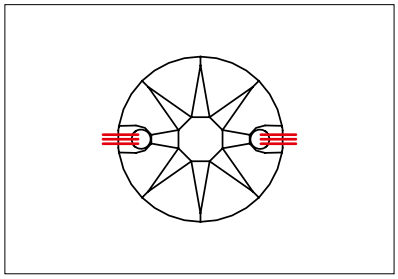
Types of stitch



Multi-row products
Straight stitch



Single-row products
Zigzag stitch



Sew-on Articles
Button sewing program or zigzag stitch

Straight stitch

A stitch length should be selected that allows the stitches to fall in the spaces between the cups.

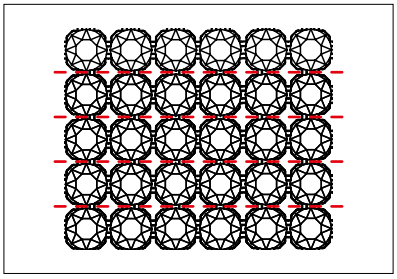
Zigzag stitch

The length and width of the stitch must be adjusted to suit the element being applied. The width of the stitch (B) should be 0.5 mm – 1 mm broader on both sides than the product (A) being applied.
The length of the stitch (C) should be equal to about 2/3 of the width of the stitch. In some cases the tension of the upper thread must be reduced.
When applying products using a zigzag stitch, the use of an beading foot or adapted presser foot is recommended.

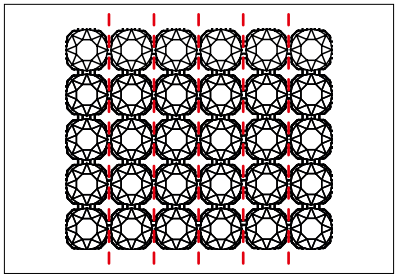
Button sewing program

Sew-on Articles can be applied using a button sewing program. The hole spacing must be selected in order to use the program.

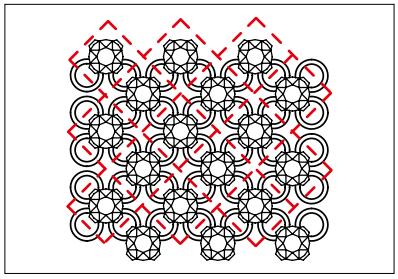
Types of stitch direction



Multi-row products
Straight stitch in lateral direction



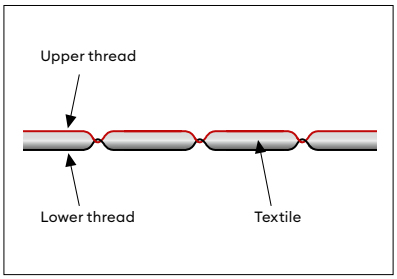
Multi-row products
Straight stitch in longitudinal direction



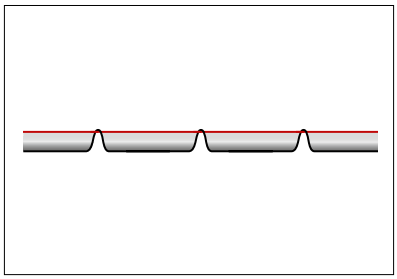
Multi-row products
straight stitch in diagonal direction to the outside

Adjusting the upper thread tension

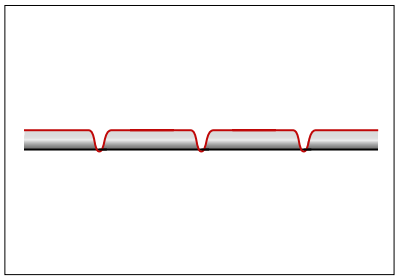
If the upper thread tension is too tight or too loose, the resulting seam is not strong. The tension of the thread must therefore be adjusted accordingly.



If the tension is correct, the threads cross in the middle of the textile.



If the tension is too tight, the lower thread is visible on the upper surface of the fabric and the fabric can become gathered.



If the tension is too loose, the crossing of the threads is visible on the upper surface of the fabric.

Application

Alongside sewing by hand, the following table provides a summary of possible machine application techniques.

Machine application

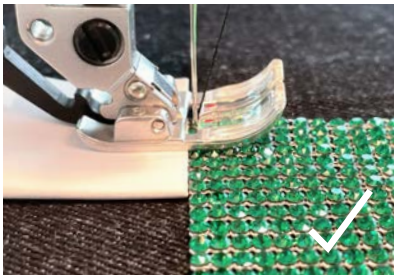
SWAROVSKI PRODUCTS		MACHINE	TOOL	PROGRAM	NOTE
Sew-On Articles & Crystal Buttons	Sew-on Articles	Sewing machine	Button foot	Buttong sewing program or zigzag stitch without feet fuction	Switch off the lower feed, adjust the stitch width to the product. The use of the application tool in some type of sewing machines can require some readjustment of the tension release.
	Crystal Buttons	Sewing machine	Button foot	Button sewing program or zigzag stitch without feed function	Switch off the lower feed, adjust the stitch width to the product.
		Buttons sewer		Button sewing program	Holding clamps must be adjusted to the shape of the button
Crystal Textures	Crystal textures with foil overlay	Sewing machine	Standard presser foot	Straight stitch	
Linked Crystal Components	Crystal Mesh Standard/ Caviar Mesh	Sewing machine	Standard presser foot	Straight stitch	Do not remove the transparent support film before sewing, but score the film along the course of the stitching beforehand
	Crystal Light Mesh/Crystal Light Mesh Mini	Sewing machine	Standard presser foot	Straight stitch	Stitching lines of mesh are set diagonally to the outside
	Cupchains	Sewing machine	Beading presser foot	Zigzag stitch	Adjust the stitch width to the product
	Multirow Cupchains for PP14	Sewing machine	Standard presser foot	Straight stitch	Pre fix the cups on the fabric and straight stitch the space between cups in lateral direction
	Multirow Cupchains for PP18 And PP24	Sewing machine	Standard presser foot	Straight stitch	Pre fix the chups on the fabric and straight stitch the space ebtween cups in longitudinal direction
	Fishnet Bandings	Sewing machine	Special presser foot	Straight stitch	Stitch the banding between the rows of crystals by using 3d models of the special sewing feet

Application using a sewing machine

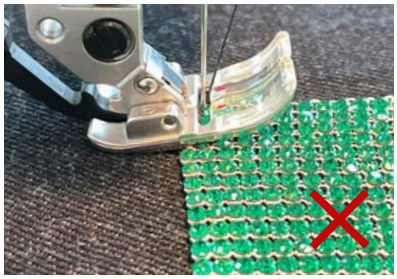
The right choice of needle (strength Nm 70 – 100), sewing thread and thread tension (upper and lower thread) are particularly important for applications with a sewing machine. The fabric must not become gathered and the upper and lower thread should run easily and smoothly.

Tests should be conducted on the original material before beginning production. Before sewing on Crystal Buttons with a machine it is essential to set the sewing machine to the correct hole and stitch length, as well as stitch width. This prevents the crystal from being damaged during application and reduces the risk of injury.

When sewing high, multi-row products, there can be problems with the sewing machine feed, caused by a slanting presser foot. To avoid this, position a height compensator beneath the presser foot to ensure it sits parallel to the material, allowing the fabric to feed through properly.



The foot lies flat due to the height compensator.



A slanting presser foot can cause problems with the feed of the base material.



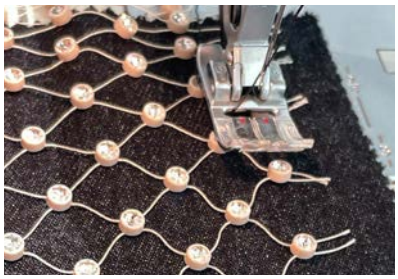
Sew-on Stones
Switch off the lower feed and adjust the stitch width to the product.



