



# MECHANICAL APPLICATION

Many Swarovski products, such as Snap Fasteners, 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.

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## PRODUCT OVERVIEW

The following products are suitable for mechanical application:

BUTTONS & FASTENERS	MECHANICAL APPLICATION
Snap Fasteners, Decorative Buttons and XIRIUS Flat Back Snap Fastener	✓
Jeans Buttons	✓

METAL TRIMMING	MECHANICAL APPLICATION
Standard Rivets, Square Rivets, Star Rivet, Spike Rivets and Rivet Flat Shaft	✓
Rose Pins and Rhombus Pin	✓
Crystal Studs	✓
3D Studs	✓

## MACHINES AND TOOLS

The following machines and tools 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.



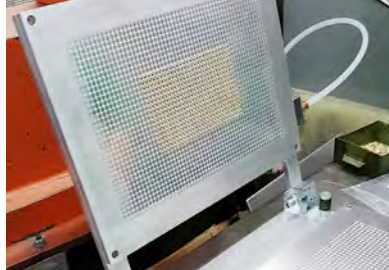
**Vacuum pump** (art. 9040/022) with silicone hose allows products such as Rivets and Pins to be easily held in place for the fly press .



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.



3D Studs can be applied using a **3D Stud mold** (offered by Gruppo Meccaniche Luciani). Please be advised that Swarovski does not provide the tools for this mold.

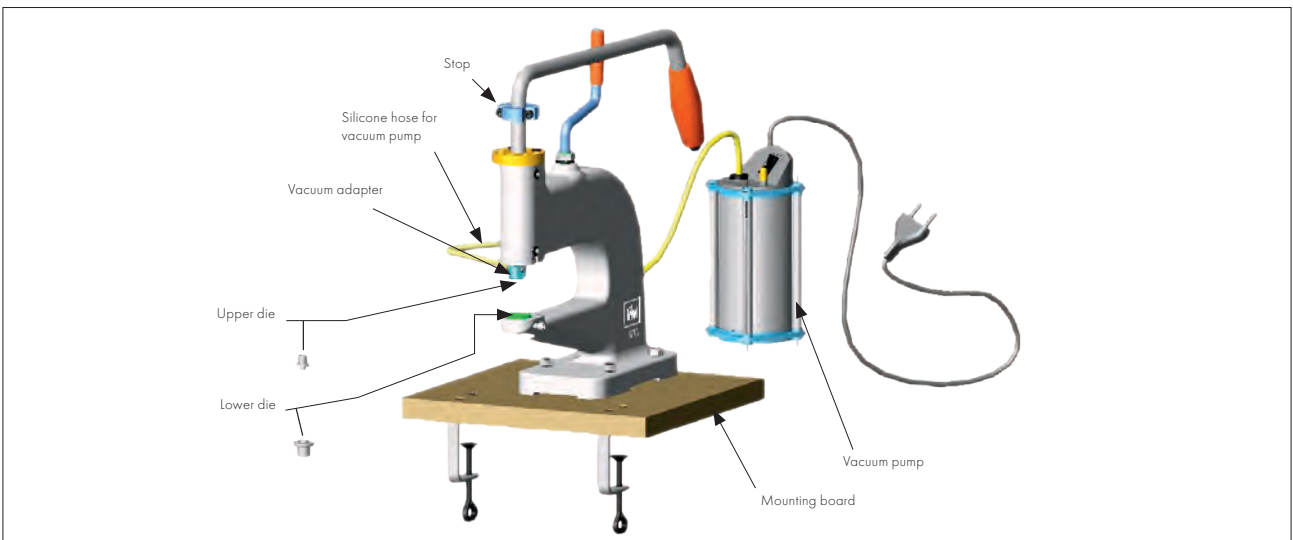


It is recommended that **protective eyewear** is worn during mechanical application, to prevent injury.

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).

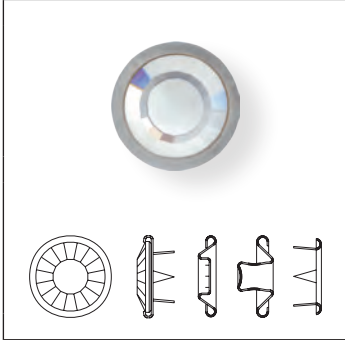
## SNAP FASTENERS AND DECORATIVE BUTTONS

Both Snap Fasteners and Decorative Buttons are applied using a fly press.

While the Decorative Button is only used for decorative purposes,

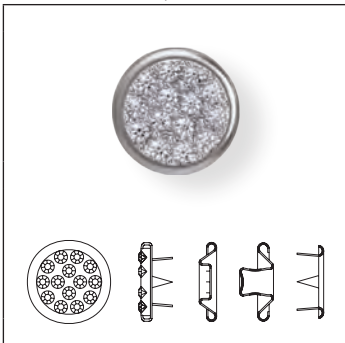
the Snap Fastener comes with the additional closing function.

### 1780/100 Snap Fastener



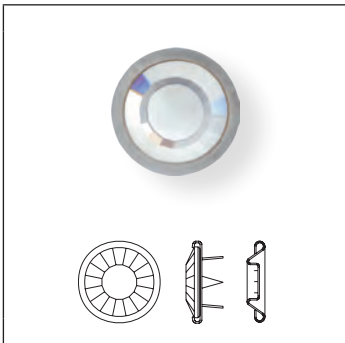
Required Application Tools	Upper Die	Lower Die
		
	Art. 9060/005	Art. 9060/004
		
	Art. 9060/006	Art. 9060/007

### 1780/114 Snap Fastener



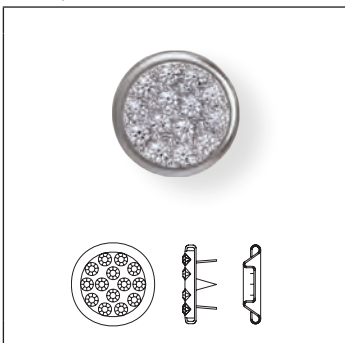
Required Application Tools	Upper Die	Lower Die
		
	Art. 9060/005	Art. 9060/004
		
	Art. 9060/006	Art. 9060/007

### 1781/100 Decorative Button



Required Application Tools	Upper Die	Lower Die
		
	Art. 9060/005	Art. 9060/004

### 1781/114 Decorative Button



Required Application Tools	Upper Die	Lower Die
		
	Art. 9060/005	Art. 9060/004

## XIRIUS FLAT BACK SNAP FASTENER

The XIRIUS Flat Back Snap Fastener is applied using a fly press. The product consists of two parts: the decorative (upper) part and the closure (lower) part. For the

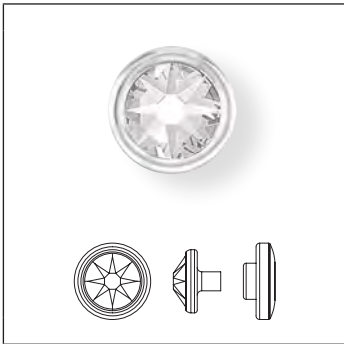
application with a fly press, both parts need a specific upper and a lower die. A vacuum pump (art. 9040/022) and a vacuum adapter (art. 9040/105) enable an

easy fixation of the products in the upper die during application.



**Vacuum adapter** (art. 9040/105) with external screw instead of inner thread to fix the upper die (art. 9060/032 and art. 9060/034).

### 1783/300 01 XIRIUS Flat Back Snap Fastener



Required Application Tools	Upper Die	Vacuum Adapter	Spare Part*	Lower Die
	Art. 9060/032	Art. 9040/105	Art. 9060/036	Art. 9060/033

### 1783/300 02 XIRIUS Flat Back Snap Fastener

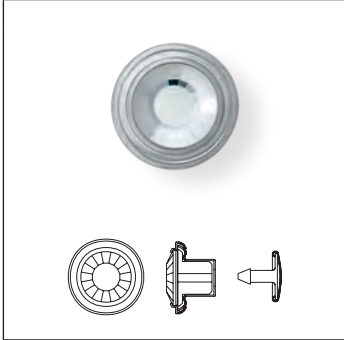





Required Application Tools	Upper Die	Vacuum Adapter	Lower Die
	Art. 9060/034	Art. 9040/105	Art. 9060/035

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

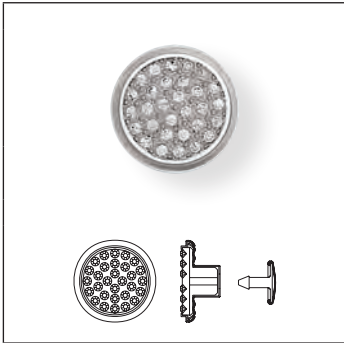
## JEANS BUTTONS


### 1790/100 Jeans Button



Required Application Tools	Upper Die	Lower Die	Thread Adapter <sup>1</sup>
			
	Art. 9060/001	Art. 9060/016	Art. 9060/014 (M6)




### 1790/104 Jeans Button



Required Application Tools	Upper Die <sup>2</sup>	Spare Part <sup>3</sup>	Lower Die	Thread Adapter <sup>1</sup>	Changing Pin
					
	Art. 9060/009	Art. 9060/011	Art. 9060/016	Art. 9060/014 (M6)	Art. 9060/015
	Tool Set				
					
	Art. 9060/020				

### 1790/114 Jeans Button





Required Application Tools	Upper Die	Lower Die	Thread Adapter <sup>1</sup>
			
	Art. 9060/001	Art. 9060/016	Art. 9060/014 (M6)

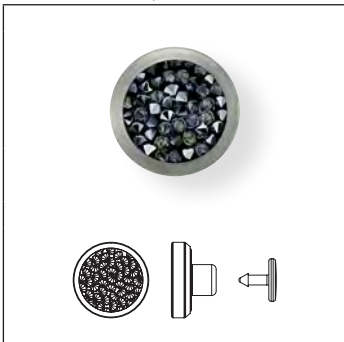
<sup>1</sup> The appropriate thread adapter is supplied with the fly press art. 9040/017 and art. 9040/019.

