Crystal Fashion Components

Application Manual

GLUING

INTRODUCTION

Crystal components can be processed very simply and effectively thanks to the unrivalled product quality and the application systems developed by Swarovski. To maximize these benefits, Swarovski has introduced its unique Application Support service which passes all its application expertise onto all its users.

This manual gives you a brief overview of the most important crystal processing techniques. You can obtain more in-depth support from our technical specialists, who are available throughout the world, or on our business-to-business website: www.business.swarovski.com.

Here you will find, amongst other things, a wide range of multimedia support which we are continually developing, including animations, FAQs and hints and tips, which will help you meet a variety of technical challenges.
Turning dreams into reality is, after all, what the fashion business is all about!

OVERVIEW OF APPLICATION METHODS

PRODUCT GROUPS	SELECTION OF PROCESSING OPTIONS						
	GLUING*	HEAT*	BEADING	SEWING*	SOLDERING*	MECHANICAL*	SETTING
ROUND STONES	■						■
FLAT BACKS NO HOTFIX	■						■
FLAT BACKS HOTFIX		■					
SEW-ON STONES	■		■	■			
FANCY STONES	■		■	■			■
BEADS			■	■			
CRYSTAL PEARLS			■	■			
PENDANTS			■	■			■
TRANSFERS		■					
CRYSTAL FABRIC	■	■		■			
PLASTIC TRIMMINGS	■	■	■	■		■	■
ZIPPERS				■			
BUTTONS & FASTENERS			■	■		■	
METAL TRIMMINGS	■			■		■	■
CRYSTAL MESH NO HOTFIX			■	■			
CRYSTAL MESH HOTFIX	■	■		■			
CUPCHAINS & FINDINGS			■	■	■	■	■

* These application methods are described in detail in this manual. You can obtain information about all other types of application from your Swarovski partner or on our website www.business.swarovski.com.

Our oral, written, and advice by testing are recommendations based on our current state of knowledge and the information provided by our suppliers. It does not discharge you from carrying out your own tests of the proposed techniques and their suitability for the intended application. You will therefore apply, use and process the techniques and products within your sole responsibility.

GLUING

You can obtain the best possible results from gluing crystal components by ensuring that the following interdependent processes are correctly coordinated:

design, materials, preparation, adhesive and processing.

PRE-TREATMENT

SURFACE TENSION

Surface tension is an easily measured indicator of the wetting properties of a surface to which glue is to be applied. To glue Swarovski crystal components we recommend a minimum surface tension of 38 mN/m.

You can measure this, for example, by using test inks.

1

2

3

1 Before starting volume production, mark a representative area with ink.

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

3 If the ink disappears or forms droplets, the surface is not suitable for gluing Crystal Components. Where applicable, check your preparation methods.

PRE-TREATMENT METHODS

You can only achieve the best possible results and the maximum adhesion of the crystal by correctly preparing the surface to which glue is to be applied. The most important preparation methods are cleaning and pre-treatment.

		OBJECTIVE	POSSIBLE METHODS	COMMENTS
CLEANING	Cleaning	Removing varnish, dirt, scale and rust	Brushing, grinding, sand blasting	We recommend cleaning all surfaces to which glue is to be applied.
	Degreasing	Removing grease and oil residues	Surfactant solution, solvent (e.g. acetone, methyl ethyl ketone (MEK), methyl alcohol, ethyl acetate)	Make sure that you use surfactants which do not contain silicone, otherwise the adhesion of the glue may be reduced. Rinsing with fully desalinated water can produce even better results. Avoid using solvents which contain components with a high boiling point. These additives can leave residues on the surface which will have an impact on the quality of the bond.
PRE-TREATMENT	Mechanical	Roughening the surface	Brushing, grinding, sand blasting	
	Physical	Improving the wetting and adhesion properties	Corona process, low pressure plasma process, flame treatment	
	Primer	Further improving adhesion and preventing corrosion		

OVERVIEW OF TOOLS AND AIDS

Dosing syringes
With a syringe you can use exactly the right amount of glue.

Wax sticks
Using the wax stick, pick up the crystals and position them carefully. Avoid using silicone, as it might reduce the brilliance of the Swarovski crystal components. Silicone residues on the platinum foil could also reduce the adhesion.

Tweezers
Using the tweezers, pick up the crystals and position them carefully.