Cupchains
Make sure that the Cupchain runs parallel to the foot.



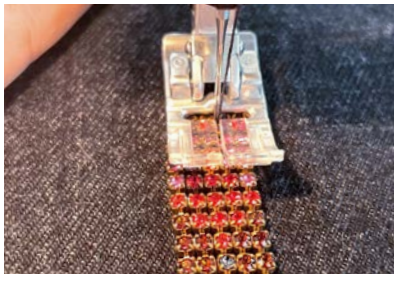
Crystal Mesh
Stitch the Banding between the first and second rows of crystals. Alternatively, use a zigzag stitch. Note: Consider further details about the support film in the section Useful Information at the end of this chapter.



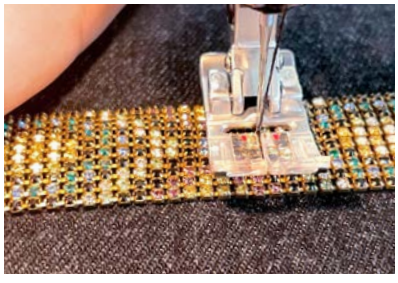
Fishnet Bandings
Stitch the bandings between the rows by using 3D models of special sewing feet.



Crystal Light Mesh and Crystal Light Mesh Mini
Stitching lines of mesh are set diagonally to the outside



Multi-Row Cupchains
Sewing application in longitudinal direction.



Multi-Row Cupchains
Sewing application in lateral direction.

Application Instruction Movie

Sewing Plastic Trimmings

Watch Sewing instruction movie online at https://b2b.ecommerce.swarovski.com



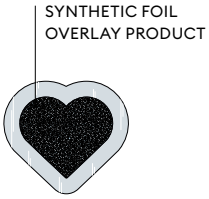
Application Advice for Crystal Texture Foil Overlay when using the sewing technique:

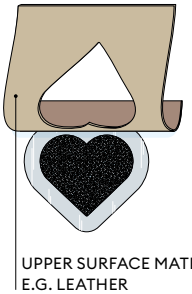
Window technique

Benefits:

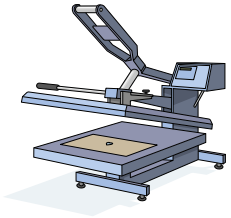
- this means that even if the product gets buckled, there is no visible gap between the carrier material and the upper surface.
- Saves on cost thanks to the ease of application (no sewing onto crystal-covered areas is required) and less crystals are used because areas are covered by the upper surface material anyway.

A chosen material, such as leather, with a cut-out in the shape of the Crystal Texture Foil Overlay motif is placed over the product. Using a sewing machine, the upper surface material can be sewn together with the Synthetic Foil Overlay.
Due to the fact that the foil overlay comes with Hotfix glue on the reverse side, the Crystal Texture Foil Overlay can be fixed onto a carrier material using the Hotfix technique before sewing the various parts together. The application parameters relating to the relevant product groups apply. The Hotfix Selectors can be found in the chapter Hotfix Application.





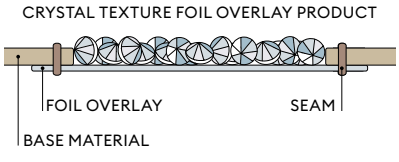


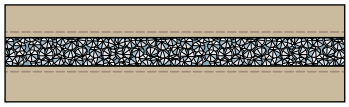


THE PRODUCT CAN BE FIXED ONTO A CARRIER MATERIAL BEFORE SEWING, USING A HEAT PRESS

Sewing between two materials

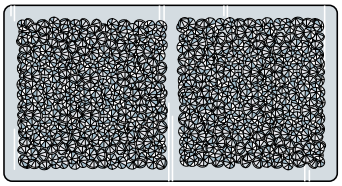
Thanks to the foil overlay, the Crystal Textures can now be used between two materials (e.g. leather, fabric,...) without having to be applied to another carrier material beforehand.

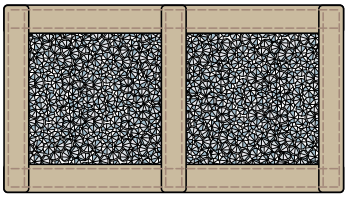




THE CRYSTAL TEXTURE FOIL OVERLAY PRODUCT IS SEWN IN BETWEEN TWO PIECES OF CARRIER MATERIAL

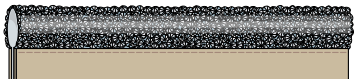
"Weaving-look"
Motifs with big foil surfaces (not covered with crystals) can easily be added to carrier materials by using the sewing technique, which makes them look as though they have been woven into other materials.





Create a tube
A tube-shaped product can be created by folding the Synthetic Foil Overlay and sewing it into position. If the tube needs to be stronger and more stable, a cylinder-shaped material such as cord can be added as a core element.

This technique is ideal when using a Crystal Texture Foil Overlay tube to create a border on a sleeve or to decorate a fringe on a garment, for example.



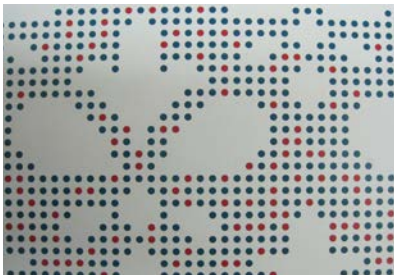
Lochrose art. 3129

An innovative product application solution has been developed in conjunction with the companies Laesser and Tajima for the industrial application of Lochrose art. 3129 with fully automatic embroidery machines. If using a Laesser embroidery machine, the Laesser Crystal Stone Head must be used. The application is based on standard embroidery technology and allows the unique combination of first-class Schiffli embroidery yarns (e.g. SETAFIL®) and crystal applications in a single production stage.

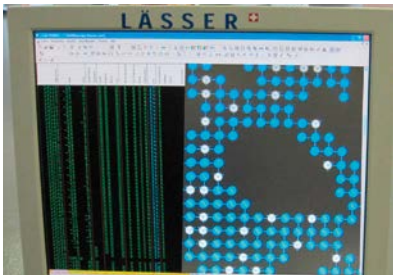
If sewing with a Tajima embroidery machine is preferred, the Tajima Lochrose Embroidery Device is used.



Orders for the **Lochrose art. 3129**, as well as sample and production orders, can be placed directly with your Swarovski sales partner.



1 Draw the desired motif.



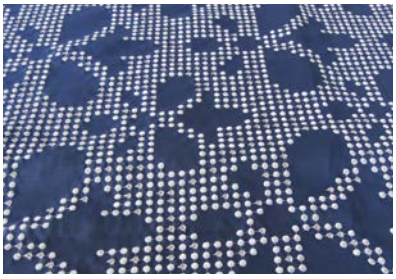
2 Enter the design into the embroidery software.



3 Fill the embroidery machine with Lochrose art. 3129.



4 Embroidery is carried out automatically using a system like the Laesser Crystal Stone Head (in the photo) or the Tajima Lochrose Embroidery Device.

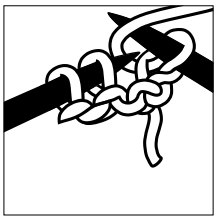


Picture source: S. Jurkowitsch

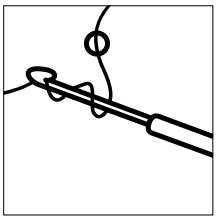
5 The embroidered material is now ready for further processing.