<sup>2</sup> Holder for plastic insert (spare part). The plastic insert for the upper die (art. 9060/009) must be ordered separately depending on the type of button it will be used with.

<sup>3</sup> Insert for upper die.

**1790/140** Jeans Button

Upper Die <sup>1</sup>	Spare Part <sup>2</sup>	Lower Die	Thread Adapter <sup>3</sup>	Changing Pin
 Art. 9060/009	 Art. 9060/010	 Art. 9060/016	 Art. 9060/014 (M6)	 Art. 9060/015
Tool Set				
 Art. 9060/020				

**1795/140** Crystal Fine Rocks Jeans Button

Upper Die <sup>1</sup>	Spare Part <sup>2</sup>	Lower Die	Thread Adapter <sup>3</sup>	Changing Pin
 Art. 9060/009	 Art. 9060/018	 Art. 9060/016	 Art. 9060/014 (M6)	 Art. 9060/015
Tool Set				
 Art. 9060/020				

**1797/140** Crystal Fabric Jeans Button

Upper Die <sup>1</sup>	Spare Part <sup>2</sup>	Lower Die	Thread Adapter <sup>3</sup>	Changing Pin
 Art. 9060/009	 Art. 9060/018	 Art. 9060/016	 Art. 9060/014 (M6)	 Art. 9060/015
Tool Set				
 Art. 9060/020				

- 1 Holder for plastic insert (spare part). The plastic insert for the upper die (art. 9060/009) must be ordered separately depending on the type of button it will be used with.
- 2 Insert for upper die.
- 3 The appropriate thread adapter is supplied with the fly press art. 9040/017 and art. 9040/019.








## RIVETS

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 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 <sup>1</sup>	Spare Part for Upper Die (insert) <sup>2</sup>	Lower Die for application with Back Part:	Lower Die for application with Back Part:	Lower Die for application without Back Part for Rivet casing color	Lower Die for application without Back Part for Rivet casing color
						088 Stainless Steel	081 Gold 082 Silver 086 Gun Metal 093 Rose Gold
		Art. 9040/023		Art. 9070/010	Art. 9070/012	Art. 9070/011	Art. 9040/015

### 53 000



Art. 9040/005 M8	Art. 9040/023	Art. 9040/008
Art. 9040/014 M6	-	

### 53 001



Art. 9070/005 M8	Art. 9040/023	Art. 9070/008
Art. 9070/009 M6	-	

### 53 002



Art. 9040/005 M8	Art. 9040/023	Art. 9040/008
Art. 9040/014 M6	-	

### 53 005



Art. 9040/064 M8	Art. 9040/023	Art. 9040/062
Art. 9040/063 M6	-	

### 53 006



Art. 9040/067 M8	Art. 9040/023	Art. 9040/065
Art. 9040/066 M6	-	

### 53 008





Art. 9040/083 M8	Art. 9040/023	Art. 9040/084
Art. 9040/085 M6	-	



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.

Required Application Tools	Upper Die	Vacuum Adapter <sup>1</sup>	Spare Part for Upper Die (insert) <sup>2</sup>	Lower Die for application with Back Part:	Lower Die for application with Back Part:	Lower Die for application without Back Part for Rivet casing color	Lower Die for application without Back Part for Rivet casing color
			Art. 9040/105		 53 007	 53 009	088 Stainless Steel
							
				Art. 9070/010	Art. 9070/012	Art. 9070/011	Art. 9040/015

**53 500**



Art. 9040/106	Art. 9040/105	-
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**53 501**



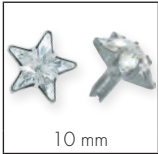
Art. 9040/107	Art. 9040/105	-
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**53 502**



Art. 9040/108	Art. 9040/105	-
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**53 700**



Art. 9040/112	Art. 9040/105	Art. 9040/113
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**53 010**



Art. 9040/123	Art. 9040/105	Art. 9040/124
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**53 011**

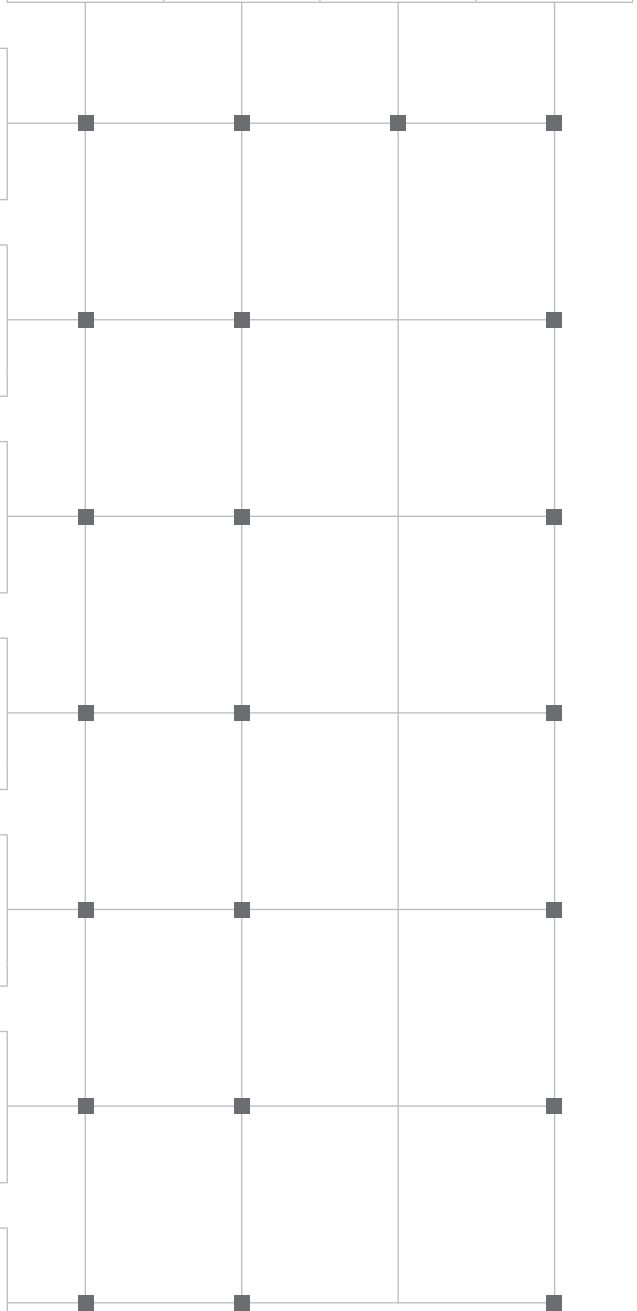


Art. 9040/125	Art. 9040/105	Art. 9040/126
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**53 503**



Art. 9040/127	Art. 9040/105	Art. 9040/128
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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.





## RIVET FLAT SHAFT

For the application of the Rivet Flat Shaft no Back Part is necessary. This reduces the distance between fabric and Rivet and ensures a flat surface on the rear side.

### 53 003 Rivet (SS 29 flat shaft)



Required Application Tools

Upper Die	Vacuum Adapter	Spare Part for Upper Die (insert) <sup>1</sup>	Lower Die <sup>2</sup>
			
Art. 9070/005 M8	Art. 9040/023	Art. 9070/008	Art. 9070/010

Beside applying the Rivet Flat Shaft with fly press, this article can also be applied using an automatic attaching machine.

**Please note:** Lower die (art. 9070/010) was updated in autumn 2014. The new version can be used for all Rivet applications the former tool version was used for. However, please consider that for new Rivets such as the Rivet Flat Shaft, only the optimized version of the tool can be used. If a lower die with article number 9070/010 was bought before October 2014 the tool must be replaced in order to apply the Rivet Flat Shaft successfully.

A vacuum pump and a vacuum adapter (art. 9040/023) enable easy intake and application of the Rivet Flat Shaft. Generally, it is recommended to apply this Rivet only on non-elastic fabrics like jeans or leather with a material thickness of 2 - 3.5 mm.

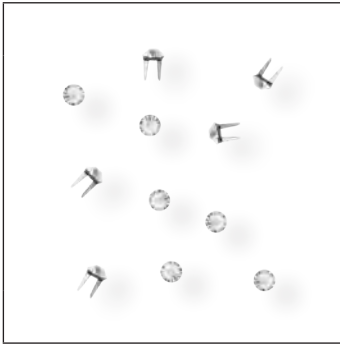
- <sup>1</sup> The spare part (plastic insert) is incorporated into the upper die as standard. It should be changed when it becomes worn.
- <sup>2</sup> Rivet Flat Shaft 53 003 is designed for ring rolling application and is self-backing. The Rivet can be applied on either an automatic or semi-automatic machine or with a fly press. For application with fly press, use the lower die art. 9070/010 without Back Part.

