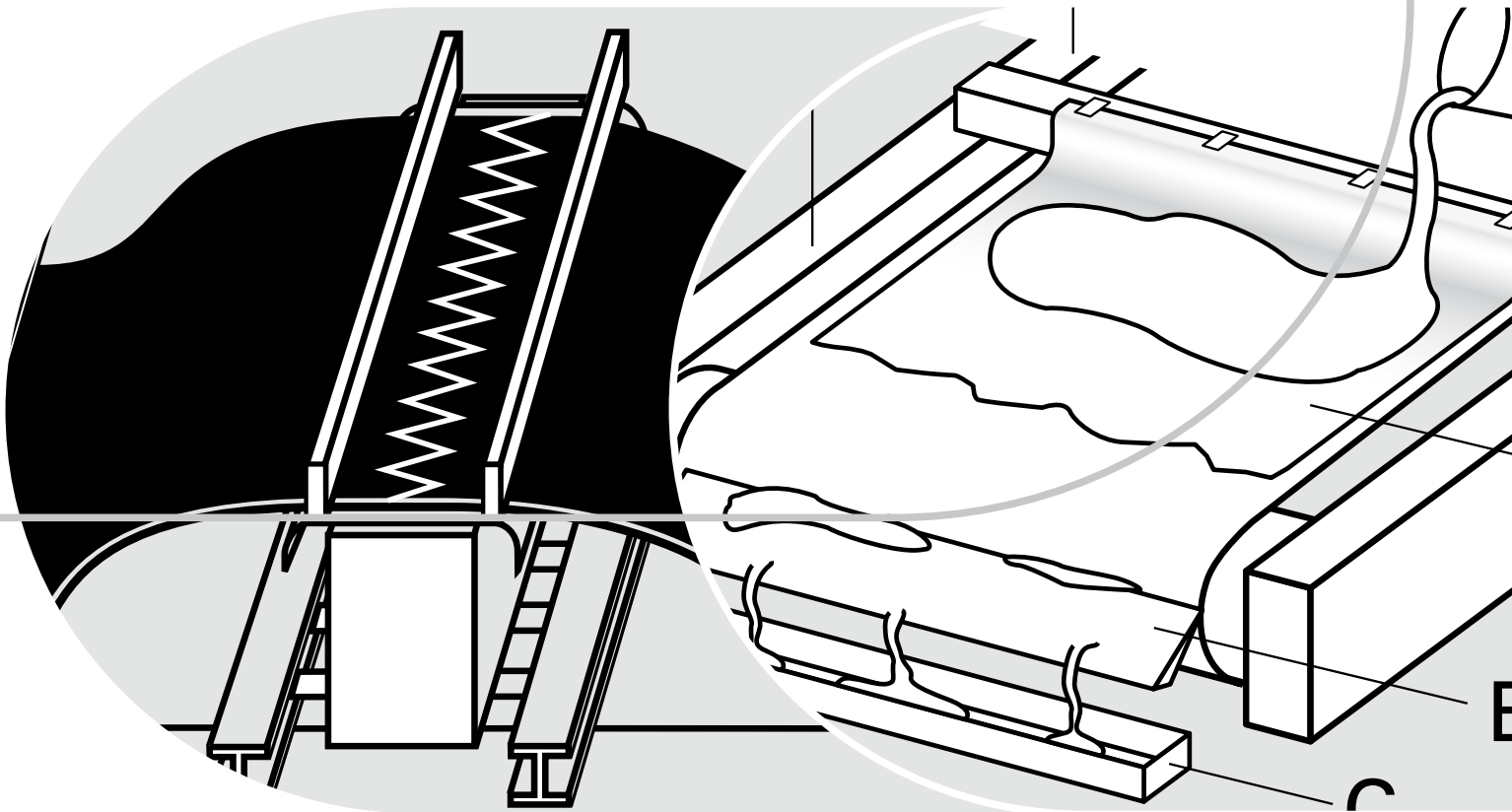


# Printing Blankets

## Handling and Maintenance Instructions



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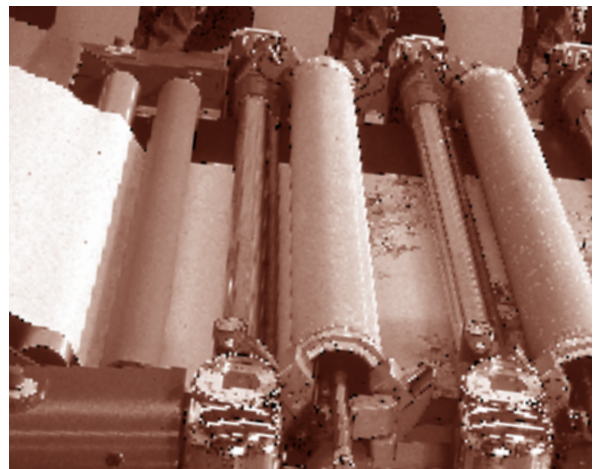
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Habasit printing blankets are manufactured using the most advanced and eco-friendly technologies in line with ISO 14001.

**How to protect and repair your printing blanket**

Correct installation and regular care will extend the life of your printing blanket. These handling and maintenance instructions provide comprehensive information to ensure a long service life and trouble-free operation.



## Precautionary measures/Information

Before starting installation, operation, or maintenance, please read the installation, operating and maintenance instructions carefully. These instructions contain information on the appropriate use of Habasit printing blankets, and explain how to carry out installation and maintenance work in a safe and effective way.

Open prepared printing blankets should only be installed, drawn into the machine, and joined under the supervision of a Habasit specialist or member of staff who has been trained and authorized for this job by Habasit.