Hand application techniques

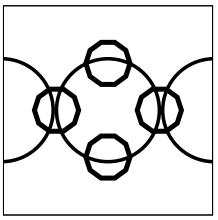
Some of the Swarovski products listed in the product overview at the beginning of this chapter can be applied by hand. This means a range of creative application techniques in addition to sewing.



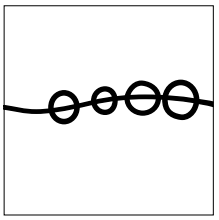
Knitting



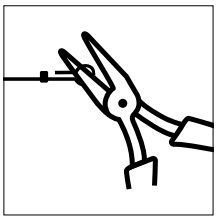
Crocheting



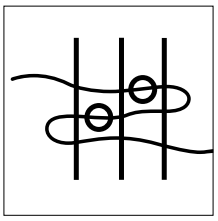
Beading



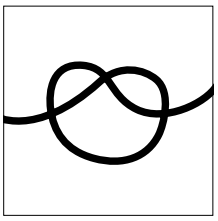
Threading



Wire working



Weaving



Knotting

Please choose a sufficiently thick wire in accordance to the size and weight of the Swarovski crystals. For heavier products a nylon-coated wire is recommended. Crystal Pearls larger than 6 mm should be additionally knotted for a better hold.

Useful information

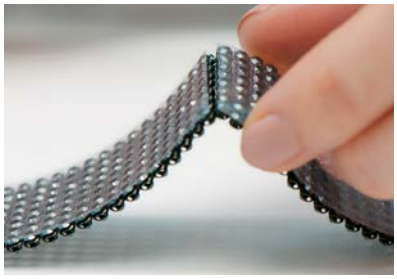
Cutting and sewing Crystal Mesh

Before cutting and sewing, 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. In case the Crystal Mesh is fixed on the fabric with Hotfix prior to sewing, the foil can be removed before starting to sew.

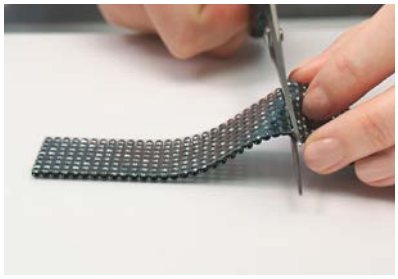
Cutting



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



2 After cutting the film, there is some space between the rows which allows you further processing.



3 Cut the metal mesh with a scissor along the scored line, and remove the excess link rings. The Crystal Mesh is now ready for sewing.

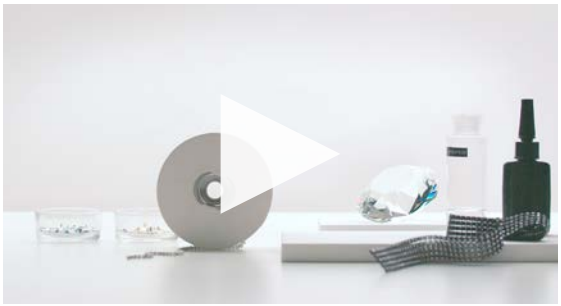
Sewing
When sewing Crystal Mesh, it is recommended that the film is scored along the course of the stitching beforehand (see illustration).

Note: Crystal Fine Mesh cannot be sewn with a sewing machine due to its tight structure.

Application Instruction Movie

Cutting Crystal Mesh

Learn how to cut Crystal Mesh properly by watching our instruction movie online at https://b2b.ecommerce.swarovski.com



Quick assistance

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

PROBLEM	CAUSE
Product or fabric is not fed through correctly.	1, 2, 3
The machine misses out stitches.	4, 5, 6, 7
The thread breaks.	4, 6, 8, 9
The needle breaks.	10, 11, 12, 13
The crystals break out of the cups.	14

CAUSE		RECOMMENDATION
1	The foot pressure may be too low.	Increase the foot pressure according to the instructions.
2	There may be dust between the feeder teeth.	Clean the feeder teeth.
3	Upper feed is faulty.	Replace the upper feed.
4	The needle may be bent or damaged.	Replace the needle.
5	The needle is not fitted correctly.	The needle must be pushed right up to the top.
6	The machine may be threaded wrongly.	Rethread the machine.
7	The tension of the threads may be incorrect.	Check the thread tension.
8	There may be knots in the thread or it may be too thin.	Check the thread for faults and if necessary, change it.
9	The components that form the stitches may be damaged.	Have the sewing machine checked by a specialist.
10	The wrong needle may have been chosen.	Choose a needle that has the correct size for the carrier material.
11	The bobbin may not be fitted correctly.	Check the bobbin case.
12	The needle is too thick and gets stuck in the product.	Use a thinner needle.
13	The needle hits the crystal.	Sew more slowly and feed the product through the machine carefully.
14	The needle damages the cup.	Check the length of the stitch and the thickness of the needle.



8

Mechanical Application

Swarovski products, such as Rivets, and Rose Pins can be applied manually or mechanically, using either semi- or fully-automated machines. This simple application technique is used primarily in the textile and accessories fields.

162 Product Overview
162 Machines and Tools
166 Suppliers
168 Application
174 Useful Information
175 Quick Assistance

Product Overview

The following products are suitable for mechanical application:

CRYSTAL RIVETS & ROSE PINS	MECHANICAL APPLICATION
Crystal Rivets	✔
Rose Pins	✔

Machines and tools

The following machines, tools and aids can be used for the mechanical application of Swarovski products:



The **fly press** (art. 9040/019, with mounting board) represents an easy way to mechanically apply the products.



Vacuum pump (art. 9040/022) with silicone hose allows products such as Rose Pins and Rivets to be easily held in place in the fly press.



Some Swarovski products can be applied using a semi- or fully-**automatic attaching machine** (e.g. Rose Pins). In this process, the feed on the machine must be adjusted to the product being processed.

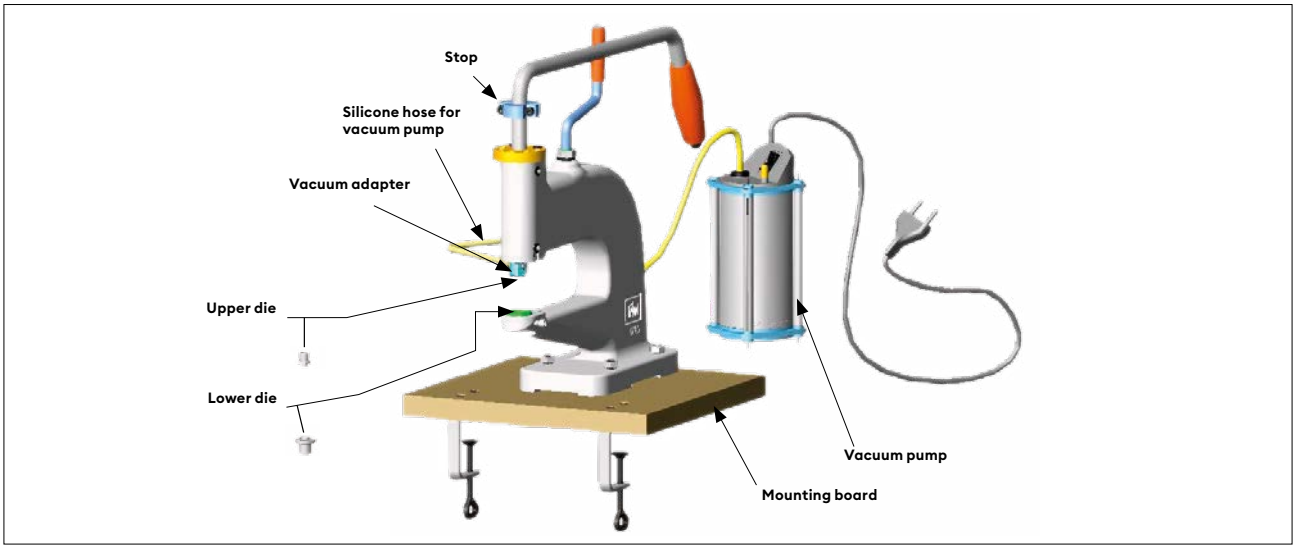


For application of Rose Pins a **Rose Pin mold** can be used (patented by Gruppo Meccaniche Luciani). Please be advised that Swarovski does not provide the tools.