## 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.

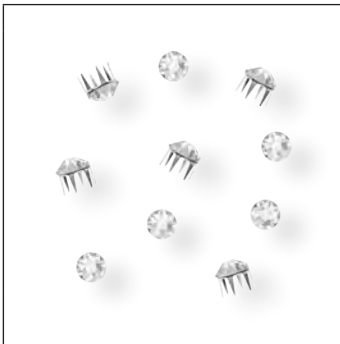
**Please note:** All Rose Pin spare parts have been adapted in summer 2017. They look slightly different now while making it easier to replace the spare part in the upper die.

### 53 301 Rose Pin (SS 10)



Required Application Tools	Upper Die	Spare Part <sup>1</sup>	Lower Die	Centering Aid <sup>2</sup>
	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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.

## RHOMBUS PIN

Rhombus Pins can be easily applied to various materials by using a fly press. A vacuum pump (art. 9040/022) and a

vacuum adapter (art. 9040/105) enable an easy intake and application of the Pins.





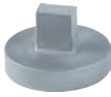


Specially developed **vacuum adapter** (art. 9040/105) with external screw instead of thread to fix the upper die.

### 53 320 Rhombus Pin (10x6 mm)



Required Application Tools

Upper Die	Vacuum Adapter	Spare Part <sup>1</sup>	Lower Die	Centering Aid <sup>2</sup>
				
Art. 9040/116	Art. 9040/105	Art. 9040/119	Art. 9070/021	Art. 9070/022

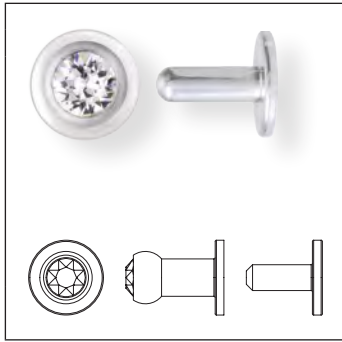
- <sup>1</sup> The spare part (plastic insert) is integrated into the upper die as standard. It should be changed when it becomes worn.
- <sup>2</sup> The **centering aid** (art. 9070/022) for Rhombus Pin 53 320 allows the product to be easily positioned in the upper die.

## CRYSTAL STUDS


A vacuum pump enables an easy intake and application of Crystal Studs. In the upper die the vacuum adapter is already

integrated. Therefore, an additional adapter is not needed.

### 53 730 Crystal Stud (PP 24 long shaft)



Required Application Tools

Upper Die	Lower Die	Buttonhole Punching Tool
		
Art. 9040/120 M6	Art. 9040/121	Art. 9040/122

### 53 731 Crystal Stud (PP 24 short shaft)



Required Application Tools

Upper Die	Lower Die	Buttonhole Punching Tool
		
Art. 9040/120 M6	Art. 9040/121	Art. 9040/122










The **buttonhole punching tool** (art. 9040/122) can be used to create the buttonhole.

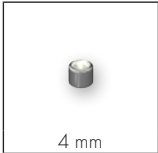
### 3D STUDS

For the application with the fly press, the following tools can be used. Please consider that a vacuum pump (art. 9040/022) is

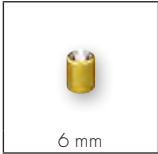
necessary to hold the Back Part in place. The vacuum connection is integrated directly into the upper die.

Required Application Tools	Upper Die	Insert	Insert	Insert	Lower Die	Linear Grid*	Changing Pin
							
	Art. 9060/040	Art. 9060/041	Art. 9060/042	Art. 9060/043	Art. 9060/044	Art. 9060/045	Art. 9060/015

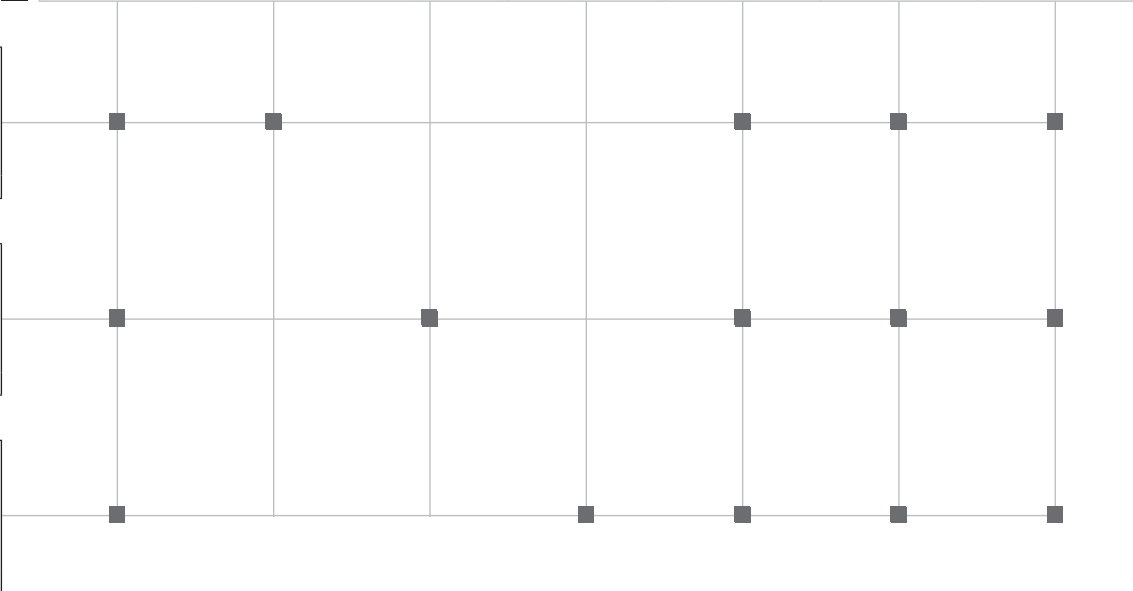
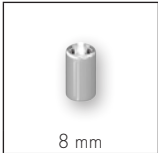
**54 001**



**54 002**



**54 003**



\* Optional tool for the even/linear application of more than one 3D Stud.

# 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 Jiuzhou Machinery Co., Ltd. Seung Min Industrial Co., Ltd. Standard Rivet Company	www.swarovski-professional.com  www.sinojiuzhou.com www.seungminsm.co.kr www.standardrivet.com
Tools for Snap Fasteners (fly press)	Swarovski: <b>Snap Fastener 1780/100 and 1780/114</b> Upper die: art. 9060/005 (1st stage) and art. 9060/006 (2nd stage) Lower die: art. 9060/004 (1st stage) and art. 9060/007 (2nd stage)	www.swarovski-professional.com
Tools for Decorative Buttons (fly press)	Swarovski: <b>Decorative Button 1781/100 and 1781/114</b> Upper die: art. 9060/005 Lower die: art. 9060/004	www.swarovski-professional.com
Tools for XIRIUS Flat Back Snap Fasteners (fly press)	Swarovski: <b>XIRIUS Flat Back Snap Fastener 1783/300</b> Vacuum adapter for upper dies: art. 9040/105 Upper die for decorative part (art. 1783/300 01): art. 9060/032 Spare part (plastic insert) for upper die (art. 9060/032): art. 9060/036 Lower die for decorative part (art. 1783/300 01): art. 9060/033 Upper die for closure part (art. 1783/300 02): art. 9060/034 Lower die for closure part (art. 1783/300 02): art. 9060/035	www.swarovski-professional.com
Tools for Jeans Buttons (fly press)	Swarovski: <b>Jeans Button 1790/100 and 1790/114</b> Upper die: art. 9060/001 Lower die: art. 9060/016 Thread adapter (M6): art. 9060/014  <b>Jeans Button 1790/104</b> Upper die: art. 9060/009 Spare part (plastic insert) for upper die: art. 9060/011 Lower die: art. 9060/016 Thread adapter (M6): art. 9060/014 Changing pin: art. 9060/015  <b>Jeans Button 1790/140</b> Upper die: art. 9060/009 Spare part (plastic insert) for upper die: art. 9060/010 Lower die: art. 9060/016 Thread adapter (M6): art. 9060/014 Changing pin: art. 9060/015  <b>Crystal Fine Rocks Jeans Button 1795/140 and Crystal Fabric Jeans Button 1797/140</b> Upper die: art. 9060/009 Spare part (plastic insert) for upper die: art. 9060/018 Lower die: art. 9060/016 Thread adapter (M6): art. 9060/014 Changing pin: art. 9060/015  All tools as set for <b>Jeans Button 1790/104, 1790/140, Crystal Fine Rocks Jeans Button 1795/140 and Crystal Fabric Jeans Button 1797/140</b> : art. 9060/020	www.swarovski-professional.com