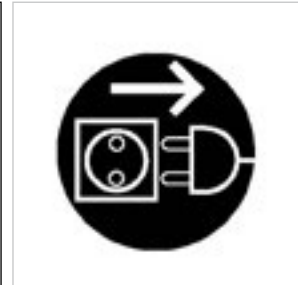
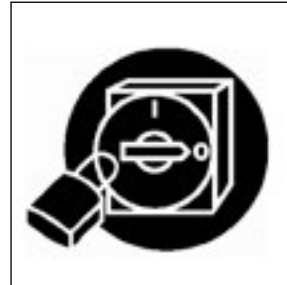
Your printing blanket is a valuable product designed to give you years of satisfactory use. Do not allow it to be installed by fitters who are not Habasit-qualified. In case of problems, Habasit will not recognize any warranty if the installation was not done by Habasit or Habasit-qualified personnel.

## Safety provisions

### WARNING

Printing blankets are exposed moving parts of the printing machine. Anyone requested to operate near to this moving part must be trained to operate in compliance with the laws and regulations in force in the country of installation and according to the instructions of the original manufacturer of the machine.

Never remove, repair, or disconnect safety devices during daily operation. If installation or maintenance operations make it necessary to remove and/or disable safety devices, it is recommended that a supervisor be present to check the skills of the person in charge of such operations. Compliance with safety laws and regulations is mandatory; Habasit personnel are trained to follow these.



### CAUTION

- Do not crinkle, crease or buckle the printing blanket
- Do not place the printing blanket on the belt edges
- Do not pull the printing blanket across the floor
- Avoid any contact of the printing blanket with sharp-edged objects
- Since chemical products like solvents and adhesives that are applied on printing blankets are beyond Habasit's control, it is advisable to conduct lab tests before using them
- Do not clean printing blankets with acetone or similar low-molecular ketones
- Do not exceed the operating temperature of 70 °C (158 °F)

## Packaging

Habasit printing blankets are shipped on stable, non-returnable pallets (by airfreight or truck) or in wooden cases (sea freight).

The printing blanket is also protected by a plastic foam sheet inside the packaging.

It is **imperative** to proceed with the utmost care when opening the packaging.

## Unpacking

Check the original packaging: if there is visible damage, take photos, send them to your dealer and only then, depending on the dealer's instructions, unpack the contents.

## Control

Check the surface of the new printing blanket immediately after fitting on the machine and before any other operation. Any surface defects such as scratches, bubbles, or marks, detected later cannot be recognized as a defect of origin.

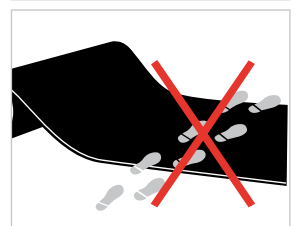
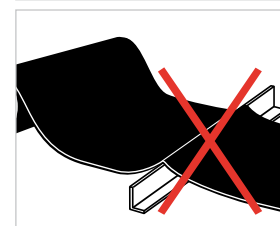
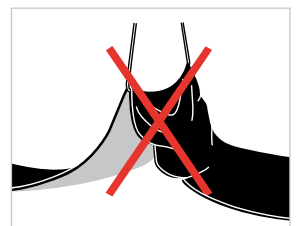
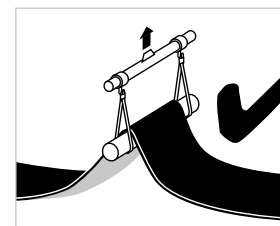
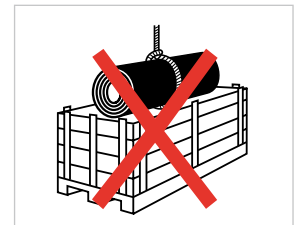
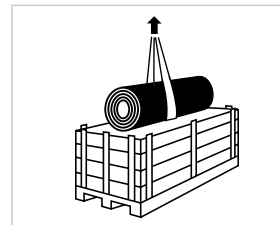
Note that surface opacity or gloss can vary as a function of packing, transport, storage time, and supply mode. Any visual effects of this type normally disappear when the printing surface is prepared and do not affect the functionality and durability of the printing blanket.

## Handling

### Handle with care!

It is essential to only use the piece of fabric supplied by Habasit as a sling to remove the blanket from the box.

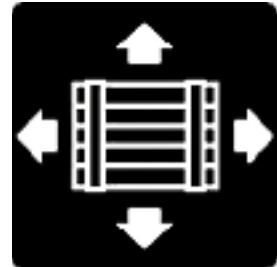
- **Do not** remove and lift the printing blanket with a single, unpadded rope
- **Do not crease, crimp or buckle** the printing blanket **or pull it across the floor or over edges**
- **Do not step** on the printing blanket



## Transport

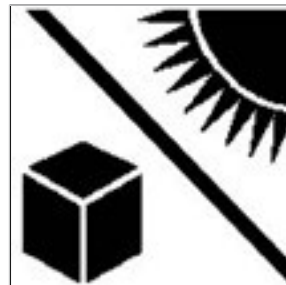
Habasit printing blankets must be handled with extreme care. Avoid any damage.