GLUING

CHATONS AND FANCY STONES

1

2

3

4

1 The surface must be pretreated before gluing (e.g. cleaning, degreasing, sand blasting etc.).

2 Apply the glue using a dispenser. When applying a blob of glue, the needle must be held just above the surface and then slowly lifted upwards. This prevents the glue running out to the side.

3 Pick up the Chaton with the wax stick.

4 Move the Chaton carefully into the prepared cavity and press it down lightly.

FLAT BACKS NO HOTFIX

You can glue Flat Backs No Hotfix to a wide variety of flexible and inflexible carrier materials with a single or two-component glue.
Please note that it is particularly important to choose the correct glue when applying No Hotfix stones. The glue indication guidelines on page 12 of this manual will help you to identify the correct adhesive system.

1

2

3

4

1 Position the Flat Backs with the flat side upwards on the transparent film.

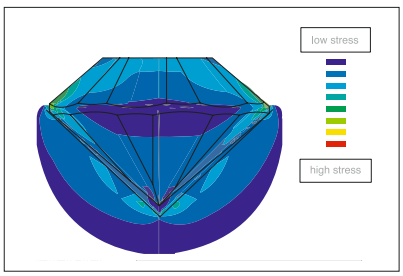
2 Apply the glue using a dispenser.

3 Position the motif with the film in the required place, ensuring that the surface has been cleaned.

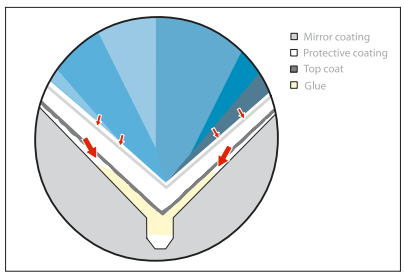
4 After the glue has hardened, you can remove the film.

HARDENING, SHRINKAGE

Glues shrink when they harden. The amount of shrinkage that occurs depends primarily on the type of glue used. Solvent-free glues should be used if at all possible.



The epoxy glue used in this picture is suitable for gluing Swarovski crystal components because of its special properties.



Here there is too much shrinkage. Shrinkage can cause stresses and even fractures, in the worst-case scenario.

HINTS AND TIPS

CLEANING

If the surface tension is less than 38mN/m, the following cleaning methods (in the order given below) may produce the desired results: Cleaning with (1) isopropanol (2) acetone (3) cleaning solvents

MIXING GLUE COMPONENTS

Mixing two-component glues correctly is very important. You will only achieve the best results with evenly mixed components. Follow the manufacturer's instructions.

1

2

3

4

1 Mix the glue components following the instructions provided with the product.

2 You should mix the components thoroughly for at least a minute.

3 Put the glue in a dispenser.

4 Fix the dosing syringe onto the dispenser.

GLUING TO PLASTIC

There are many different types of plastic. The table below contains basic information about the glueability of selected types of plastic.

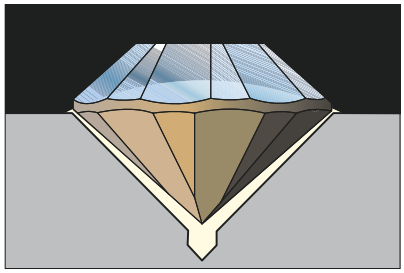
PLASTICS, SYNTHETICS	COMMON TRADE NAMES OF GLUES	GLUEABILITY
ABS	Abselex, Lacqran, Tynrene	Good
ASA	Luran S, Geloy	Good
CA	Ultraphan, Saxetat, Thodialite	Good
EP	Araldite, Ferropox, Duroxyn	Good
PA	Degamid, Nylon, Perlon	Very difficult
PC	Polycarbafil, Lexan, Andoran	Good
PE	Geberit, Hostalen G, Ferrozell	Bad
PET	Cardura, Atlas, Eralyt	Difficult
PF	Formanyl, Holoplast, Kerit	Good
PIB	Parapol, Oppanol, Vistanex	Good
PMMA	Plexiglass, Resartglass	Good
POM	Delrin, Kematal, Ertacetal	Difficult
PP	Moplefan, Proplex, Verelite	Bad
PS	Hostyrene, Styropor, Noblen	Good
PTFE	Teflon, Gaflon, Ferrotron	Very bad
PVC	Marcoproplat, Ravinil, Sumilit	Good
SAN	Litac, Tuf-Flex, Vestoran	Good
SILICONE	Silopren, Contiduct, Corotex	Bad
UP	Celipal, Sirester, Vestopal	Good

