PRODUCT BULLETIN

APPLICATION GUIDE
Polyurethane films:
FLEX IMN: PRINTFLEX
(UFLEX6P / UFLEXMAXI / UFLEX7P / UFLEX7PV2 / UFLEXCOLD / UFLEXCLEAR / UF1200 / UF1400)

REQUIRED EQUIPMENT

› A printer
› A plotter
› A new cutting blade (for UFlexClear)
› A heat press (it is recommended to use a pneumatic heat press for UFlexCold)
› Flex IMN
› A textile
› A squeegee
› Tape according to references (see chart on page 1)
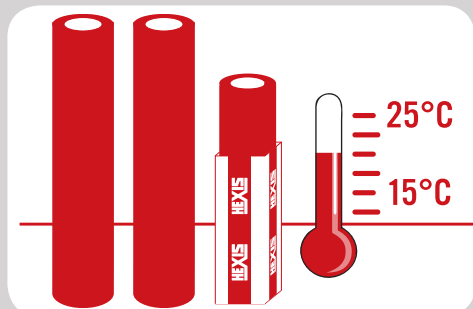› A silicone or parchment paper
› A TEFLEX protection sheet (optional)

STORE YOUR FILMS UNDER APPROPRIATE CONDITIONS

Store in a dry place.

Keep the films away from light and heat.

Shelf life:
1 year if it is stored in its original packaging at a temperature between 15 °C and 25 °C (59 °F and 77 °F) and relative humidity between 30 % and 70 %.

25°C
15°C

FEATURES

	UFlex 6P	UFlexMaxi	UFlex 7P	UFlex7Pv2	UFlexCold	UFlexClear	UF1200	UF1400
FINISH								
Matt opaque white	✓	✓	✓	✓	✓		✓	✓
Clear						✓		
COMPATIBILITY WITH FABRIC								
Cotton	✓	✓	✓	✓		✓	✓	
Nylon®					✓		✓	
Polyester	✓	✓	✓	✓	✓	✓	✓	
Lycra®	✓	✓					✓	
Sublimated Polyester								✓
SIZE OF LOGOS / IMAGES								
Small (less than 1 cm)			✓	✓				
Medium (between 1 and 2 cm)	✓	✓	✓	✓	✓		✓	✓
Large (over 2 cm)	✓	✓			✓	✓	✓	✓
TRANSFER TAPE								
HEX860 - HEX960	✓	✓	✓	✓				
HEX100 - HEX900 - HEX901 - HEX902 - HEX904 - HEX905 - HEX 915					✓			
HEX750							✓	✓
Without tape (tape included)						✓		

For further technical information, please refer to the data sheets available on the "Professionals" pages on our website at www.hexis-graphics.com.

SUMMARY

Application methods are based upon HEXIS' experience and are non-restrictive. Comply with instructions to ease application of HEXIS films.
HEXIS also offer training sessions for professionals to achieve optimum results.

1. RECOMMENDATIONS:

› To confirm the compatibility between the Flex and the fabric, please refer to the chart on page 1.

› Before application, carry out primary trials about:
  - the resistance of the fabric to the press's temperature;
  - the compatibility of the Flex film with the fabric.

› Apply to a previously washed fabric.

› For optimum durability, avoid application of the Flex films over seams.

2. PRINTING AND CUTTING THE FILMS:

Prior to printing, prepare the cut-out.

The films should preferably be stored in the same environment as the cutting-printing station.

The pressure of the blade has to be adjusted upon the film.

If the pressure is too high, the protective liner may slightly crack causing adhesive bleeding. This would make the weeding process more difficult.

In most cases, it is recommended to weed the material immediately after the cutting.

⚠ *For the UFlexClear film, a minimum ink drying time of 2 hours must be applied before carrying out any weeding if the cutting must be done within the print.*

For the UFlexCold film, a minimum ink drying time of 24 hours must mandatorily be applied before carrying out any cutting if it must be done within the print.

2.1. Introduction to plotting:

The smallest possible height to be cut depends on the condition of the blade, the pressure, the cutting speed and the plotter. In general, an acceptable height is 10 mm (0.4 in), at medium speed and with a blade in good shape. Smaller letters can be obtained by reducing the cutting speed.

⚠ *For the UFlexClear film, it is necessary to use a new blade.*

For instance, the recommended maximum speed for a ROLAND® SP300 cutting plotter is 30 cm/s (12 in/s). However, when the logos are fine or small, cutting at 20 cm/s (8 in/s) is recommended to obtain a better result.

Note: In any case, carefully read the operating manual of the cutting plotter and carry out a preliminary trial.

The blade must cut the polyurethane film and the adhesive surface. (Fig. 01)

A blunt and worn blade will impair the quality of the cut and will require a higher pressure. Weeding will also be more difficult.