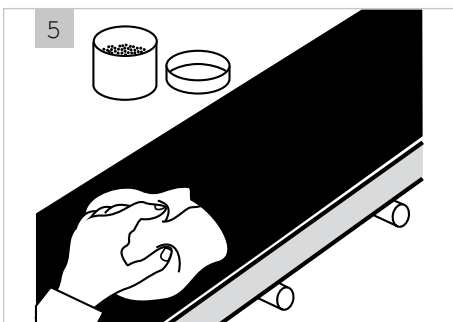
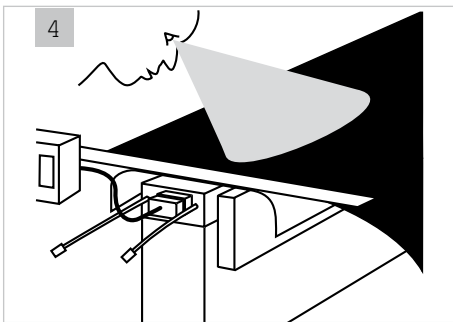
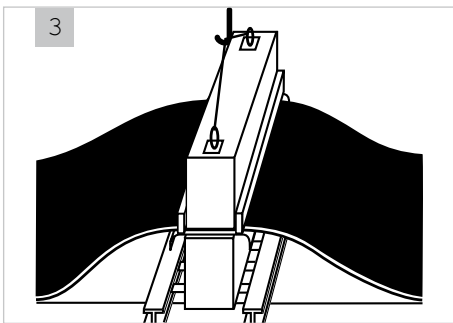
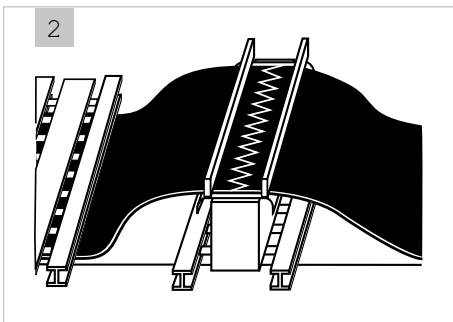
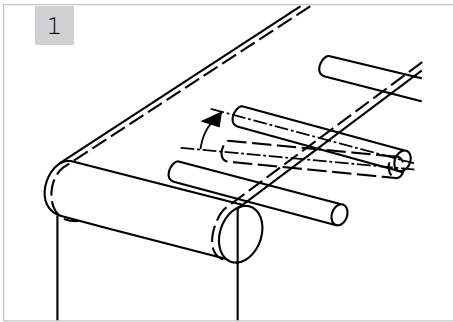
- Transport the printing blanket only in its original packaging, or on a Habasit coiling cart (e.g. CH-2400 or CH-2401)
- Check the condition of the Habasit printing blanket after each transport
- When winding/transferring the printing blanket, make sure the edges are flush (i.e. all coils are precisely placed on top of each other)



## Storage

- Store printing blankets in their **original** packaging
- **Protect from sunlight**
- Keep in a cool, **dry place**  
(not below  $-10\text{ }^{\circ}\text{C}$  /  $14\text{ }^{\circ}\text{F}$  or above  $+40\text{ }^{\circ}\text{C}$  /  $104\text{ }^{\circ}\text{F}$ , with relative humidity 40% to 70%), and make sure that it is not a condensation zone
- Storage should **not exceed one year**





## Preliminary

- Align and clean all rollers and cover any sharp parts or edges
- Check the functionality of the slider bed material or magnet covers and replace these if necessary. Steel covers in particular must be free of rust or oxidation
- Remove all guide blocks
- Adjust the hot pressing parameters according to the Habasit joining data sheet
- Perform a joining test using the spare material provided.
- Check the joint sample at top and bottom
- Place the press on the machine frame

## Operation

- Carefully install the new Habasit printing blanket on the machine, and make sure that the finger protection has not been removed
- Remove the finger protection by slowly pulling it off laterally
- Insert the prepared printing blanket ends into the press. Stick together the joint fingers of the printing blanket ends (using an electronic welding unit)
- Fix the printing blanket to the press body with the fixing bar
- Close the press, apply air pressure, and start the heating cycle (Use parameter identical to the respective joining data sheet)

## Visual check of joint

- Clean and pretreat the printing blanket surface with soap, water and silica powder
- In case of a digital printing machine, use chemicals instead of silica powder (please see the recommended product list on page 21)

## Introduction

Printing blanket running capabilities can only be assured within the elongation range of the product. The initial elongation “ $\epsilon$ ” applied should be in accordance with the instructions of the original machine manufacturer (OEM). The applied elongation value “ $\epsilon$ ” should remain inside the limits of the product (see the Habasit handling instruction flyer code no. 2100). Outside the elongation range of the product, Habasit cannot guarantee any printing performance or running capabilities. In case of doubt, please ask for technical support.

## Knowledge basis

Elongation “ $\epsilon$ ” generates a peak load that after few hours relaxes until it reaches the effective tensile force value. This phenomenon is called relaxation and it is related to the warp-weft bedding of the printing blanket fabrics. Complete relaxation normally takes 24 hours (see the figure).

To reduce the load generated by the peak tensile force, we recommend applying the required tension “ $\epsilon$ ” in two stages, with the second stage six hours after the first. The effective tensile force value will then be stable and remain stable for a long time.

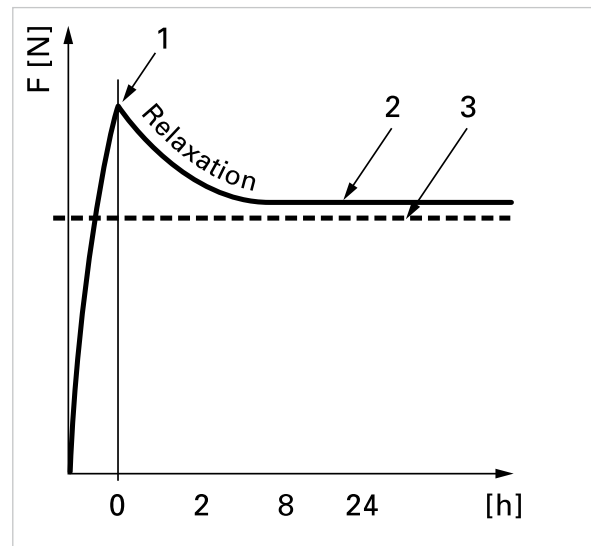
Re-tensioning the printing blanket could be necessary to compensate for a lack of accuracy in printing due to increased friction and/or room temperature. Take care never to exceed the maximum elongation value suggested in the handling instruction flyer.