TYPES OF GLUE

MATERIAL	RECOMMENDED TYPE OF GLUES					COMMON BRAND NAMES
	Epoxy glue	UV glue	Cyanoacrylate glue	Polyurethane glue	Solvent glue	
ALUMINUM	■ ■ ■					Uhu Plus endfest 300 Araldite 2011 Araldite 2016
BRASS	■ ■ ■					Uhu Plus endfest 300 Araldite 2011 Araldite 2016
CERAMICS	■ ■ ■					Uhu Plus endfest 300 Araldite 2011 Araldite 2010
CORK	■ ■ ■				■	Uhu Plus endfest 300 Araldite 2011 Araldite 2013 Bostik 1475
GLASS	■ ■	■		■		Uhu Plus endfest 300 Araldite 2011 Araldite 2026 Glasbond GB 368
PAPER	■		■ ■			Uhu Plus endfest 300 Uhu Sekundenkl. Gel Cyberbond 2999
POLYCARBONATE/ ACRYLIC	■ ■		■	■		Uhu Plus endfest 300 Araldite 2011 Araldite 2026 Uhu Sekundenkl. Gel
POLYSTYRENE	■		■		■	Bostik 1475 Uhu Plus endfest 300 Uhu Sekundenkl. Gel
PVC/ABS	■ ■			■		Uhu Plus endfest 300 Araldite 2011 Araldite 2026
RUBBER	■		■ ■	■		Araldite 2011 Araldite 2026 Uhu Sekundenkl. Gel Cyberbond 2999
SILVER	■ ■			■		Uhu Plus endfest 300 Araldite 2011 Araldite 2026
STEEL	■ ■ ■					Uhu Plus endfest 300 Araldite 2011 Araldite 2014
STONE	■ ■			■		Uhu Plus endfest 300 Araldite 2011 Araldite 2026
TEXTILES/LEATHER	■			■	■ ■	Chrisanne Glue Bostik 1475 Scotch-Weld DP 610 Uhu Plus endfest 300
WOOD	■ ■ ■				■	Uhu Plus endfest 300 Araldite 2011 Araldite 2013 Bostik 1475

CRYSTAL COMPONENT SETTING (CAVITY)

OPTIMUM CAVITY



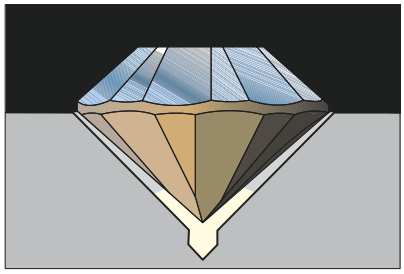
The cavity must be carefully drilled using a special pavé drill at an angle of between 90° – 93°. In addition we recommend drilling a small indentation for excess adhesive in the base of each cavity. This will help to ensure that the crystal is positioned correctly.

If you need further information about cavities for a wide range of cut Fancy Stones in different sizes, please contact your Swarovski partner. We can provide you with support in the form of technical drawings, consultancy on processing and much more.

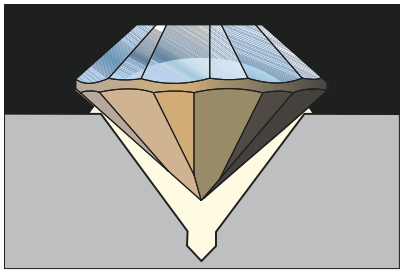
Calculating the optimum cavity size

You will find an interactive calculator for determining the correct size of cavities for Swarovski XILION Chatons at www.business.swarovski.com.