It is recommended that **protective eyewear** is worn during mechanical application, to prevent injury.

Swarovski offers a variety of different tools for the fly press, depending on the product employed. The tools offered have the following specifications: upper die (M6 screw thread), lower die (12.15 mm + 0.03/ – 0.10). If using a fly press from a provider other than Swarovski, confirm the thread sizes before ordering the tools.



Fly press including possible dies and tools for application (in this case for the application of Rivets).

Crystal Rivets

Crystal Rivets can be applied to various materials with or without Back Parts. The correct die combination must be chosen accordingly. Please ensure that the recommended leather or fabric strengths, listed in the "Application" subsection, are followed. A vacuum pump and adapter allow Rivets to be easily picked up and applied. Upper dies are thus available with different thread strengths. When using the Swarovski vacuum adapter, dies with an M8 thread are required. Alternatively, dies with M6 threads are available for presses from other manufacturers, or when not using a vacuum adapter.

Required Application Tools

	Upper Die	Vacuum Adapter[1]	Spare Part for Upper Die (insert)[2]	Lower Die for application with Back Part: 53 007	Lower Die for application with Back Part: 53 009	Lower Die for application without Back Part for Rivet casing color 088 Stainless Steel	Lower Die for application without Back Part for Rivet casing color 081 Gold 082 Silver 086 Gun Metal
		 Art. 9040/023		 Art. 9070/010	 Art. 9070/012	 Art. 9070/011	 Art. 9040/015
53 001  SS 29	Art. 9070/005 M8	Art. 9040/023	Art. 9070/008				
	Art. 9070/009 M6	–					
53 005  SS 34	Art. 9040/064 M8	Art. 9040/023	Art. 9040/062				
	Art. 9040/063 M6	–					
53 006  SS 39	Art. 9040/067 M8	Art. 9040/023	Art. 9040/065				
	Art. 9040/066 M6	–					

Additional information vacuum adapter



Vacuum adapter (art. 9040/023) with M6 outer thread and M8 inner thread.

1 When using Swarovski's fly press, tools with M8 thread and the corresponding vacuum adapter are necessary.

2 The spare part (plastic insert) is incorporated into the upper die as standard. It should be changed when it becomes worn.

Rose Pins

A vacuum pump allows Rose Pins to be easily picked up and applied. The vacuum connection is integrated directly into the upper die. An additional vacuum adapter is not necessary.

53 301 Rose Pin (SS 10)



Required Application Tools

Upper Die	Spare Part[1]	Lower Die	Centering Aid[2]
 Art. 9040/090 M6	 Art. 9040/094	 Art. 9070/013	 Art. 9070/017

53 302 Rose Pin (SS 16)



Required Application Tools

Upper Die	Spare Part[1]	Lower Die
 Art. 9040/091 M6	 Art. 9040/095	 Art. 9070/014

53 303 Rose Pin (SS 20)



Required Application Tools

Upper Die	Spare Part[1]	Lower Die
 Art. 9040/092 M6	 Art. 9040/096	 Art. 9070/014

53 304 Rose Pin (SS 34)



Required Application Tools

Upper Die	Spare Part[1]	Lower Die
 Art. 9040/093 M6	 Art. 9040/097	 Art. 9070/016

1 The spare part (plastic insert) is integrated into the upper die as standard. It should be changed when it becomes worn.

2 The **centering aid** (art. 9070/017) for Rose Pin 53 301 allows the product to be easily positioned in the upper die.

Suppliers

This list provides an overview of selected suppliers worldwide.

MACHINES & TOOLS	SUPPLIER	CONTACT
Fly press	Swarovski: Fly press without mounting board: art. 9040/017 Fly press with mounting board: art. 9040/019	https://b2b.ecommerce.swarovski.com
Tools for Rivets (fly press)	Swarovski: **Rivet 53 001** Upper die (M8): art. 9070/005 Upper die (M6): art. 9070/009 Spare part (plastic insert) for upper die (art. 9070/005 and 9070/009): art. 9070/008 Lower die for Rivet application with Back Part 53 007: art. 9070/010 Lower die for Rivet application with Back Part 53 009: art. 9070/012 Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015 Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011 Vacuum adapter for upper die (art. 9070/005): art. 9040/023 **Rivet 53 005** Upper die (M8): art. 9040/064 Upper die (M6): art. 9040/063 Spare part (plastic insert) for upper die (art. 9040/064 and 9040/063): art. 9040/062 Lower die for Rivet application with Back Part 53 007: art. 9070/010 Lower die for Rivet application with Back Part 53 009: art. 9070/012 Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015 Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011 Vacuum adapter for upper die (art. 9040/064): art. 9040/023 **Rivet 53 006** Upper die (M8): art. 9040/067 Upper die (M6): art. 9040/066 Spare part (plastic insert) for upper die (art. 9040/067 and 9040/066): art. 9040/065 Lower die for Rivet application with Back Part 53 007: art. 9070/010 Lower die for Rivet application with Back Part 53 009: art. 9070/012 Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015 Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011 Vacuum adapter for upper die (art. 9040/067): art. 9040/023	https://b2b.ecommerce.swarovski.com

MACHINES & TOOLS	SUPPLIER	CONTACT
Tools for Rose Pins (fly press)	Swarovski: **Rose Pin 53 301** Upper die (M6): art. 9040/090 Spare part (plastic insert) for upper die (art. 9040/090): art. 9040/094 Lower die: art. 9070/013 Centering aid: art. 9070/017 **Rose Pin 53 302** Upper die (M6): art. 9040/091 Spare part (plastic insert) for upper die (art. 9040/091): art. 9040/095 Lower die: art. 9070/014 **Rose Pin 53 303** Upper die (M6): art. 9040/092 Spare part (plastic insert) for upper die (art. 9040/092): art. 9040/096 Lower die: art. 9070/014 **Rose Pin 53 304** Upper die (M6): art. 9040/093 Spare part (plastic insert) for upper die (art. 9040/093): art. 9040/097 Lower die: art. 9070/016	https://b2b.ecommerce.swarovski.com
Vacuum pump with silicone hose	Swarovski: art. 9040/022	https://b2b.ecommerce.swarovski.com
Automatic attaching machine	Prym Fashion GmbH Seung Min Industrial Co., Ltd. Sagitta SPA	www.prym-fashion.com www.seungminsm.co.kr www.sagitta.it
Rose Pin mold	Gruppo Meccaniche Luciani Srl	www.gruppomeccanicheluciani.com

Application

Various Swarovski products can be applied using mechanical force, creating a lasting bond with the carrier material.

CHECKING MATERIAL STRENGTH
PRODUCT-SPECIFIC APPLICATION

Checking Material Strength

It is important to carefully check the thickness of the fabric or leather before beginning the application process. With very thick fabrics, a hole can be punched beforehand for the application of Rivets. The fabric should not crinkle or become gathered after application. To check this, carry out tests on fabric or leather scraps before going ahead with the application process. It is also important to make sure that the die sits straight and firmly in the fly press, as this can often cause application problems. It is recommended that you carry out a few test runs to identify the ideal pressure. The offset/pressure can be regulated using an adjustable stop that is fastened to the handle of the fly press.