## First time tensioning of a new printing blanket

Before applying any tension, it is mandatory to mark the new printing blanket (if fabricated without tension marks). Using a hot spot (e.g. an electronic welding unit with a fine spike of 1 mm) mark the printing blanket surface with two marks at a distance of 1,000 mm (or more) outside the printing area (near to one edge).

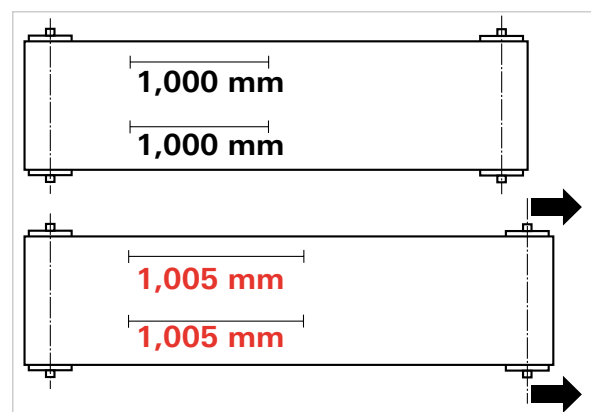
Tension the blanket with the tensioning device in one or two steps up to the required initial elongation. As an example, at 0.5% initial elongation, the correct tension is achieved if the distance between the marks has increased to 1,005 mm (based on 1,000 mm initial distance between the marks).

If possible, a larger distance is recommended, as this allows more precise elongation measurement (e.g. 2,000 mm gives a distance between the marks of 2,010 mm with a tension of 0.5%).



### Legend

- F Tensile force [N]
- 1 Peak tensile force (immediately after tensioning)
- 2 Effective tensile force after running-in
- 3 Required tensile force for slippage free operation after relaxation



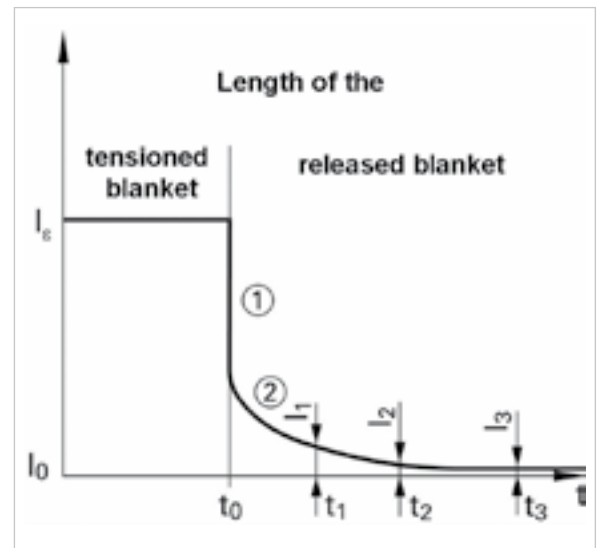


## Introduction

If a used printing blanket has to be removed (e.g. for machine revision work), the characteristic behavior of synthetic material when it is released from tension must be considered.

Immediately after the release ( $t_0$ ), the blanket contracts. During the so-called elastic recovery ① the blanket contracts to a certain amount of its initial length only ( $l_g$ ); it does not reach its initial length ( $l_0$ ).

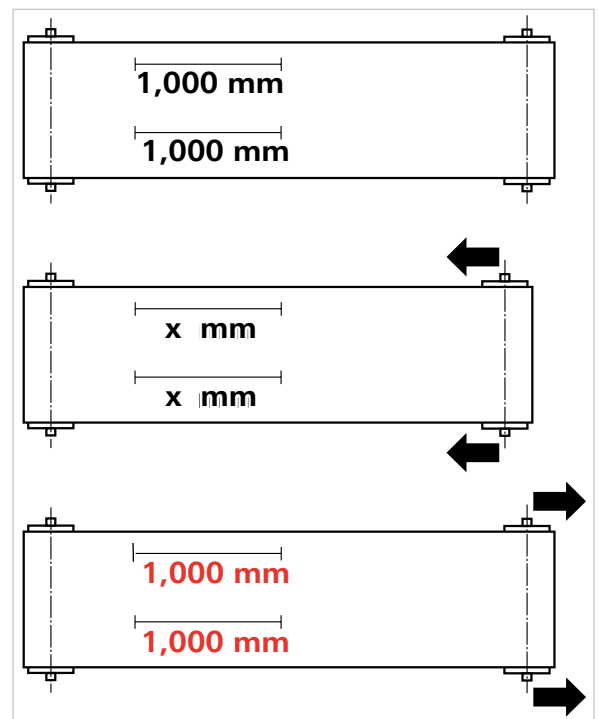
After elastic recovery, the belt still recovers gradually over a long time period. The process starts out quite fast (although it is not visible) and then gets slower and slower. This viscoelastic recovery ② takes days or even weeks until the contraction comes to a standstill. Again, the belt will still not reach its initial length.



The difference between the initial belt length ( $l_0$ ) and its length after viscoelastic recovery ( $l_3$ ) is called the remaining elongation. The amount of remaining elongation depends on the time elapsed after release. It may be considerable after release ( $t_1$ ) and is usually negligible after some days ( $t_2$ ) and weeks ( $t_3$ ). Because the exact amount of remaining elongation can neither be calculated nor predicted, de-installation and tensioning of a previously tensioned printing blanket has to be done differently from a first-time installation.