MACHINES & TOOLS	SUPPLIER	CONTACT
Tools for Rivets (fly press)	<p>Swarovski:</p> <p><b>Rivet 53 000</b></p> <p>Upper die (M8): art. 9040/005</p> <p>Upper die (M6): art. 9040/014</p> <p>Spare part (plastic insert) for upper die (art. 9040/005 and 9040/014): art. 9040/008</p> <p>Lower die for Rivet application with Back Part 53 007: art. 9070/010</p> <p>Lower die for Rivet application with Back Part 53 009: art. 9070/012</p> <p>Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015</p> <p>Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011</p> <p>Vacuum adapter for upper die (art. 9040/005): art. 9040/023</p> <p><b>Rivet 53 001</b></p> <p>Upper die (M8): art. 9070/005</p> <p>Upper die (M6): art. 9070/009</p> <p>Spare part (plastic insert) for upper die (art. 9070/005 and 9070/009): art. 9070/008</p> <p>Lower die for Rivet application with Back Part 53 007: art. 9070/010</p> <p>Lower die for Rivet application with Back Part 53 009: art. 9070/012</p> <p>Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015</p> <p>Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011</p> <p>Vacuum adapter for upper die (art. 9070/005): art. 9040/023</p> <p><b>Rivet 53 002</b></p> <p>Upper die (M8): art. 9040/005</p> <p>Upper die (M6): art. 9040/014</p> <p>Spare part (plastic insert) for upper die (art. 9040/005 and 9040/014): art. 9040/008</p> <p>Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015</p> <p>Vacuum adapter for upper die (art. 9040/005): art. 9040/023</p> <p><b>Rivet 53 005</b></p> <p>Upper die (M8): art. 9040/064</p> <p>Upper die (M6): art. 9040/063</p> <p>Spare part (plastic insert) for upper die (art. 9040/064 and 9040/063): art. 9040/062</p> <p>Lower die for Rivet application with Back Part 53 007: art. 9070/010</p> <p>Lower die for Rivet application with Back Part 53 009: art. 9070/012</p> <p>Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015</p> <p>Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011</p> <p>Vacuum adapter for upper die (art. 9040/064): art. 9040/023</p> <p><b>Rivet 53 006</b></p> <p>Upper die (M8): art. 9040/067</p> <p>Upper die (M6): art. 9040/066</p> <p>Spare part (plastic insert) for upper die (art. 9040/067 and 9040/066): art. 9040/065</p> <p>Lower die for Rivet application with Back Part 53 007: art. 9070/010</p> <p>Lower die for Rivet application with Back Part 53 009: art. 9070/012</p> <p>Lower die for Rivet application without Back Part (Rivet casing 081, 082 and 086): art. 9040/015</p> <p>Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011</p> <p>Vacuum adapter for upper die (art. 9040/067): art. 9040/023</p>	www.swarovski-professional.com

MACHINES & TOOLS	SUPPLIER	CONTACT
	<p><b>Rivet 53 008</b>  Upper die (M8): art. 9040/083  Upper die (M6): art. 9040/085  Spare part (plastic insert) for upper die (art. 9040/083 and 9040/085): art. 9040/084  Lower die for Rivet application with Back Part 53 009: art. 9070/012  Lower die for Rivet application without Back Part (Rivet casing 088): art. 9070/011  Vacuum adapter for upper die (art. 9040/083): art. 9040/023</p>	
Tools for Square Rivets (fly press)	<p>Swarovski:  <b>Square Rivet 53 500</b>  Upper die: art. 9040/106  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. 9040/105</p> <p><b>Square Rivet 53 501</b>  Upper die: art. 9040/107  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  Vacuum adapter for upper die: art. 9040/105</p> <p><b>Square Rivet 53 502</b>  Upper die: art. 9040/108  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  Vacuum adapter for upper die: art. 9040/105</p>	www.swarovski-professional.com
Tools for Star Rivets (fly press)	<p>Swarovski:  <b>Star Rivet 53 700</b>  Upper die: art. 9040/112  Spare part (plastic insert) for upper die (art. 9040/112): art. 9040/113  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  Vacuum adapter for upper die: art. 9040/105</p>	www.swarovski-professional.com
Tools for Spike Rivets (fly press)	<p>Swarovski:  <b>Spike Rivet 53 010</b>  Upper die: art. 9040/123  Spare part (plastic insert) for upper die (art. 9040/123): art. 9040/124  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  Vacuum adapter for upper die: art. 9040/105</p>	www.swarovski-professional.com

MACHINES & TOOLS	SUPPLIER	CONTACT
	<p><b>Spike Rivet 53 011</b>  Upper die: art. 9040/125  Spare part (plastic insert) for upper die (art. 9040/125):  art. 9040/126  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  Vacuum adapter for upper die: art. 9040/105</p> <p><b>Spike Rivet 53 503</b>  Upper die: art. 9040/127  Spare part (plastic insert) for upper die (art. 9040/127):  art. 9040/128  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  Vacuum adapter for upper die: art. 9040/105</p>	
Tools for Rivets Flat Shaft (fly press)	<p>Swarovski:  <b>Rivet Flat Shaft 53 003</b>  Upper die (M8): art. 9070/005  Spare part (plastic insert) for upper die (art. 9070/005):  art. 9070/008  Lower die for Rivet application without Back Part: art. 9070/010  Vaccuum adapter for upper die: art. 9040/023</p>	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>
Tools for Rose Pins (fly press)	<p>Swarovski:  <b>Rose Pin 53 301</b>  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</p> <p><b>Rose Pin 53 302</b>  Upper die (M6): art. 9040/091  Spare part (plastic insert) for upper die (art. 9040/091):  art. 9040/095  Lower die: art. 9070/014</p> <p><b>Rose Pin 53 303</b>  Upper die (M6): art. 9040/092  Spare part (plastic insert) for upper die (art. 9040/092):  art. 9040/096  Lower die: art. 9070/014</p> <p><b>Rose Pin 53 304</b>  Upper die (M6): art. 9040/093  Spare part (plastic insert) for upper die (art. 9040/093):  art. 9040/097  Lower die: art. 9070/016</p>	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>

MACHINES & TOOLS	SUPPLIER	CONTACT
Tools for Rhombus Pins (fly press)	Swarovski: <b>Rhombus Pin 53 320</b> Upper die: art. 9040/116 Spare part (plastic insert) for upper die (art. 9040/116): 9040/119 Lower die: art. 9070/021 Centering aid: art. 9070/022 Vacuum adapter for upper die: art. 9040/105	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>
Tools for Crystal Studs (fly press)	Swarovski: <b>Crystal Stud 53 730 and 53 731</b> Buttonhole punching tool: art. 9040/122 Upper die (M6): art. 9040/120 Lower die: art. 9040/121	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>
Tools for 3D Studs (fly press)	Swarovski: <b>3D Stud 54 001</b> Upper die for Back Part 54 004: art. 9060/040 Insert: art. 9060/041 Lower die: art. 9060/044 Linear grid: art. 9060/045 Changing pin: art. 9060/015  <b>3D Stud 54 002</b> Upper die for Back Part 54 004: art. 9060/040 Insert: art. 9060/042 Lower die: art. 9060/044 Linear grid: art. 9060/045 Changing pin: art. 9060/015  <b>3D Stud 54 003</b> Upper die for Back Part 54 004: art. 9060/040 Insert: art. 9060/043 Lower die: art. 9060/044 Linear grid: art. 9060/045 Changing pin: art. 9060/015	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>
Vacuum pump with silicone hose	Swarovski: art. 9040/022	<a href="http://www.swarovski-professional.com">www.swarovski-professional.com</a>
Automatic attaching machine	Jiuzhou Machinery Co., Ltd. Prym Fashion GmbH Seung Min Industrial Co., Ltd. Sagitta SPA	<a href="http://www.sinojiuzhou.com">www.sinojiuzhou.com</a> <a href="http://www.prym-fashion.com">www.prym-fashion.com</a> <a href="http://www.seungminsm.co.kr">www.seungminsm.co.kr</a> <a href="http://www.sagitta.it">www.sagitta.it</a>
Rose Pin mold	Gruppo Meccaniche Luciani Srl	<a href="http://www.gruppomeccanicheluciani.com">www.gruppomeccanicheluciani.com</a>
3D Stud mold	Gruppo Meccaniche Luciani Srl	<a href="http://www.gruppomeccanicheluciani.com">www.gruppomeccanicheluciani.com</a>

# APPLICATION

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

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## CHECKING MATERIAL STRENGTH

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## PRODUCT-SPECIFIC APPLICATION

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### 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 Jeans Buttons and 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.

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## CHECKING MATERIAL STRENGTH

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## PRODUCT-SPECIFIC APPLICATION

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### PRODUCT-SPECIFIC APPLICATION

#### SNAP FASTENERS AND DECORATIVE BUTTONS

To apply Snap Fasteners and Decorative Buttons with a fly press, first fix the required dies into place in the fly press. A Decorative Button is the upper part of a Snap Fastener, which is applied purely