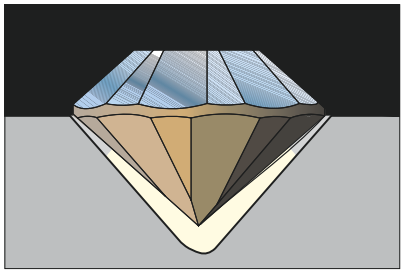
THE MOST COMMON MISTAKES



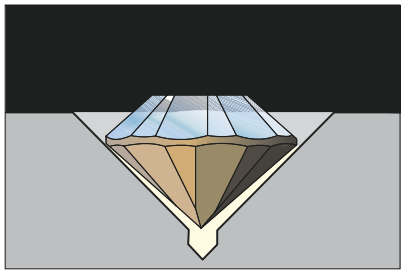
Too little glue



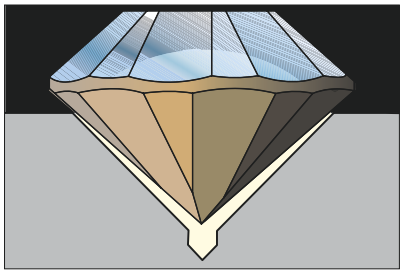
Angle too narrow



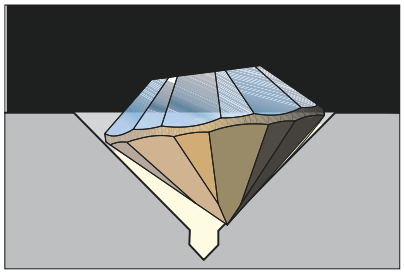
Cavity with round tip



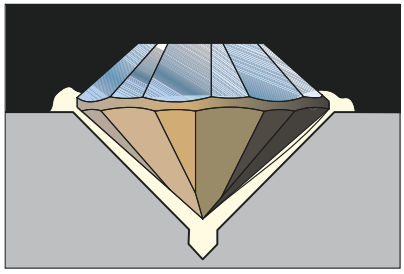
Stone size too small/cavity too large



Stone size too large/cavity too small



Incorrect angle



Too much glue

TROUBLESHOOTING

FAULT	
THE CRYSTAL COMPONENT HAS BECOME DISCOLORED	
The crystal component looks matte or slightly yellowish.	**1, 2**
The crystal component looks black when compared with the stones around it and does not sparkle.	**3**
The crystal component was electroplated.	**4**
THE CRYSTAL COMPONENT HAS COME LOOSE FROM THE CAVITY	
The crystal component has come loose without the foiling.	
The crystal component has become discolored.	**5, 6**
The crystal component has not become discolored.	**6**
The crystal component has come loose together with the mirroring, but without the platinum foiling and without the adhesive.	**7, 8, 9**
The crystal component has come loose with the foiling.	
Glue is still stuck to the crystal component.	**10, 11, 12, 13, 14**
No glue is stuck to the crystal component.	**15, 16, 17**
EXCESS GLUE	
Before hardening	**18**
After hardening	**19**

FAULT	CAUSE	RECOMMENDATION
1	Glue residues have not been completely removed and have been smeared over the crystal component.	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.	Use less glue or remove the excess glue carefully, e.g. using acetone or isopropanol.
3	The cavity was drilled unevenly in the unfinished casting.	When drilling the cavities in the original model, use a drill with a special bit, which will allow you to control the direction and depth of the cavity more accurately.
4	The jewelry was only electroplated after the crystal components had been glued to it.	We recommend electroplating before gluing the crystal components.
5	A glue cavity which has not been completely filled is causing corrosion.	Use sufficient glue.
6	Tensile stresses are reducing the adhesion of the mirroring. Oxygen is penetrating between the crystals and the mirroring and causing oxidation.	Use a more elastic glue with less shrinkage.
7	An incorrect adhesive system was used.	Carry out tests with other adhesive systems.
8	Incorrect proportions of resin and hardener were used.	Follow the glue manufacturer's mixing instructions.
9	The glue and/or the protective coating were attacked by cleaning products.	Use less solvent or a different type of solvent.
10	Residues of the polishing agent were not completely removed before electroplating.	Check the cleaning processes you are using.
11	A painted piece of jewelry has not been correctly pre-treated before the glue was applied.	Improve the adhesion of the glue, e.g. by using low pressure plasma treatment or possibly flame treatment.
12	Too little glue was used.	Use more glue.
13	The cavity is the wrong shape after electroplating.	Rework the original model to improve the cavity shape.
14	Electrolyte residues have not been completely removed.	Check the cleaning processes you are using.
15	The specified processing time was exceeded, and as result the glue was already hard.	Reduce the processing time.
16	Too little glue was used.	Use sufficient glue.
17	General glue problems. Follow the glue manufacturer's instructions.	Check the conditions under which the glue is stored. Excess solvent could have attacked the glue and/or the foiling.

TROUBLESHOOTING

FAULT	CAUSE	RECOMMENDATION
18	Too much glue was used.	Use a dispenser system to apply exactly the right amount of glue. Excess glue can be carefully removed, for example, using cotton buds dipped in acetone or isopropanol.
19	The piece of jewelry was subjected to stresses before the glue hardened.	Make sure that the glue is allowed to harden, for example before the product is transported.