## Printing blanket tensioning after slackening or refitting

- **Before (!)** slackening the blanket, place measuring marks on a distance of for example 1,000 mm on each side of the tensioned blanket. If the marks from the first tensioning are still visible, these can be used as well
- Memorize or make a note of the distance between the measuring marks of the tensioned blanket!
- Slacken the blanket by releasing the tensioning device. The distance between the measuring marks will get shorter. The absolute length (x) is not important.
- After the maintenance work is finished, install the blanket and tension it until the measuring marks reach their **previously noted distance** (for example 1,000 mm)



This method makes sure that the blanket is tensioned to the correct percentage related to its un-tensioned length.

Caution: Do not re-tension a released blanket using the method described for the tensioning of a new printing blanket! This could result in over-tensioning, as the new elongation will be added to the not fully released part of the remaining elongation.

Tracking refers to the procedure of adjusting a printing blanket so that it runs straight and stable without any sideways movement when fitted and tensioned on the printing machine. The straight run of the printing blanket should take place in free conditions (washer, heating devices and gluing devices disconnected, printing units off).

Tracking adjustments are made (in order of preference) using:

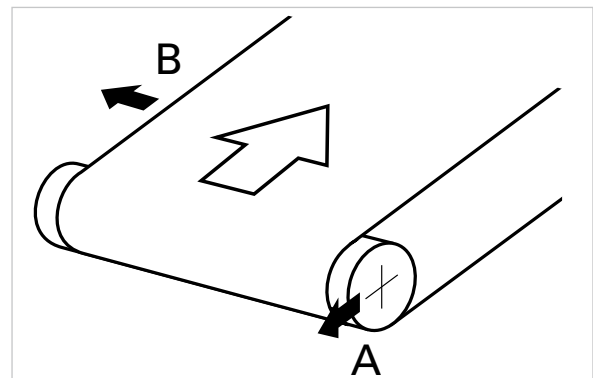
- Adjustable snub rollers on the return path and/or
- Automatic control devices, manually operated, in order to set the “zero” point and/or
- Slight adjustments of the main cylinders (by a few mm) to increase and/or decrease the tension on the printing blanket edges

Guiding devices compensate for the various influences that printing activities may have on the straight run of the printing blanket previously set up with the tracking procedure. Guiding devices are:

- Fixed guiding blocks set against the edge of the printing blanket (passive guide)
- Automatic guiding devices with a sensor on the edge of the printing blanket (active guide)

These are effective at compensating for any additional influences that may occur during the service life of the blanket, but they should not have the task of making it run straight if it does not do so naturally.

This illustration shows the effect of tensioning only one side of the printing blanket: if the blanket is tensioned on the right side (A) (or slackened on the left side) the blanket reacts with a movement to the left (B). So if the blanket has a tendency to run off to the right, the right side should be tensioned to counteract that tendency.



**The printing blanket always tends to move to the side with less tension.**

To avoid over-tensioning, corrections for tracking should not be only in the direction of tensioning, but should be in the direction of slackening for about half the time.

As a rule, a Habasit printing blanket needs to be tracked only once, during installation. However, external influences during operation can cause one side of the blanket to relax slightly more than the other. If a tendency of the printing blanket to run off to one side is observed (e.g. the blanket rubs against guiding blocks on one side more than on the other), re-tracking should be considered. Do not over adjust, though. Constant fiddling with adjustments is not good either.

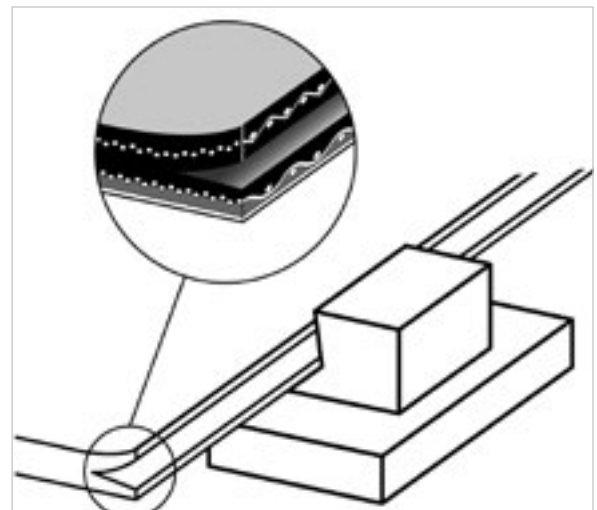
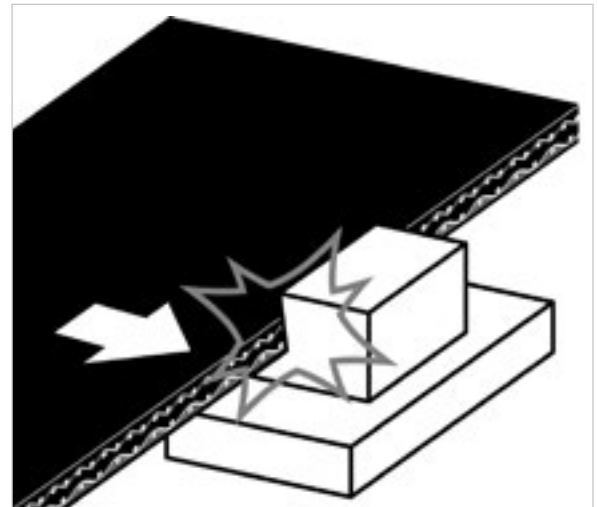
## **Mistracking and edge wear effect**

When a printing blanket guided by guiding blocks begins to mistrack, the guiding blocks exert a force on the blanket edges. The normally slight force on the edges for guiding becomes a constant and heavy tracking force.

As a result of this, friction on the printing blanket edges from the guiding blocks generates heat, and as a consequence, edge wear. Heating up of the guiding blocks is an indicator of mistracking. To fix it, set the continuous blanket speed at 60 m/min (or more) and after ten minutes touch the guiding blocks. Warming is a fast indicator of mistracking.