2.2. Preliminary plotting test:

In order to determine the plotter settings, we advise you to carry out a preliminary trial:

› Cut a square of 10 cm x 10 cm (4 in x 4 in).
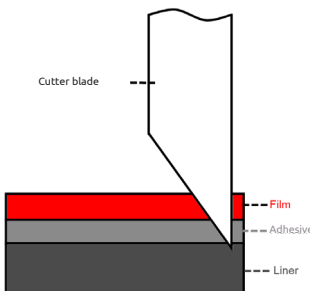
› Weed (Fig. 02) (Fig. 03): remove any excess material.

Cutter blade

Film
Adhesive
Liner

Figure 01

Figure 02

Figure 03

› Check:

> › that the cut square adheres well to the liner.
> › that the liner is free of any incisions.

› Weeding will be successful if the plotter is properly set up (pressure, speed, shape of the blade).

3. PRINTING, CUTTING AND WEEDING:

	UFlex6P	UFlexMaxi	UFlex7P	UFlex7Pv2	UFlexCold	UFlexClear	UF1200	UF1400
Printing								
in positive mode	✓	✓	✓	✓	✓		✓	✓
in mirror mode						✓		
Cutting* within the graphics								
after printing			✓	✓		✓		
after 24 hours	✓	✓			✓		✓	✓
Weeding**								
right after cutting	✓	✓	✓	✓	✓	✓	✓	✓
2 hours after cutting	✓	✓	✓	✓		✓	✓	✓

Table 1: Printing, cutting and weeding conditions upon the Flex used.

⚠ *Refer to the printer-plotter instructions.*

* For the UFlexClear film, cutting must be done on the inner periphery or within the graphics in order to be sharp.

** Weed = remove any excess material. (Fig. 04) (Fig. 05) (Fig. 06)

Figure 04

Figure 05

Figure 06

4. TAPE APPLICATION:
(For all references except for UFlexClear)

› Use the appropriate tape (refer to compatibility chart on page 1).

› Remove the tape from its protector (liner). (Fig. 07)

Figure 07

Figure 08

› Position and apply the tape to the printed, cut-out and weeded film. (Fig. 08)

Figure 09

› In a dust-free environment, push the tape with a squeegee, pressing firmly over the contours (Fig. 09) to avoid any folds or bubbles.

Special note for UFlexClear: This reference (clear Flex) is used without tape. The liner acts as tape.

5. GRAPHICS APPLICATION:

5.1. Heat press setting:
(Fig. 10)

For UFlexCold, HEXIS recommend using a pneumatic heat press.

› Pressure: high depending on the type of press.

› Adjust the press temperature.

Figure 10

Flex	Fabric(s)	Indicative press temperature
UFlex6P	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C)
UFlexMaxi	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C)
UFlex7P	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C)
UFlex7Pv2	Any compatible fabric (refer to chart on page 1)	284 °F (140 °C)
UFlexCold	Any compatible fabric (refer to chart on page 1)	176 °F (80 °C)
UFlexClear	Any compatible fabric (refer to chart on page 1)	284 °F (140 °C)
UF1200	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C)
UF1400	Any compatible fabric (refer to chart on page 1)	302 °F (150 °C)

Chart 2: Indicative temperature depending on the fabric and Flex used.

Advice: In any case, always perform a preliminary trial to adjust the pressing conditions at best before carrying out large manufacturing series.

5.2. Textile preheating:

Purpose: to remove humidity from the textile (this step is optional for UFlexCold).

Figure 11

› Position the textile. (Fig. 11)

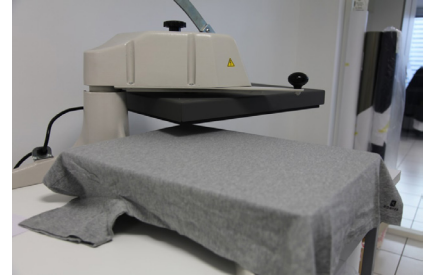**Figure 12**

› Press to preheat the textile. (Fig. 12)

Conditions:

› Temperature: Refer to chart 2 in paragraph 5.1.
› Duration: 5 seconds

5.3. Separating the graphics from the liner:
(For all references except for UFlexClear)

5.3.1. By liner removal:
(References UFLEX6P and UFLEX7P)

Figure 13

› Return the assembly so that the liner of the Flex is upturned.

› Lay the assembly on a flat surface. (Fig. 13)

Figure 14

› Carefully remove the liner from the Flex by forming a 180° angle. (Fig. 14)

› Check if the graphics remains stuck to the tape.

5.3.2. By tape removal:
(References UF1200, UF1400, UFlex7Pv2, UFlexMaxi, UFlexCold)

› Check if the tape is upturned.

› Lay the assembly on a flat surface.

› Carefully separate the tape from the liner.

› Check if the graphics remains stuck to the tape.

5.4. Textile cleaning:
(Only for the reference UFlexClear)

› Remove dust particles, extraneous textile fibres, etc. from the surface to be covered using HEX860 or HEX960 tape pieces for sticking them.

Indeed, because of the UFlexClear transparency, these impurities would be permanently visible on the unprinted parts once the film has been applied.