CHECKING MATERIAL STRENGTH
PRODUCT-SPECIFIC APPLICATION

Product-specific application

Before starting, make sure the fly press is aligned and upper and lower dies are arranged along an axis. Dies should be clean, polished and intact. By carrying out pre-application tests, contracted or crinkled material after the application can be avoided, as well as too much space between fabric and pieces. In order to prevent possible injury, the wearing of protective eyewear is recommended when mechanically applying crystals.

Crystal Rivets

For the application of Crystal Rivets, use a fly press or a semi-automatic attaching machine: The following instructions focus on the application with the fly press. As a first step, attach the appropriate die to the fly press.

Crystal Rivets can be applied on various materials with or without Back Parts. For applications on leather, Stainless Steel Rivets (color code 088) and Back Parts are recommended.

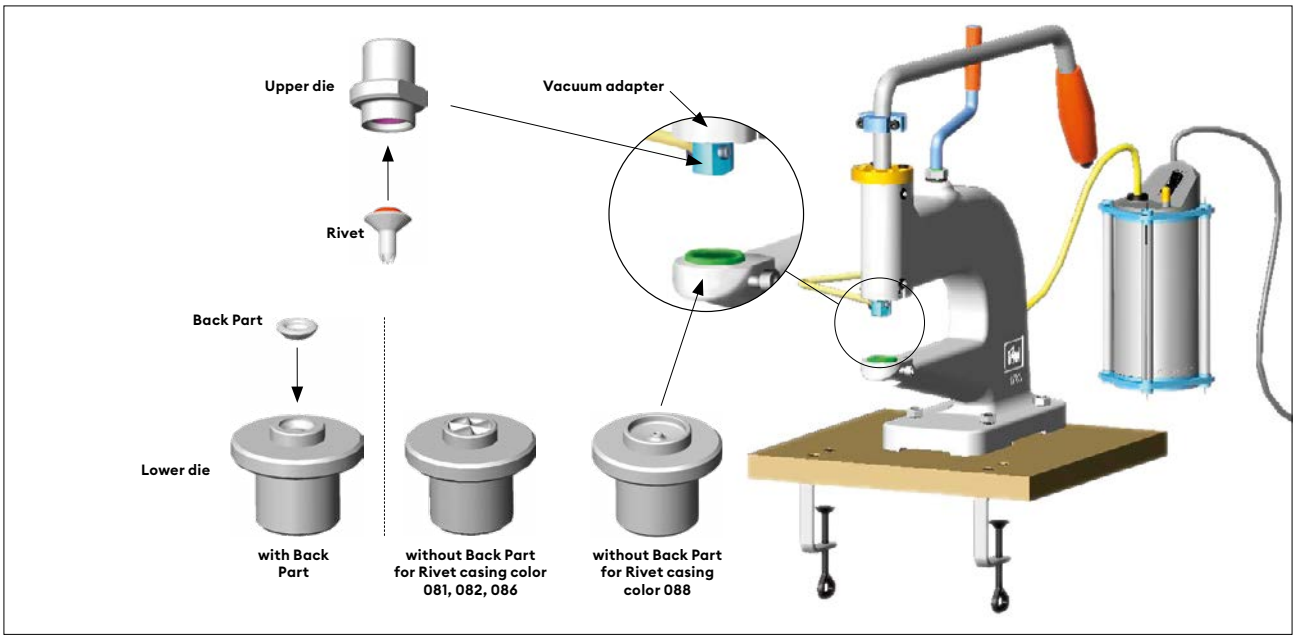
Please note the material thickness when selecting Rivets. The dies should be selected accordingly.

	ART.	SIZE	MATERIAL THICKNESS*	POSSIBLE BACK PARTS
CRYSTAL RIVETS	**53 001**	SS 29	2.0 – 2.5 mm	53 007 and 53 009
	53 005	SS 34	2.0 – 2.5 mm	53 007 and 53 009
	53 006	SS 39	2.2 – 2.7 mm	53 007 and 53 009

* This can vary according to the softness and production of the carrier material.

Application with a fly press

In many cases it is possible to select between both versions of the Back Parts.
For applications on **thinner fabrics**, it is better to use the **larger** Back Part (art. 53 007). Its size means this Back Part can better hold the split Rivet shaft, avoiding any damage to the crystal.
For **multi-layered or thicker** materials, the smaller Back Part (art. 53 009) can be used. To create a lasting bond, this requires less space for the split Rivet shaft. If the carrier material proves too thick, or is made up of several layers, it is recommended to punch a hole before application.



Application Instruction Movie

Rivets - Application with a fly press

Learn how to properly apply Rivets using a fly press by watching instruction movie online at https://b2b.ecommerce.swarovski.com



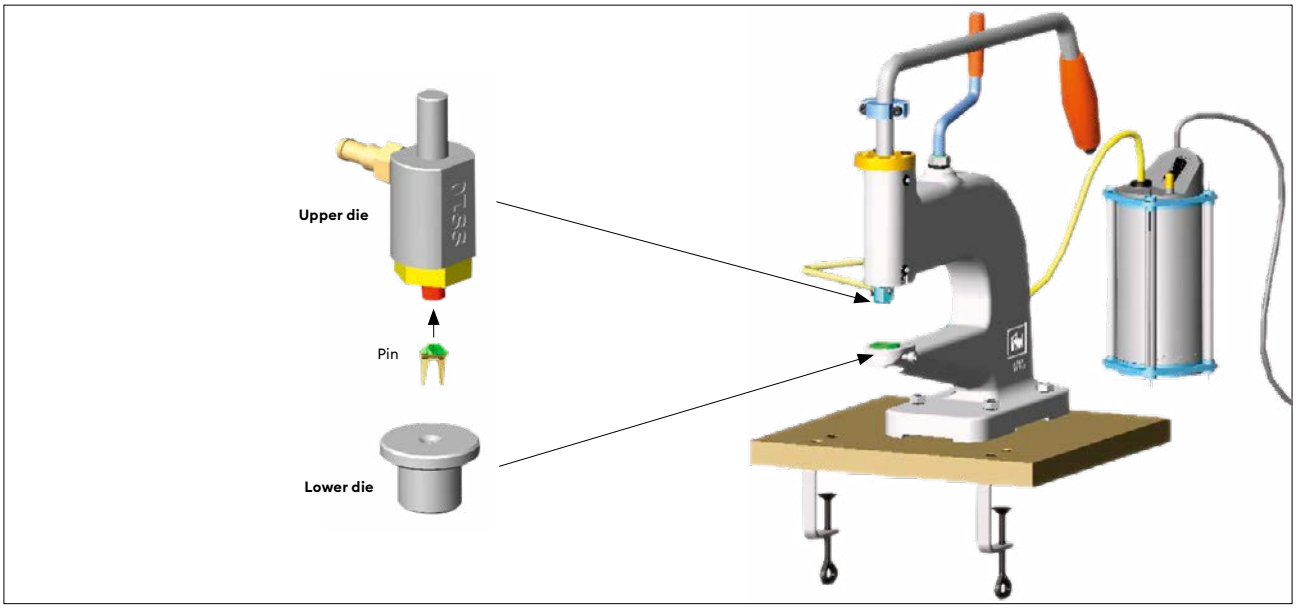
Rose Pins

Pins can be easily applied using a fly press, a semi- or fully-automated attaching machine. The application with the fly press will be explained step by step. Please note the material thickness when selecting Pins.

	ART.	SIZE	MATERIAL THICKNESS*
ROSE PINS	**53 301**	SS 10	1 – 2 mm
	53 302	SS 16	1 – 2 mm
	53 303	SS 20	1 – 2 mm
	53 304	SS 34	1 – 2 mm

* This can vary according to the softness and production of the carrier material.