The same effect can be generated by a malfunction of the automatic guiding device (sensor or electronic or actuator failure). If additional security sensors are not provided or have been disconnected, the normal guiding effect will become ineffective; the printing blanket will mistrack and may even touch the machine frame.

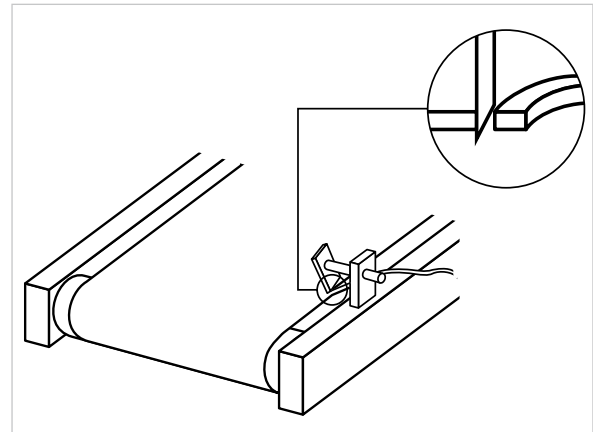
If the edge of a printing blanket is split (delaminated) as in the illustration on the right, the most probable cause is that it is constantly pushing up against the machine frame: it should be re-trimmed and re-tracked.



Slight deviations from straight running of the edge of a newly installed, untrimmed blanket are normal. This is why printing blankets are normally edge-trimmed after running in. This is especially important if automatic tracking control devices are used that have a sensor on the edge of the printing blanket.

The correct trimming procedure is as follows:

- Trimming must take place after having properly tensioned and tracked the printing blanket
  - Switch off any automatic tracking controls, if present. Remove washer and gluing devices, switch off heaters and printing units.
  - Set the printing blanket speed to a constant and continuous value of, for example 0.3 m/sec (18 m/min)
  - Stick an adhesive white paper tape along the complete blanket length
  - Let the blanket run in for several runs and observe tracking. If necessary, re-track until steady running is achieved.
  - Tracking is observed by fixing a ballpoint pen on the machine frame and having it trace on the paper tape (as an alternative, a pen with silver-colored ink works well directly on the black surface)
- 
- Fix a trimming device on the machine frame to correspond with the middle of the driving cylinder (or the main cylinder in the case of flatbed machines). Carefully lower the blade onto the blanket until it reliably penetrates through the blanket and cuts off a strip
  - Manually cut the beginning of the strip loose, so that it can be taken away at the side
  - Let the blanket run for one revolution until the strip has been cut off all round



With the edge now perfectly trimmed, automatic control devices can now be switched on. Guiding blocks can be positioned at the blanket edges with a small clearance (on average 0.2 mm on both sides, a little more at the in-feed area). Check the clearance periodically. Re-track the printing blanket and restore it if the clearance becomes too large or too small.

Habasit printing blankets are manufactured to the highest standards to allow superb printing results. Care should be taken in their use, cleaning and maintenance, in order to preserve this quality and ensure that the best printing results are possible over the full service life, as well as to extend this service life for as long as possible.

Habasit printing blankets are delivered with superb surface quality. All use and maintenance of the blanket should strive to preserve this.

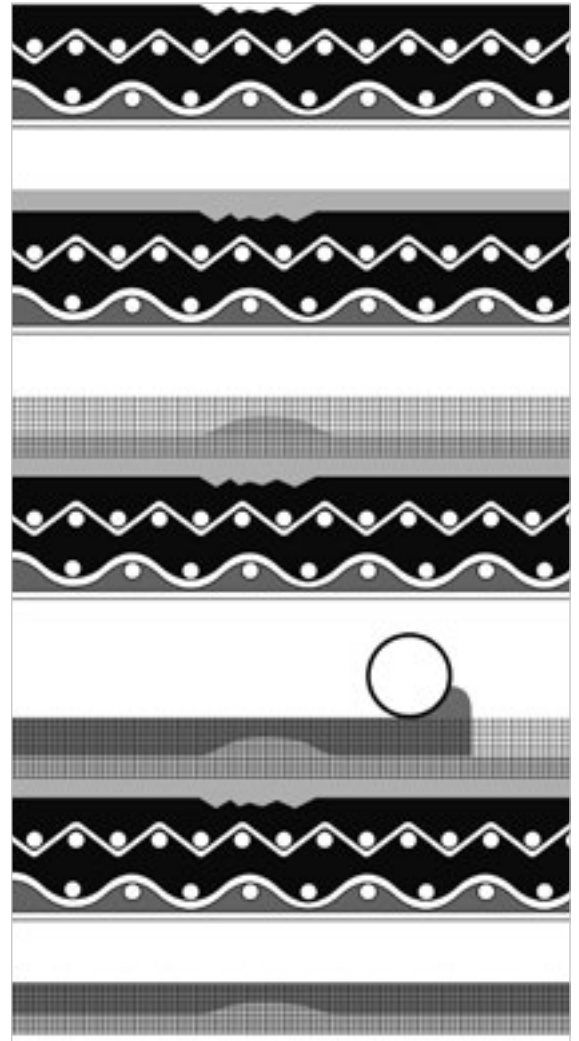
For instructional purposes, we show various types of damage to the printing blanket surface that may be caused by an accident or careless maintenance work.

When adhesive is spread on the printing blanket, more adhesive is taken up by the damaged spot.

When the fabric is pressed on, the adhesive (assuming it is water soluble) is partially absorbed into the fabric. Since there is more adhesive at the damaged spot, more adhesive is absorbed into the fabric.

When dye is now applied to the fabric in the printing process, the depth of penetration is limited by the adhesive that fills part of the thickness of the fabric.

Where the fabric adheres to the damaged part of the blanket, less dye is absorbed by the fabric; this spot shows weaker coloration and results in a printing flaw.