5.5. Positioning the graphics:

Figure 15

Position the image. (Fig. 15)

› Some fabrics/clothes may have a non-uniform thickness (seams, rivets, buttons, etc.) and therefore require an additional support between the fabric and the press table, which should be:

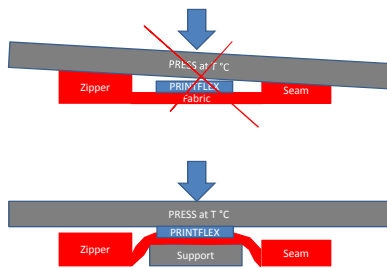- as large as the graphics or slightly larger
- thick enough

Figure 16

This is done to let the Flex fit perfectly with the hot plate during pressing. (Fig. 16)

5.6. Pressing:
(Fig. 17)

Conditions:

Figure 17

Flex	Fabric(s)	Indicative press conditions
UFlex6P	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C) during 20 seconds
UFlexMaxi	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C) during 20 seconds
UFlex7P	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C) during 15 seconds
UFlex7Pv2	Any compatible fabric (refer to chart on page 1)	284 °F (140 °C) during 15 seconds
UFlexCold	Any compatible fabric (refer to chart on page 1)	176 °F (80 °C) during 15 seconds
UFlexClear	Any compatible fabric (refer to chart on page 1)	284 °F (140 °C) during 15 seconds
UF1200	Any compatible fabric (refer to chart on page 1)	320 °F (160 °C) during 20 seconds
UF1400	Any compatible fabric (refer to chart on page 1)	302 °F (150 °C) during 20 seconds

Chart 3: Press temperature and duration

5.7. Tape removal:
(Fig. 18)

> Depending on the combination fabric / Flex, it can be easier to remove the tape while the Flex is hot, warm or cold, depending on the specific case encountered. Please refer to chart 3 below for further guidance:

Figure 18

Flex	Fabric(s)	Remove the tape when the Flex is:
UFlex6P	Any compatible fabric (refer to chart on page 1)	hot
UFlexMaxi	Any compatible fabric (refer to chart on page 1)	hot
UFlex7P	Any compatible fabric (refer to chart on page 1)	hot
UFlex7Pv2	Any compatible fabric (refer to chart on page 1)	hot
UFlexCold	Any compatible fabric (refer to chart on page 1)	hot
UFlexClear	Any compatible fabric (refer to chart on page 1)	cold (< 104 °F (40 °C))
UF1200	Any compatible fabric (refer to chart on page 1)	warm
UF1400	Any compatible fabric (refer to chart on page 1)	warm

Chart 4: Conditions of tape removal

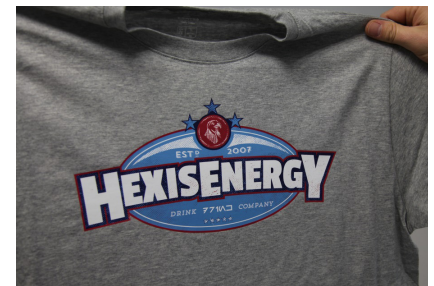> Result: Image with satin aspect (single run). (Fig. 19)

Figure 19

5.8. Several graphics:

> In the case of an additional graphics, position it and protect the first transferred image motive. (Fig. 20)

⚠ *The final appearance of the graphics can be influenced upon the protector used during the first transfer (please refer to paragraph 4).*

Figure 20

6. FINISH:

For optimal effect and adhesion:

Figure 21

› Place on the graphic's surface either a TEFLEX protection sheet or a silicon or parchment paper. (Fig. 21)

› Different results and appearances can be obtained upon the protection paper used during a second heat press run.

⚠ *Silicone-coated paper => silicone-coated face to be placed on the graphics*

› Press the entire assembly.

Conditions:

› Temperature: Refer to chart 2 in paragraph 5.1.
› Duration: 10 seconds (5 seconds for UFlexClear)

The effect of this second run is to let the Flex film penetrate between the textile fibres, thus improving its durability.

6.1. Removing the liner while warm or cold:

› Proceed when the fabric's temperature ranges from 30 °C to 60 °C (86 °F and 140 °F).

7. CARE OF FLEX FILM TEXTILES:

› After pressing, wait for at least 24 hours before washing the garment. For a better ink adhesion, it is preferable to wait for one week before carrying out the first washing.

› The maximum machine washing temperature is 40 °C (104 °F) (up to 60 °C (140 °F) for Uflex7Pv2).

Please always refer to the washing temperature indicated on the textile label.

› Use laundry products free of chlorine bleach.

› The use of softeners is not recommended as it can cause alteration of the Flex adhesion to the fabric.

› Tumble drying is prohibited.

› We recommend you to wash and iron your garment inside out.

⚠ *The UFlexClear films must not be ironed at all.*

For further technical information, please refer to "Technical Data Sheets" available under the "Professionals" heading on our website at *www.hexis-graphics.com*.

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