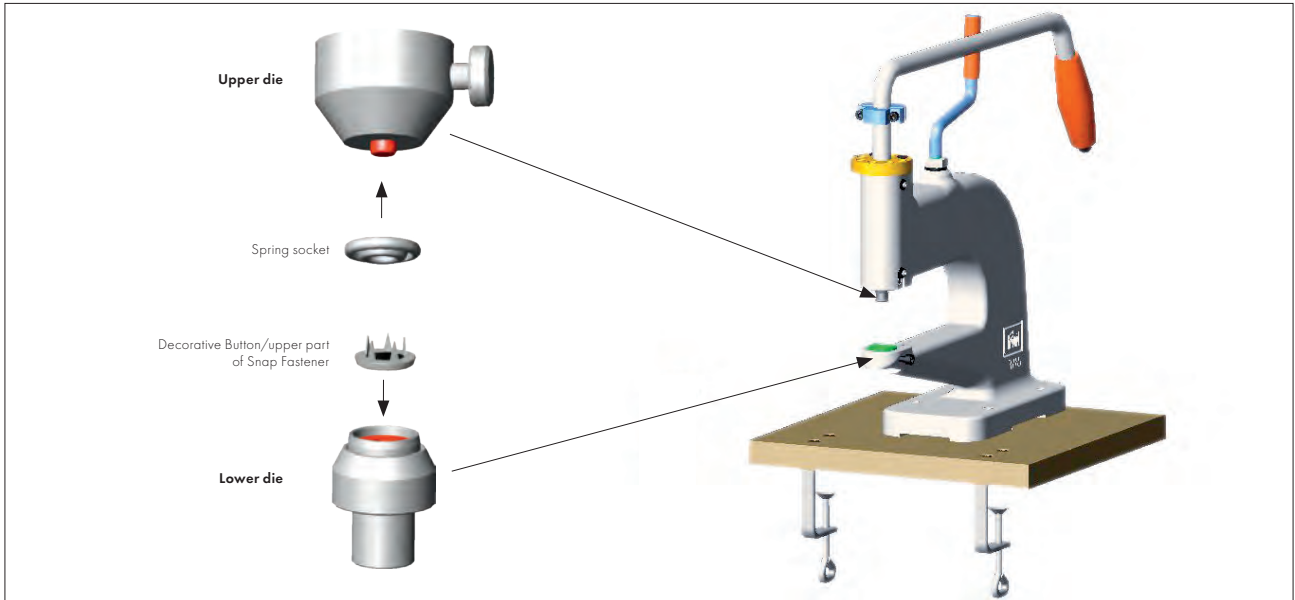
for decorative purposes and thus does not require a closure. When applying Snap Fasteners, a second stage is required in order to fix the closure in place.

Please note the material thickness when selecting Snap Fasteners and Decorative Buttons.

	ART.	SIZE	MATERIAL THICKNESS*
SNAP FASTENERS	<b>1780/100</b>	11 mm	1 - 3 mm
	<b>1780/114</b>	11 mm	1 - 3 mm
DECORATIVE BUTTONS	<b>1781/100</b>	11 mm	1 - 3 mm
	<b>1781/114</b>	11 mm	1 - 3 mm

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

### Stage 1: Decorative Button/upper part of Snap Fastener



**1** Place the Decorative Button/upper part of the Snap Fastener in the lower die, with the claws pointing upwards.

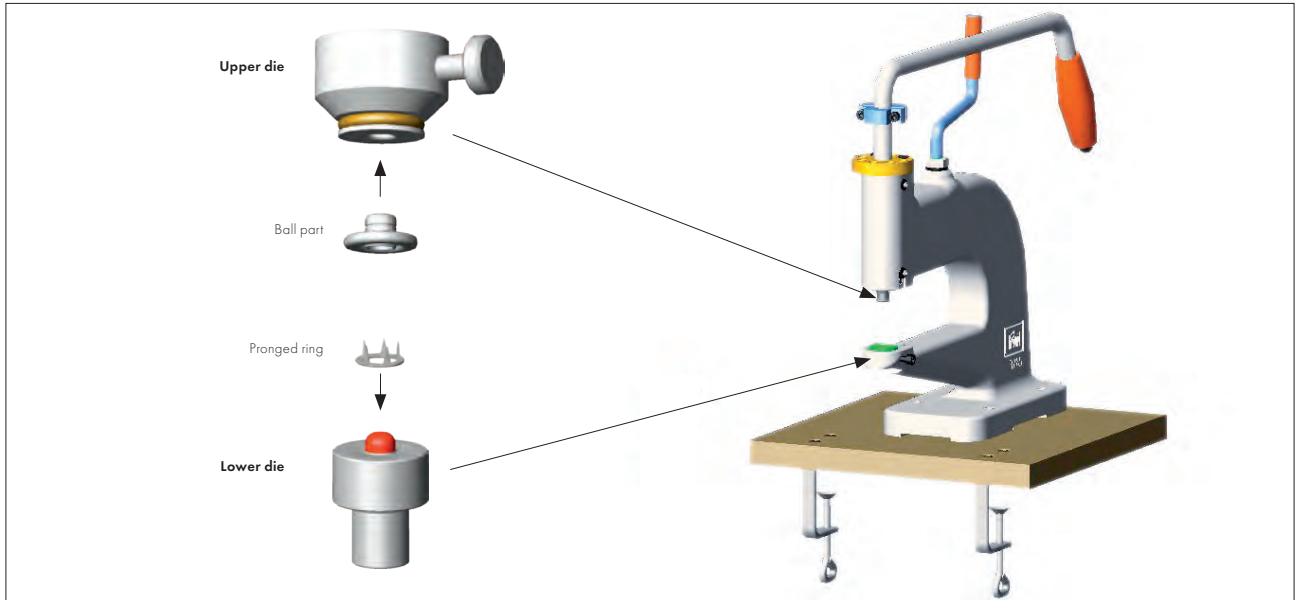


**2** Place the spring socket in the upper die.



**3** Apply the product to the textile in the previously marked position. Regulate the offset/pressure using the adjustable stop.

**Note:** To make finding the right application position easier, it can be marked prior to the application. Therefore place the textile on an eraser and put the Decorative Button / upper part of the Snap Fastener on top of it (with claws pointing downwards). Press the Button into the textile. The material is marked while the eraser prevents the claws from getting destroyed.

**Stage 2: Snap Fastener closure**

APPLICATION



**1** Place the pronged ring in the lower die, with the prongs pointing upwards.



**2** Place the ball part in the upper die.



**3** Apply the product to the textile in the previously marked position, ensuring it is on the right side of the fabric. Regulate the offset/pressure using the adjustable stop.

## XIRIUS FLAT BACK SNAP FASTENER

XIRIUS Flat Back Snap Fasteners can be easily applied using a fly press. The application is divided into two steps as the

product consists of two parts (decorative part and closure).

It is important to carefully check and to consider the thickness of the fabric before beginning the application process.

	ART.	SIZE	MATERIAL THICKNESS*
XIRIUS FLAT BACK SNAP FASTENER	1783/300	7 mm	1.4 - 3.0 mm

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

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 crystal products.



Before starting the application make sure that upper and lower die are positioned in the center. Pre-punching the fabric and positioning it properly on top of the lower die guarantees the correct functionality of the finished product.

If tools (fly press, dies) are not precisely adjusted, the following problems might occur:

- The pieces could come off if they are not correctly applied
- Space between the fabric and the applied pieces
- Damages of the fabric



**Stage 1: Application of the decorative (upper) part**

**1** Place the vacuum adapter and the tools in the fly press. Make sure that they are fixed and connect the vacuum adapter to vacuum pump.



**2** Place the decorative part in the upper die and the spring socket in the lower die. The vacuum will keep the decorative part in upper position during application.



**3** Apply the product on the carrier material. Adjust the offset/pressure using the adjustable stop.

**Stage 2: Application of the closure (lower) part**

**1** Replace the upper and lower die in order to apply the Snap Fastener closure.



**2** Place the ball part in the upper die (will be kept in position by vacuum) and the counterpart in the lower die.



**3** Apply the product on the carrier material. Adjust the offset/pressure using the adjustable stop. Check the functionality of the Snap Fastener after the application.

## JEANS BUTTONS

To apply Jeans Buttons, first fix the required dies into place in the fly press. When applying Jeans Buttons

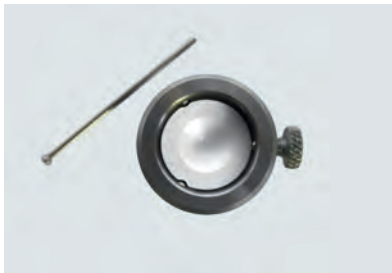
1790/104, 1790/140 and 1797/140 the corresponding plastic insert has to be changed.

Please note the material thickness when selecting Jeans Buttons.

	ART.	SIZE	MATERIAL THICKNESS*
JEANS BUTTONS	<b>1790/100</b>	14 mm	1 - 3 mm
	<b>1790/104</b>	17 mm	1 - 3 mm
	<b>1790/114</b>	14 mm	1 - 3 mm
	<b>1790/140</b>	17 mm	1 - 3 mm
	<b>1795/140</b>	17 mm	1 - 3 mm
	<b>1797/140</b>	17 mm	1 - 3 mm

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

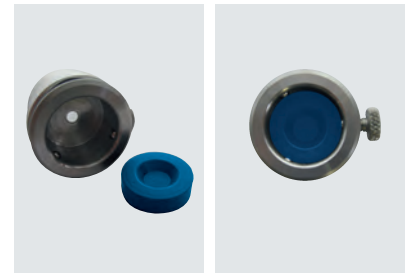
### Changing the plastic insert



**1** To change the insert according to the Swarovski products used, you will need the changing pin and the new plastic insert.