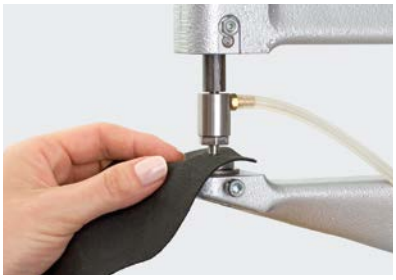
Application with a fly press



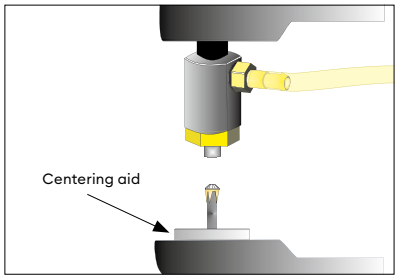
To apply Pins, attach the appropriate die to the fly press.



1 Place the Pin in the upper die.



2 Position the carrier material and apply. Regulate the offset/pressure using the adjustable stop.



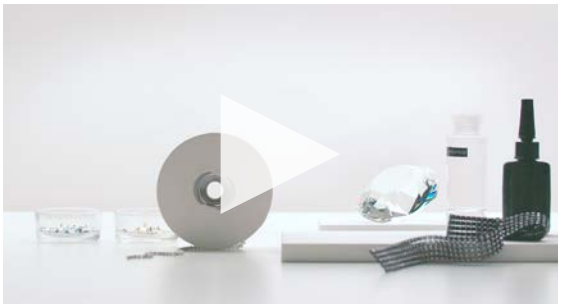
To facilitate the positioning of the small Rose Pin (art. 53 301, SS10) in the upper die, the centering aid can be used. The tool must be removed before applying the Rose Pin.

Note: Do not apply Pins on areas of the carrier material that are under high mechanical stress, such as critical parts of a shoe. After application, ensure the Pins are not heated up to more than 80 °C (176 °F).

Application Instruction Movie

Rose Pins - Application with a fly press

Learn how to properly apply Rose Pins using a fly press by watching the corresponding instruction movie online at https://b2b.ecommerce.swarovski.com



Application with a Rose Pin mold

To apply Rose Pins a Rose Pin mold (patented by Gruppo Meccaniche Luciani) can be used. Therefore Rose Pins are sieved into cavities of the lower part of the mold by using PVC masks specific for each diameter/ design. In a next step base material is put into the mold. By closing mold and adding pressure by using a hydraulic press Rose Pins are applied onto base material simultaneously in one step.



1 Place the first PVC mask onto the lower part of the mold.



2 Sieve Rose Pins into the mask with the claws pointing upwards. Use one mask for each Rose Pin size and repeat the sieving step with all masks.



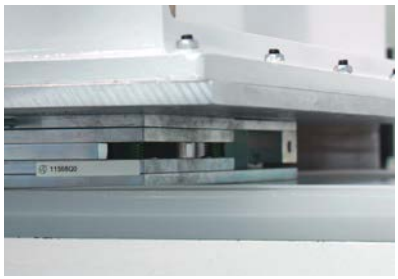
3 After having sieved all Rose Pins into the mold, remove the masks.



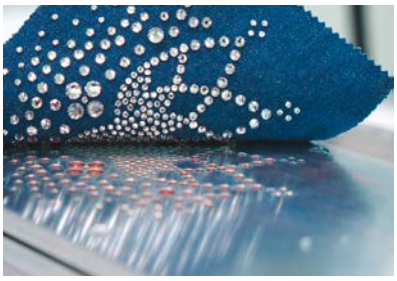
4 Put the fabric onto the lower part of the mold. Right site of fabric is facing down.



5 Close the mold and place it in a hydraulic press.



6 Press the mold with the hydraulic press.

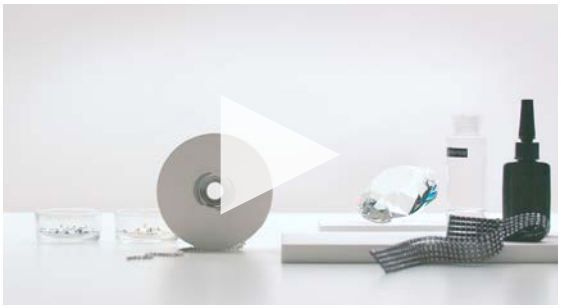


7 After pressing, open the mold and remove the fabric with the applied Rose Pins.

Application Instruction Movie

Rose Pins - Application with a Rose Pin mold

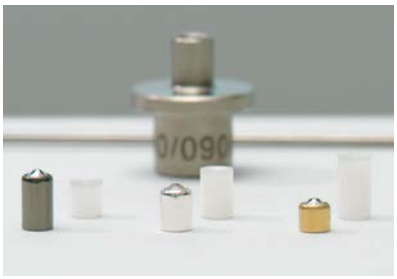
Learn how to apply many Rose Pins simultaneously using a mold by watching our instruction movie online at https://b2b.ecommerce.swarovski.com

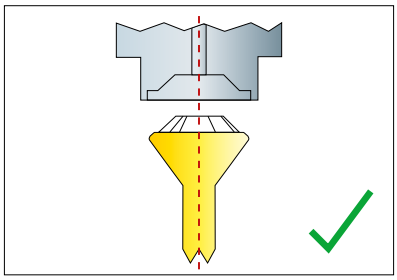


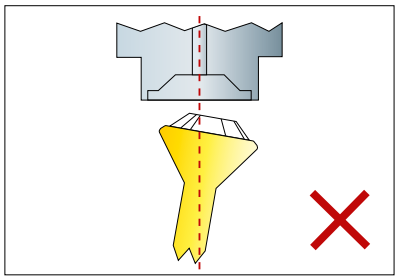
Useful Information

Optimum product/die alignment

In general, when carrying out mechanical applications it is important to ensure the proper alignment of products in the dies, so as to avoid any problems.

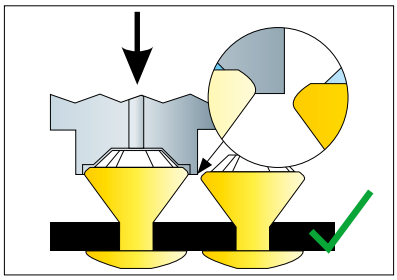


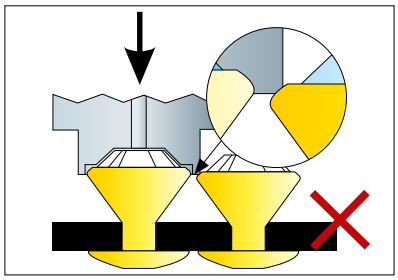




Minimum gaps

Please note that during application, the product is entirely surrounded by the upper die. To prevent neighboring products from being damaged, check the minimum space required by the die when calculating the gap between each item.





Die maintenance

Please check the dies used before and during production, and change them when they become worn.

For machines with vacuum connections, blockages in the upper die can be released using a needle.