This example shows the results when a water soluble adhesive is used, as the consequences are most severe in this case. However, any damage to the printing blanket surface can have negative effects on the printing result regardless of the adhesive system involved. The printing blanket surface should be protected using a resin to guard against minor damage such as scratches and grooves. The resin coat offers a chemical barrier and improves the bonding of adhesives (permanent or thermoplastic). It is also recommended for water soluble glue printing with pigment color pastes and all heavy duty operations (7/24).

**Treat the surface of a printing blanket with care!**

**Avoid scratching, gouging and cutting at all costs, as well as creasing, crimping, and buckling of the blanket as a whole. If damage is present, repair it (see pages 19 – 20) or have it repaired.**

## Start/Use

### Operating preparations

After installing and running-in the Habasit printing blanket, thoroughly clean the conveying side with soft brushes. The following cleaning agents are suitable for this preliminary cleaning:

- Water and soap (household cleaners)
- Ethyl and butyl acetate
- Petroleum spirit or white spirits with low aromatic content (< 5% amount of aromatics)



### ATTENTION

Limited contact with acetone is admissible, but the printing blanked is not resistant to MEK (low ketones such as methyl ethyl ketone) and chlorinated hydrocarbons.

After cleaning carefully, rinse the printing blanket with water



### Pretreatment with silica powder (or with chemicals for digital printing machines)

One or several plastic tubes filled with silica powder are packed with each printing blanket at Habasit, and placed inside the winder core (cardboard tube). Pretreatment of the printing blanket with this powder is suggested for all screen printing machines since this will microscopically roughen the printing blanket surface to assure perfect bonding of the adhesive.

For digital printing machines, silica powder should be avoided because small powder particles can damage the nozzles of the printing head. Follow the OEM instructions, or if not available, clean the new surface with water and liquid soap and treat with an adhesive removal product like Idrosolveol or similar. Resin coating improves the bonding of adhesives on a non-roughened printing surface.

### Procedure

- Clean printing blanket with water and soap
- Let dry
- Pretreat blanket with silica powder:  
Station two people at the end of the machine. Manually apply a paste comprised of approx. 80% impalpable pumice or silica powder + 20% water. Rub the blanket thoroughly with brushes, wash it using the printing blanket washing unit, and allow the blanket to complete several full runs
- Rinse off with water
- Let dry

## **Application of Resina MC ATR 1353 (or similar products available in the market)**

The coating product **Resina MC** is used in combination with Habasit printing blankets in three important areas:

- Primary coating of Habasit printing blankets**
- Repairing of minor surface damage (see page 20)**
- Repairing of permanent adhesive films (see page 20)**

### **Primary coating of Habasit printing blankets**

Through preventive coating of the surface of Habasit printing blankets with Resina MC, resistance to scratching is markedly improved. This procedure can considerably extend the service life of the printing blanket and also improve the bonding of the adhesive to the blanket surface.

When a printing blanket is new, its surface is probably smooth and glossy. Before applying any kind of adhesive and/or protective resin film, the surface should be washed using the correct solvents and roughened by silica powder. In this way, the contact area between the surface and the adhesive film is increased, and better adhesion is obtained on the surface.

We recommend the following procedure:

- See "Pretreatment with silica powder" on page 14
- Make several full runs of the blanket with Idrosolveol or Adhesolv, using the washing unit of the machine
- Remove the washing unit
- Place the doctor blade – make 2 to 3 turns of the blanket with Idrosolveol
- Dry the blanket (before applying the resin, check that the washing unit, which has been detached beforehand, has not left any water residue on the blanket)
- Apply Resina MC, 150 g/m<sup>2</sup> or the required quantity to obtain a level printing surface. (Pour the adhesive from a suitable vessel quickly and evenly over the whole length of the blade, while starting to run the blanket in a continuous manner at minimum speed)
- It is also possible to apply a coat of Primer ATR before using Resina MC

If the product gets too viscous during application. ATR adhesives and Resina MC can be diluted with 3-4% acetone or ethyl acetate.

- When the required amount of adhesive has been applied, leave the blanket running until only a small residue of adhesive remains in front of the blade
- On completion of this operation the blade must be lifted quickly and simultaneously on both sides by means of the support screws
- After completion of the application, let the blanket turn for at least two hours, then apply 100 – 150 g/m<sup>2</sup> Thermoplast or permanent adhesive on top using the same procedure.
- Let the blanket turn for at least one hour in order to ensure complete evaporation of the solvents before you start printing

PS: The blanket support rollers on the machine must have a good Teflon covering.

## **Water soluble adhesives**

These may be applied directly on the printing blanket with the adhesive application system, although we advise that resin should always be used to protect the printing blanket surface.

The adhesion of polyvinyl alcohol (PVA) adhesives is improved by adding 10 – 15% of ethanol to the adhesives in the machine.

Whenever the machine stops or the printing process is scheduled to be stopped (e.g. on weekends), the adhesive applicator must be cleaned, or else the adhesive will dry and cake on the doctor blade. This could result in mechanical damage (scores/scratches) on the printing blanket surface when operation restarts.

## **Thermoplastic and permanent adhesives**

Both types can be used without problem on Habasit printing blankets. Some thermoplastic adhesives are primed with acetone by the manufacturer. This does not pose a problem for Habasit printing blankets since the adhesive has to be aired after application to the printing blanket, and this usually takes several hours. During that time, the acetone evaporates completely and the surface regenerates totally.

When only water soluble adhesives are used, priming with a resin and/or thermoplastic adhesive offers substantial advantages. A thermoplastic adhesive is applied to the cleaned/prepared surface and the water soluble adhesive is then applied as usual on top of the thermoplastic adhesive.

This provides additional protection for the printing blanket.