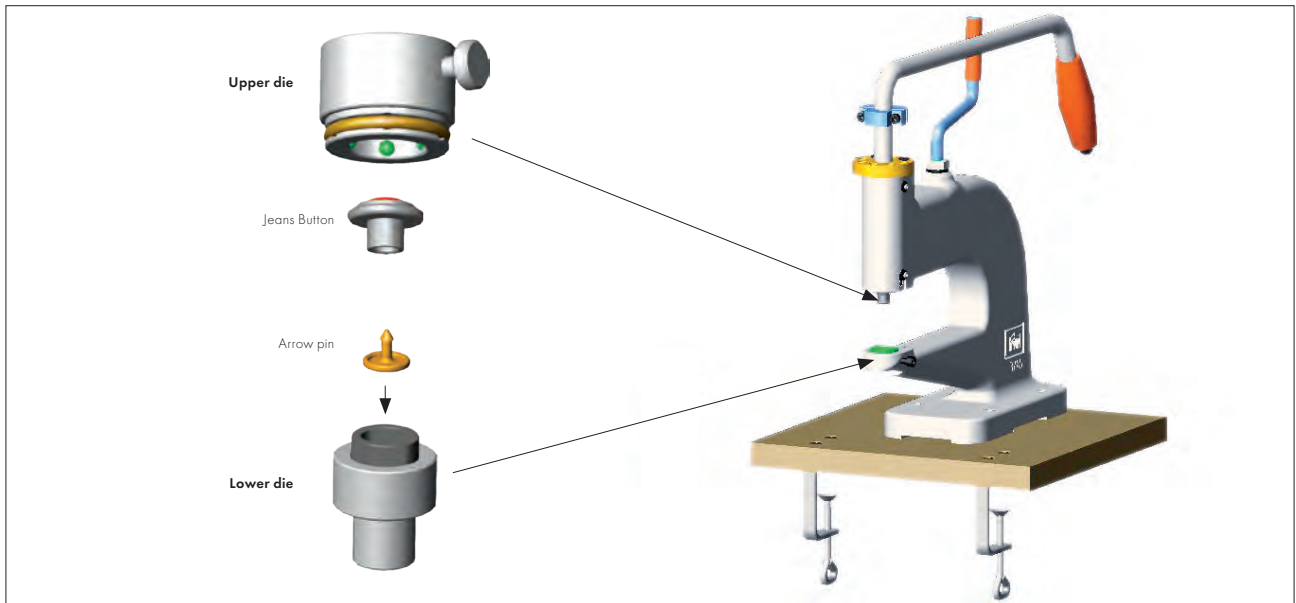


**2** Use the changing pin to slowly slide the plastic insert out of the attaching die from above, through the small hole at the edge.



**3** Press the new plastic insert into the attaching die right up to the top.

## Application process



APPLICATION



**1** Place the top part of the Jeans Button in the upper die.



**2** Place the arrow pin in the lower die.



**3** Carry out the application in the desired position. Regulate the offset/pressure using the adjustable stop.

## RIVETS

For the application of 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.

Rivets can be applied on various materials

with or without Back Parts. Rivet 53 002 and Rivet Flat Shaft 53 003 are specially designed for application without a Back Part. 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 <sup>1</sup>	POSSIBLE BACK PARTS
RIVETS	<b>53 000</b>	SS 18	2.0 - 2.5 mm	53 007 and 53 009
	<b>53 001</b>	SS 29	2.0 - 2.5 mm	53 007 and 53 009
	<b>53 002</b>	SS 18	1.5 - 2.0 mm	
	<b>53 005</b>	SS 34	2.0 - 2.5 mm	53 007 and 53 009
	<b>53 006</b>	SS 39	2.2 - 2.7 mm	53 007 and 53 009
	<b>53 008</b>	PP 24	1.5 - 2.0 mm	53 009
RIVET FLAT SHAFT <sup>2</sup>	<b>53 003</b>	SS 29	2.0 - 3.5 mm	
SQUARE RIVETS	<b>53 500</b>	4 mm	2.0 - 2.5 mm	53 007 and 53 009
	<b>53 501</b>	6 mm	2.0 - 2.5 mm	53 007 and 53 009
	<b>53 502</b>	8 mm	2.2 - 2.7 mm	53 007 and 53 009
STAR RIVET	<b>53 700</b>	10 mm	1.5 - 3.0 mm	53 007 and 53 009
SPIKE RIVETS	<b>53 010</b>	SS 29	2.0 - 3.0 mm	53 007 and 53 009
	<b>53 011</b>	SS 39	2.0 - 3.0 mm	53 007 and 53 009
	<b>53 503</b>	8 mm	2.0 - 3.0 mm	53 007 and 53 009

<sup>1</sup> This can vary according to the roughness and production of the carrier material.

<sup>2</sup> Rivet Flat Shaft 53 003 is designed for ring rolling application and is self-backing. The Rivet can be applied on either an automatic or semi-automatic machine or with a fly press. For application with fly press, use the lower die art. 9070/010 without Back Part.

### Application with a fly press

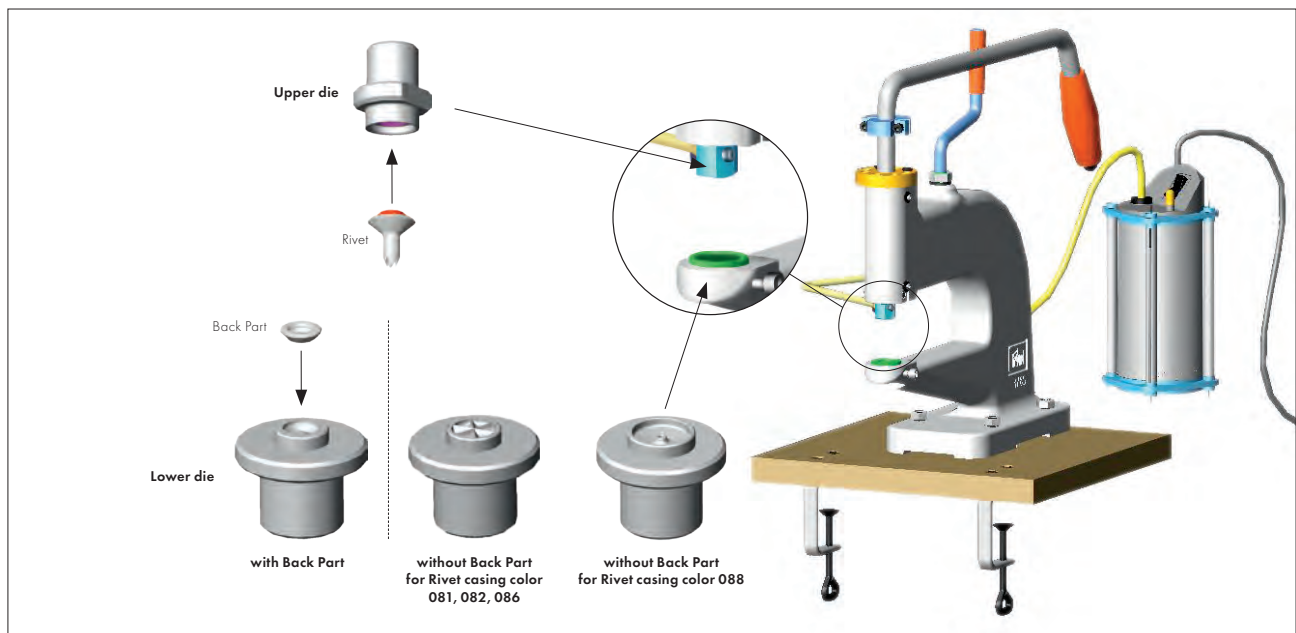
In many cases it is possible to select between both versions of the Back Part.

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.



### ROSE PINS AND RHOMBUS PIN

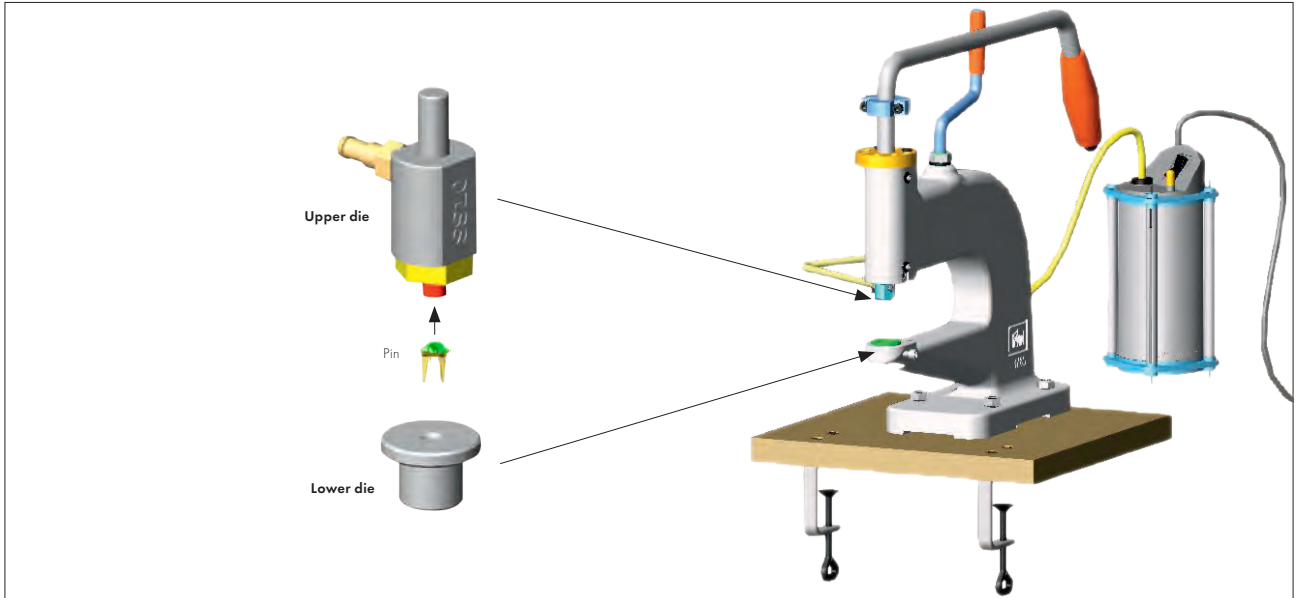
Pins can be easily applied using a fly press, a semi- or fully-automated attaching machine. The application with the fly press

will be explained step by step. Please note the material thickness when selecting Pins.