Quick Assistance

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

PROBLEM	CAUSE
The product is not ideally affixed onto the carrier material.	1, 2, 3, 4, 5
The fabric ripples or crinkles.	2, 3, 4, 5
The dies cannot be inserted in the fly press.	3, 6, 7, 8
It is not possible to unscrew the dies.	6, 8, 9
The crystals break.	2, 3, 4, 5, 10
The crystals do not hold in the upper die.	12, 13

CAUSE		RECOMMENDATION
1	The pressure may be too low.	Apply the product again using increased pressure; adjust the stop.
2	The carrier material is too thick or consists of too many layers.	With Rivets, select the smaller Back Part. With Rivets a hole can be pre-punched.
3	The dies/spare parts for the upper die are defective or have been wrongly inserted.	Check the dies and if necessary, replace or repair them.
4	The product has been applied using the wrong dies.	Check to make sure that the right dies are being used for the product.
5	The dies have not been inserted correctly.	Make sure that the products are placed exactly in the right position on the dies. By turning the fly press handle slowly, it is possible to see if the upper and lower parts of the tool meet exactly.
6	The fly press and dies do not fit together.	Make sure that the fly press and the upper die have the same thread size (M6 or M8).
7	The upper die cannot be fitted.	Check the fastening screw on the upper die; it may have been screwed too tightly.
8	The die/spare part may be damaged.	Check the dies; if they are faulty use a new die or spare part.
9	The screw on the upper die has broken off.	Carefully try to loosen the screw using pliers. Oil from time to time; it may be necessary to center-drill the die.
10	The pressure may be too high.	Apply the product again using slightly less pressure; adjust the stop.
11	The die damages the crystal.	Check the dies and if necessary replace the upper die or the spare parts.
12	The vacuum hose is blocked or damaged.	Check and if necessary change the vacuum hose.
13	The vacuum hole in the upper die is blocked.	Clean the vacuum hole and if necessary change the spare part.


100% COTTON
30

9

Care Instructions

To ensure the highest quality and long-lasting applications of Swarovski products, proper care is essential.

178 Textile Care Instructions
182 General Care Instructions
183 Laws, Regulations, Norms, and Standards
183 Warning Notices

Textile Care Instructions

GENERAL RECOMMENDATIONS			60°C*	40°C	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			✓		
Flat Backs No Hotfix[1]			✓		
Flat Backs Hotfix	Rose, XILION Rose, XIRIUS Rose[1] & Creation Stones		✓		
	Creation Stones Plus[2]				
	Cabochons			✓	
Fancy Stones			✓		
Beads			✓		
Crystal Pearls					✓
Pendants					
Sew-on Articles	Articles up to 28 mm		✓		
	Articles bigger than 28 mm				
Crystal Buttons					
Crystal Transfers	XILION Transfers, XIRIUS Transfers[1], Creation Transfers & Crystal Diamond Transfers		✓		
	Creation Transfers Plus[2]		✓		
	Mezzo Transfers			✓	
	Cabochon Transfers			✓	
Crystal Textures Hotfix	Crystal Fabric			✓	
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks			✓	
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print			
		Glass print			
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks			✓	
	Crystal Intarsia				
	Crystaltex Chaton Bandings			✓	
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks				✓
Crystal Textures Coldfix	Crystal Fabric				
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks				
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print			
		Glass print			
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks				
	Crystal Intarsia				
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks				
Crystal Textures IT	Crystal Fabric				
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks				
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print			
		Glass print			
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks				
	Crystal Intarsia				
	Crystaltex Chaton Bandings				
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks				
Crystal Texture Removable	Crystal Fabric				
	Crystal Rocks, Fine Rocks & Ultrafine Rocks				
	Graphic Fabric, Rocks, Fine Rocks, Ultrafine Rocks & Intarsia	Foil print			
		Glass print			
	Foil Overlay Fabric, Rocks, Fine Rocks & Ultrafine Rocks				
	Crystal Intarsia				
Linked Crystal Components	Crystal Mesh Standard & Crystal Fine Mesh				
	Crystal Mesh Coloree & Crystal Mesh Coloree Mini				
	Crystal Light Mesh & Crystal Light Mesh Mini				
	Crystal Cavier Mesh				
	Fishnet Bandings		✓		
	Round Cupchains, Round extended Supchains, Bezel Chains	Plated			
		Unplated			
	Multi-Row Cupchains				
Crystal Rivets & Rose Pins				✓	

1 Xirius size SS40 and SS48 only hand wash
2 Creation Stone Plus have a stone size bigger than 8mm length and /or bigger than 4mm height.
* Colors are machine washable at 60 degree C. Please note that the general care instructions in the Application Manual dependent on the product groups where the colors are applied. Swarovski effects are only washable with 40 degree C max.
** Wash by hand, do not use machine wah, wash garment in a sink or tub using your hands, max. temperature 30 degree C
*** 001 CAL, 001 LISH, 001 RABDK & 001 ANTP may not be tumble dried!
**** Crystal lacquer Pro effects will not withstand gentle professional wet cleaning

					
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!
			✓		✓
			✓		✓
		✓	✓	✓	
✓		✓	✓		✓
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			✓		✓
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			✓	✓	
✓			✓		✓
	✓		✓		✓
	✓		✓		✓
			✓		✓

				
			Iron inside out using a silk/polyester/ viscose setting.	Iron inside out using a wool setting.
Round Stones				
Flat Backs No Hotfix[1]				
Flat Backs Hotfix	Rose, XILION Rose, XIRIUS Rose[1] & Creation Stones		✓	
	Creation Stones Plus[2]			
	Cabochons		✓	
Fancy Stones				
Beads				
Crystal Pearls				
Pendants				
Sew-on Articles	Articles up to 28 mm			
	Articles bigger than 28 mm			
Crystal Buttons				
Crystal Transfers	XILION Transfers, XIRIUS Transfers[1], Creation Transfers & Crystal Diamond Transfers		✓	
	Creation Transfers Plus[2]			
	Mezzo Transfers		✓	
	Cabochon Transfers		✓	
Crystal Textures Hotfix	Crystal Fabric		✓	
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks		✓	
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print		
		Glass print		
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks		✓	
	Crystal Intarsia		✓	
	Crystaltex Chaton Bandings		✓	
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks		✓	
Crystal Textures Coldfix	Crystal Fabric			
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks			
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print		
		Glass print		
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks			
	Crystal Intarsia			
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks			
Crystal Textures IT	Crystal Fabric			
	Crystal Rocks, Crystal Fine Rocks & Crystal Ultrafine Rocks			
	Graphic Fabric, Rocks, Fine Rocks & Ultrafine Rocks, Intarsia	Foil print		
		Glass print		
	Foil overlay fabric, Rocks, Fine Rocks & Ultrafine Rocks			
	Crystal Intarsia			
	Crystaltex Chaton Bandings			
	Laquered Foil Fabric, Rocks, Fine Rocks & Ultrafine Rocks			
Crystal Texture Removable	Crystal Fabric			
	Crystal Rocks, Fine Rocks & Ultrafine Rocks			
	Graphic Fabric, Rocks, Fine Rocks, Ultrafine Rocks & Intarsia	Foil print		
		Glass print		
	Foil Overlay Fabric, Rocks, Fine Rocks & Ultrafine Rocks			
	Crystal Intarsia			
Linked Crystal Components	Crystal Mesh Standard & Crystal Fine Mesh			
	Crystal Mesh Coloree & Crystal Mesh Coloree Mini			
	Crystal Light Mesh & Crystal Light Mesh Mini			
	Crystal Cavier Mesh			
	Fishnet Bandings			
	Round Cupchains, Round extended Supchains, Bezel Chains	Plated		
		Unplated		
	Multi-Row Cupchains			
Crystal Rivets & Rose Pins				

1 Xirius size SS40 and SS48 only hand wash
2 Creation Stone Plus have a stone size bigger than 8mm length and /or bigger than 4mm height.
* Colors are machine washable at 60 degree C. Please note that the general care instructions in the Application Manual dependent on the product groups where the colors are applied. Swarovski effects are only washable with 40 degree C max.
** Wash by hand, do not use machine wah, wash garment in a sink or tub using your hands, max. temperature 30 degree C
*** 001 CAL, 001 LISH, 001 RABDK & 001 ANTP may not be tumble dried!
**** Crystal lacquer Pro effects will not withstand gentle professional wet cleaning

				
Do not iron!	The textile can be gently dry-cleaned using perchlorethylene. Turn inside out.	The textile can be gently dry-cleaned using hydrocarbon. Turn inside out.	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.			
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General Care Instructions

A light layer of dust is most easily removed with a clean, dry and antistatic cloth. To avoid unsightly fingerprints on the crystal, wear white cotton gloves during the cleaning process. For heavier dirt, lukewarm water with a little dishwashing detergent will suffice. Ideally you should use a damp and clean microfiber or thin, lint-free cotton cloth. Gently wipe each individual crystal and dry with a clean cloth. Again, wearing white cotton gloves is recommended.
When cleaning with moisture, make sure to use cleaning agents that do not damage the surrounding material. By correctly cleaning your Swarovski crystals, you will restore their full reflectivity.