	ART.	SIZE	MATERIAL THICKNESS*
ROSE PINS	<b>53 301</b>	SS 10	1 - 2 mm
	<b>53 302</b>	SS 16	1 - 2 mm
	<b>53 303</b>	SS 20	1 - 2 mm
	<b>53 304</b>	SS 34	1 - 2 mm
RHOMBUS PIN	<b>53 320</b>	10 x 6 mm	1 - 2 mm

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

## Application with a fly press



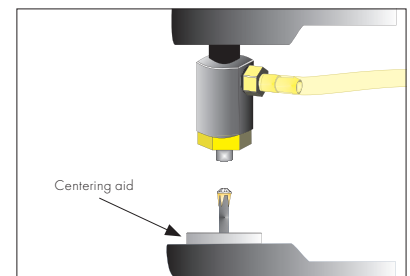
To apply Pins, attach the appropriate die to the fly press.



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, SS 10) 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 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 press (simple cutting

press) Rose Pins are applied onto base material simultaneously in one step.



**1** Put the first PVC mask onto the lower part of the mold.



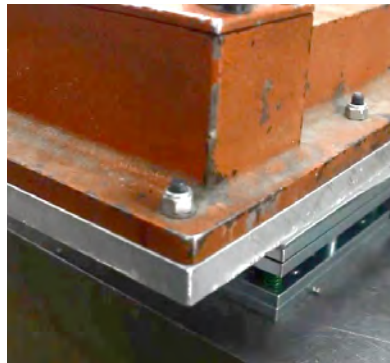
**2** Sieve Rose Pins into the mask with the claws pointing upwards. Use one mask for each Rose Pin size and repeat the sieving step with all masks.



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



**4** Put the fabric onto the lower part of the mold.



**5** Close the mold with a cutting press.



**6** Apply all Rose Pins in one step.

## CRYSTAL STUDS

Crystal Studs can be easily applied to various materials by using a fly press. Please consider the material thickness.

	ART.	LENGTH OF SHANK	MATERIAL THICKNESS*
CRYSTAL STUDS	<b>53 730</b>	8 mm	0.5 - 4.0 mm
	<b>53 731</b>	6 mm	0.5 - 2.5 mm

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

It is important to carefully check the thickness of the fabric before beginning the application process. To avoid contraction or crinkling of the material after the

application, tests are highly recommended on fabric samples before going ahead with the actual application process.



- 1 Pre-punch the carrier material on the designated position for the Crystal Stud.



- 2 Place the tools in the fly press. Make sure that they are sitting straight and firmly.



- 3 Connect the vacuum pump and turn it on.



- 4 Place the lower part of the Crystal Stud in the lower die.



- 5 Place the upper part in the upper die (crystal pointing upwards).

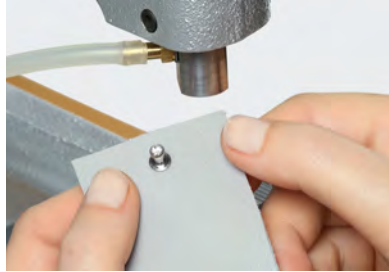


- 6 Put the carrier material with the pre-punched hole over the lower part.





**7** Apply the Crystal Stud by closing the handle.



**8** The Crystal Stud is now applied.



**9** Create the buttonhole with a buttonhole punching tool (art. 9040/122).



**10** The latch can be closed now.

### 3D STUDS

This product can be applied on different carrier materials using either a fly press or a 3D Stud mold. Application tests on your carrier material of choice – especially

stretchable fabrics – are recommended. Before applying 3D Studs to any leather or fabric, please also test the metal- and especially silver compatibility with the

corresponding carrier material. Please consider the material thickness before starting the application.

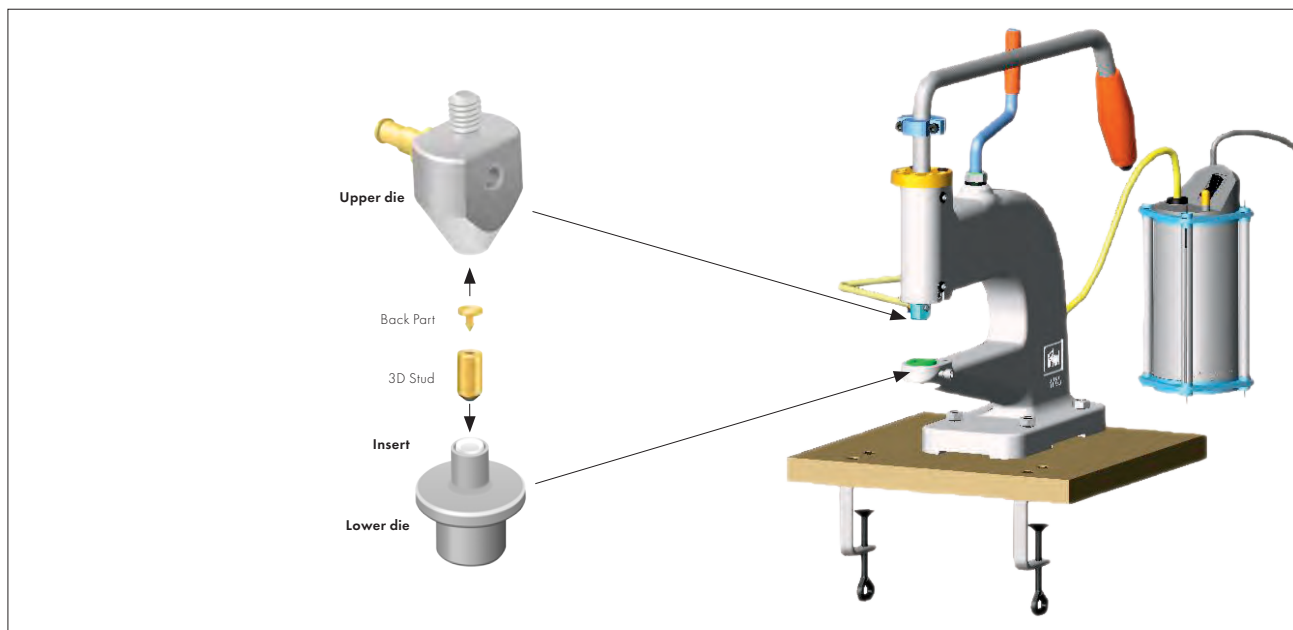
	ART.	LENGTH OF SHANK	MATERIAL THICKNESS*
3D STUDS	<b>54 001</b>	4 mm	0.7 - 1.5 mm
	<b>54 002</b>	6 mm	0.7 - 1.5 mm
	<b>54 003</b>	8 mm	0.7 - 1.5 mm

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

#### Application with a fly press

First, position the upper and lower die in the press. Make sure to choose the corresponding insert for the 3D Stud to be

applied, and position it in the lower die with the cavity pointing upwards:



When the upper and lower die (with insert) are positioned in the fly press, follow the application steps:



- 1 Place the 3D Stud in the lower die, with the crystal side pointing downwards.



- 2 Attach the vacuum pump to the upper die and turn the vacuum pump on. The Back Part can now easily be positioned into the upper die with the arrow pointing downwards.



- 3 Position the carrier material with the right side pointing downwards. Apply the 3D Stud by carefully closing the handle of the fly press.

### Changing the plastic insert



- 1 When a 3D Stud of another size is being applied, the corresponding plastic insert has to be changed first.



- 2 Take the lower die out of the fly press and press the changing pin through the small hole at the rear side of the lower die to uncage the plastic insert.

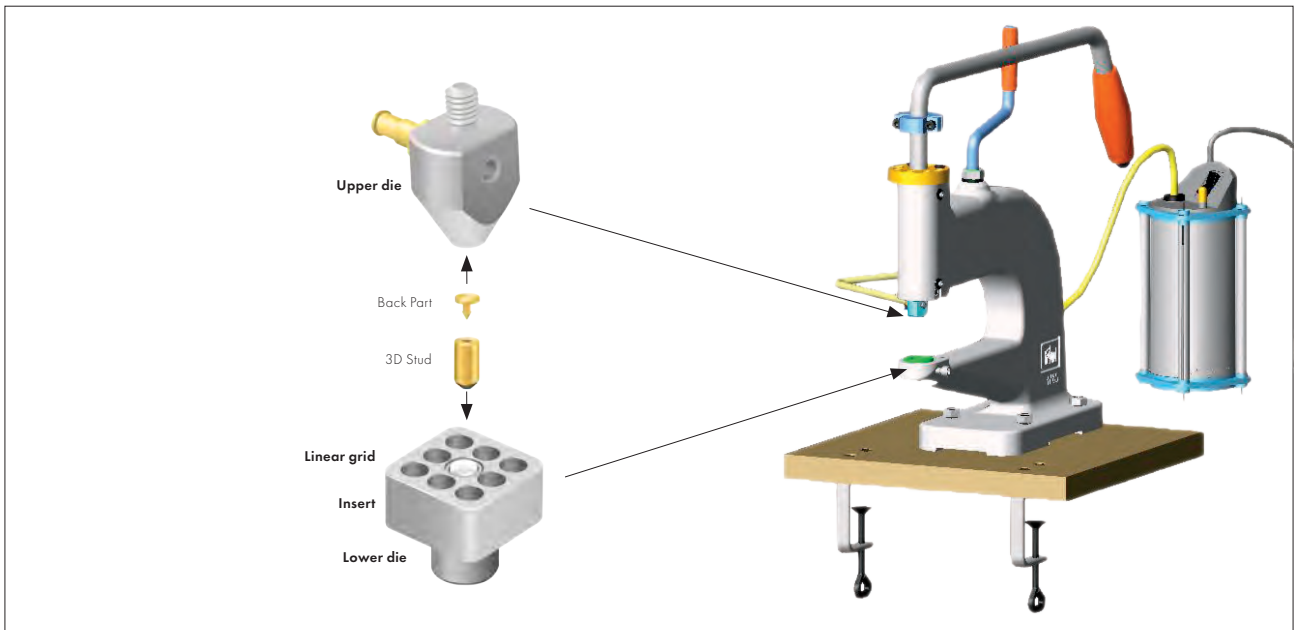


- 3 Choose the matching insert for applying a 3D Stud of another size and push it into the lower die. Make sure the cavity of the insert is located at the upper side of the tool.

### Even positioning of 3D Studs with fly press

To facilitate the even positioning of 3D Studs, the linear grid tool can be used. By enclosing already applied 3D Studs it makes it possible to apply further 3D Studs

very close to the existing ones. The linear grid tool has to be positioned on top of the lower die as shown in the following illustration:



When the upper and lower die (with insert) are positioned in the fly press, follow the application steps:



**1** Set a 3D Stud (crystal pointing downwards) in the lower die with insert.



**2** Lay the linear grid with the flat side pointing downwards on top of the carrier material with at least one applied 3D Stud. Make sure the applied 3D Studs sit in the grid's cavities, leaving the big cavity in the middle empty.



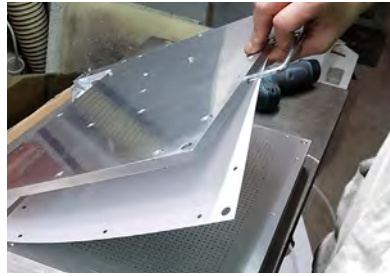
**3** Turn the fabric with linear grid around and put all parts into the fly press on top of the lower die. Activate the vacuum pump and fit the Back Part into the upper die. Apply the 3D Stud by closing the handle of the fly press.

### Application with 3D Stud mold

When a bigger quantity of 3D Studs that are one size or different sizes are applied at once, the use of a mold with cutting press is recommended. Please acquire the mold and suitable tools directly from the supplier

Gruppo Meccaniche Luciani  
([www.gruppomeccanicheluciani.com](http://www.gruppomeccanicheluciani.com)).  
Detailed information can be requested from the supplier.

When applying more than 100 3D Studs, the 3D Stud mold application is up to four times faster compared to the application with fly press.



**1** Before starting production with a new motif, the vacuum suction has to be installed in the mold. Open the cover's plates by unscrewing the screws with a drill.

**2** Place the mask for the vacuum suction channels between the two cover plates.

**3** Screw the plates together.

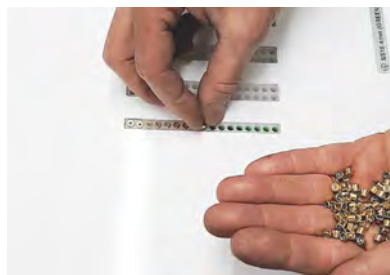
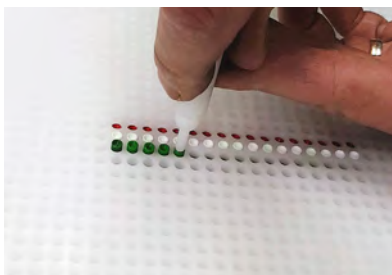
APPLICATION



**4** The mold is now ready to be equipped with the PVC masks. First open the mold.

**5** Remove the middle metal plate and put the first PVC mask onto the lower part of the mold.

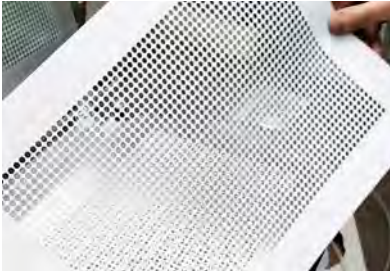
**6** Insert the first pins into the mask's cavities (colored part upwards) as height compensation for the corresponding 3D Studs. Use one mask and pin color for each 3D Stud size and repeat the setting step for all masks.



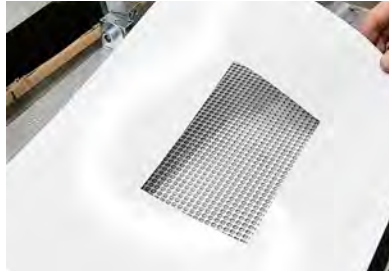
**7** When all pins are set, remove the masks and use the plastic pen to press down every single pin.

**8** Apply the masks again and set the 3D Studs with crystals pointing downwards. With the help of the pins, they stay evenly in the cavities.

**9** Put the middle metal plate back into the mold.



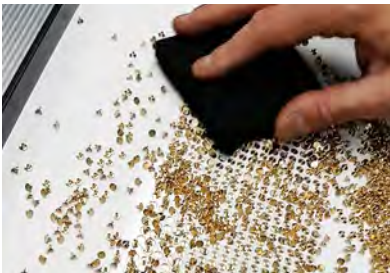
**10** Place the first mask for the Back Parts on the middle plate.



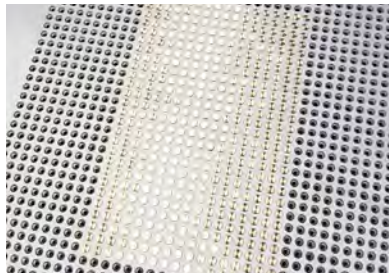
**11** Depending on the motif, put a frame mask for the Back Parts onto the first mask.



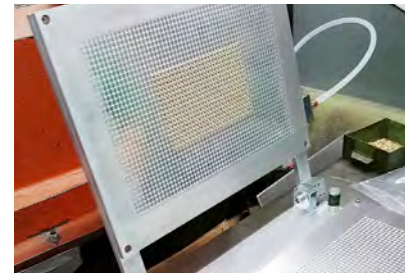
**12** Place the black frame on the masks. The frame makes sure no Back Parts get lost.



**13** Empty the Back Parts into the black frame. Use the sponge to wipe them into the mask's cavities (arrows pointing downwards).



**14** Remove the residual Back Parts, the black frame, and the masks. Make sure the middle metal plate stays in the mold.



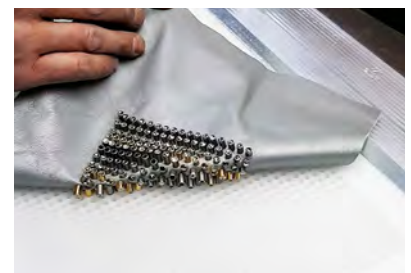
**15** Switch on the vacuum system, close the cover and then open it again. The Back Parts are now inside the cover.



**16** Remove the middle metal plate and lay the fabric in the mold.



**17** Close the cover and place the mold into the hydraulic press.

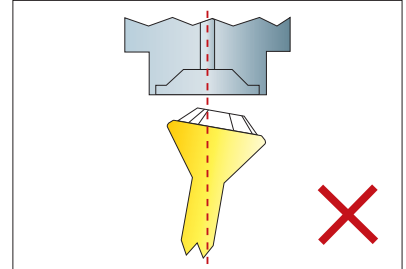
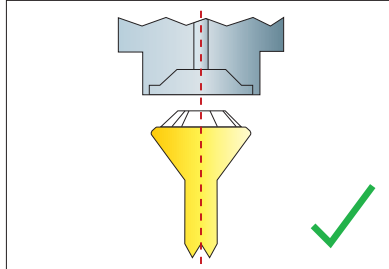


**18** Press with a cutting press and apply the 3D Studs all at once. Keep the vacuum system on until the end of the application.

## USEFUL INFORMATION

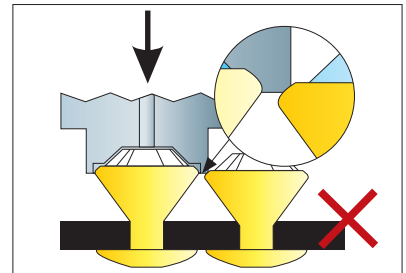
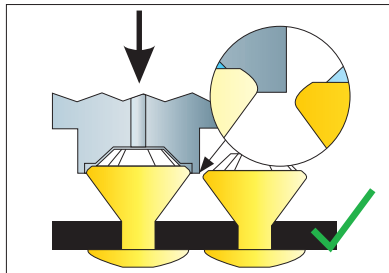
### OPTIMUM PRODUCT/DIE ALIGNMENT

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 and Jeans Buttons 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.