Cloth

Not following Swarovski care instructions can damage the product and thus lead to damage of textiles or other damage.
Please note that with all standard washing processes (whether carried out by a household washing machine or via dry cleaning) the rotation of the drum places significant mechanical forces on the textiles. The most important factor in ensuring a secure wash is correctly applying the product, without compromising its adhesion. The larger the product employed, and the more products are applied next to each other, the greater the risk of damage. Swarovski products must be handled with suitable care.

In general, it is recommended that a soft wash bag is used and that the washer drum is filled to protect against damage. To maintain the quality of crystals from Swarovski, the following is also important: before washing, turn items of clothing inside out, select a gentle wash cycle, and use a mild detergent. According to DIN EN ISO 3758, our care instructions list all product groups, meaning each product used by customers must be assessed separately with regard to its washability and suitability for its purpose/the end product. The recommendations given by Swarovski reflect our current level of knowledge. Swarovski uses these recommendations to decide on the suitability of the product for textile applications. Customers are solely responsible for defining the recommended cleaning process for the end product, and must consider the care advice of Swarovski and any other manufacturers in doing so. The type of shape, cut, surface effect, and size, as well as the weight of the application and the quantity of crystals used has a significant impact on the cleaning process to be followed.
To avoid all risks, customers/textile cleaning companies should remove any large crystals, buttons, etc., that have been stitched on before cleaning, and stitch them back on again afterwards.

Laws, Regulations, Norms, and Standards

The composition of loose and forward-integrated crystals in the Advanced Crystal standard is compliant with regulatory industry norms and laws regarding the restriction or prohibition of certain substances for finished products in the most relevant segments of our customers' businesses. Further information can be found at swarovski.com.

Warning Notices

General Warnin ⚠

Loose crystals may present a small parts hazard to young children, particularly children under three years old. Depending on the size of the crystal and any attached material (such as glue, fabric, etc.), children may choke on, inhale, swallow, or insert the crystal into their noses. Magnetic products with crystal applications pose a particular risk of serious intestinal injury if ingested. The application techniques as stated in the Application Manual do not guarantee that crystals will not come loose or chip. For each application, the manufacturer must determine whether the product meets the relevant requirements related to small parts hazards and assess any risk it may pose, in particular to small children. Failure to follow Swarovski's care instructions may result in damage to the crystal, which could pose a risk of laceration or other harm.

Warning for Tableware

Application of loose crystals to tableware presents a potential risk of aspiration, choking, swallowing, or tooth damage should crystals become loose. To reduce this risk, crystals should never be applied to any tableware surface likely to come in contact with food or the mouth, and crystals should never be placed on any tableware intended for use by children. Tableware with crystals intended for decorative use only should be marked as such. To avoid dishwasher damage, tableware decorated with crystals should be washed by hand. The application techniques or suggestions in this manual do not guarantee that crystals will not come loose. For each application, the manufacturer must determine whether the product meets relevant requirements related to small parts hazards or use in food contact items and assess any risk it may pose to users. The use of crystals (which may contain restricted substances deemed hazardous under local laws) and adhesives on tableware is subject to legal restrictions in specific countries. The customer is fully responsible for complying with these country-specific provisions and shall defend, indemnify, and hold Swarovski harmless from any and all third-party claims based on product liability or otherwise relating to uses of Swarovski products and waives all its own claims against Swarovski.

Notice for Application on Packaging

The use of crystals that may contain substances like lead, cadmium or hexavalent chromium, on packaging is subject to legal restrictions in specific countries including but not limited in regard to the total content of substances based on the proportion between crystal mass to the remaining weight of packaging. The customer is fully responsible for complying with these country-specific provisions and to pass on this information to his customers.

Care Instructions
Failure to follow Swarovski's care instruction may result in damage to the Swarovski product, which could pose a risk of laceration or other harm. Please be informed that all conventional laundering processes (household washing machine as well as professional dry-cleaning) have a considerable mechanical influence onto the garment, which is based on the rotation of the washing drum. The essential requirement for a safety laundering process is that the Swarovski products are proper applied without restrictions regarding the adherence of the Swarovski products. The bigger the size of the used Swarovski product is and the more Swarovski products are applied next to each other, the more a risk of damage has to be taken into consideration. Swarovski products are made of or incorporate crystal and therefore must be handled with due care! Generally, to best protect the Swarovski products from breaking we recommend the use of a soft washing bag and to fill up the washing drum. Turning inside out before washing and selection of a gentle washing program, plus the use of mild detergents are important prerequisites to safeguard the quality of our Swarovski products. Our care instructions based on DIN EN ISO 3758 list up all Swarovski product groups as overview so that each used Swarovski product still needs to be judged in terms of its cleaning suitability for the intended purpose and finished product by the customer. Swarovski's recommendations are given according to the current state of our knowledge and Swarovski's determination of the qualification as textile application product. The customer is therefore fully responsible to determine the cleaning process applicable to the finished product, taking the Swarovski care instructions as well as those of third party materials into account. The variety of shape, cut, surface effect, size and application weight respectively amount of used Swarovski products are decisive for the determination of the suitable cleaning process. To be entirely safe customers respectively dry-cleaners usually take off Sew-on Stones, Buttons, etc. of bigger size before cleaning and re-apply them afterwards.

Unsuitable Applications
Crystals from Swarovski are intended for use in the fields of fashion, jewelry, accessories, textile products, and for interior décor. Due to their physical properties, crystals from Swarovski are unsuitable for other uses (e.g. gluing onto teeth, using crystals on or near mucous membranes, and other unsafe uses). The customer shall defend, indemnify and hold Swarovski harmless from any and all third-party claims based on product liability or otherwise relating to uses of Swarovski products purchased by the customer, and waives all its own claims.

Responsibility of User
Any oral, written, or test-based advice that Swarovski provides regarding techniques for application of its products are recommendations based on Swarovski's current knowledge and the information provided by its suppliers. Such advice does not discharge the customer from carrying out its own tests of techniques it proposes to use and their suitability for the intended application. The application, use, and processing of these techniques and products are solely the user's responsibility.

Change of Product
Swarovski reserves the right to modify the dimensions, shape, composition and concentration of components belonging to products that are referred to in this Product Information brochure. Furthermore, any applicable laws and regulations mentioned are subject to change, which is why Swarovski regularly publishes an updated version of the Product Information brochure containing facts, (application) instructions, and the current legal situation that is valid at the time of publication. References to compliance with such regulations as are stated above are based on their requirements as of the current date. Anyone seeking an in-depth understanding of the provisions should read the various laws in their entirety and/or seek advice from a legal counsel.
The customer must request and observe the valid version of the Product Information brochure before (re)ordering and using the products.

Valid from November 2024

Content is subject to change without notice.
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Please note, the actual products may deviate from the pictures in color and effect.
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