(See the list of recommended adhesives on page 21)

## **Bonding of adhesives to the printing blanket surface**

- Should any problems of adhesion arise, check whether the pretreatment with silica powder was done with sufficient care. In case of doubt, repeat the pretreatment
- Always reorder silica powder from your nearest Habasit Affiliated Company or from Habasit Headquarters in Reinach, Switzerland. Do not use any other products.
- Never roughen the printing blanket with emery paper! This may cause deep grooves where water will accumulate and further dilute the wet adhesive

## **Intensive treatment with ethyl acetate to further improve affinity to adhesives**

Mount a piece of cloth, a “flag” on a rod across the full width of the printing blanket, pour ethyl acetate on the cloth and let the machine run at creep speed for several cycles.

Remove the “flag” and let the solvent evaporate. The printing blanket is now completely degreased and adhesion is improved.





### Cleaning agents

Proceed with extreme care when using so-called "removers" and "strippers." Before using any agent, test whether it attacks the Habasit printing blanket: Apply some drops of the agent near the edge (outside the printing area) and let it react for one to two hours. Observe the effect on the printing blanket. If the surface starts to swell after a short period of time, do not use this agent under any circumstances.

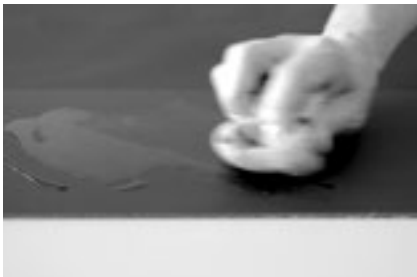


### Cleaning to remove residual pigment dyestuff

In order to remove and prevent the formation of residual pigment dyestuff, it is advisable to rub the dry, uncoated printing blanket every two weeks with the following cleaning solution and to rinse it with water after a reaction time of about one to two hours.

Composition of cleaning solution:  
 35% of 95° ethyl alcohol  
 65% of ND-150 from Chemsearch

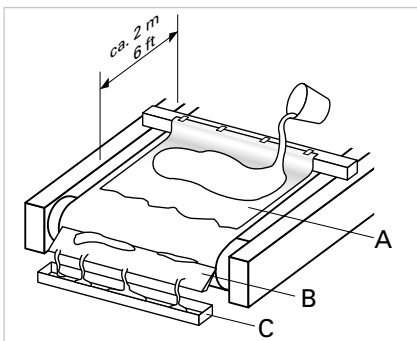
It is also possible to clean the printing blanket by washing it with 50% acetic acid.



In case of extreme and persistent soiling, alkaline cleaning pastes may be used. However, such pastes should only be applied locally. Due to their high degree of aggressiveness, they should not be in contact with the printing blanket for more than 10 minutes. The pastes are processed at room temperature and then rinsed off with lots of water.

### Cleaning to remove lime deposits

Recommendation: Clean the printing blanket with 10% hydrochloric acid or with 50% acetic acid, and rinse with water.



### Removal of thermoplastic adhesives

#### Preparation work

- All heating devices must be turned off and cooled down
- All mechanical parts must be released from the printing blanket surface
- Fix a flag, a piece of absorbent cloth or molleton, close to the return drum. The flag should be the same size as the adhesive layer with a length of about 2 meters
- Install a plastic squeegee (e.g. polyurethane elastomer, Shore 95) on the return drum and adjust it so that the squeegee just touches the printing blanket surface
- Install collecting buckets underneath the squeegee to collect the residues and to prevent them from pouring onto the machine parts and floor

#### Legend

- A = Flag
- B = Squeegee
- C = Collecting buckets or tray








## Procedure

- Pour butyl acetate or another approved chemical on the flag
- Run the machine at creep speed (approx. 5 m/min)
- Make sure the squeegee never runs dry. Continuously pour butyl acetate on the flag.




### **We do not recommend direct pouring on the printing blanket**

- Use approximately 1 liter of butyl acetate per m<sup>2</sup> of printing blanket
- Let the machine run for 2 or 3 cycles
- The thermoplastic adhesive should be removed by now. Some smaller spots can be treated manually with a cloth

## Chemicals and solvents

Chemical	Solvent	Recommendation
Alcohol	<b>Methyl alcohol</b>	
	<b>Ethyl alcohol</b>	
	<b>Isopropyl alcohol</b>	
Ester	<b>Butyl acetate</b>	
	<b>Ethyl acetate</b>	
Aromatic	<b>Benzene</b>	
	<b>Toluene</b>	
	<b>Xylene</b>	
Aliphatic	<b>Hexane</b>	
	<b>Cyclohexane</b>	
Ketone	<b>Acetone</b>	
	<b>Methyl ethyl ketone (MEK)</b>	
Chlorinated hydrocarbon	<b>Methyl chloride</b>	
	<b>(Mono)chlorobenzene</b>	
	<b>Chloroform</b>	
	<b>Trichloroethane</b>	
	<b>Trichloroethylene</b>	
Ether	<b>Ethyl ether</b>	
	<b>Tetrahydrofurane (THF)</b>	

### Legend

-  = Usable
-  = Usable, but limited contact (max. 1 minute) with printing blanket surface only
-  = Not recommended

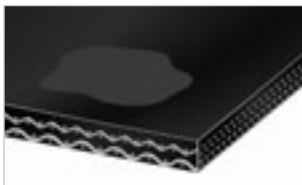
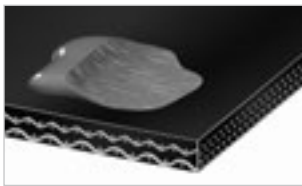
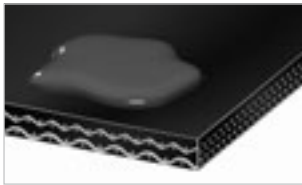
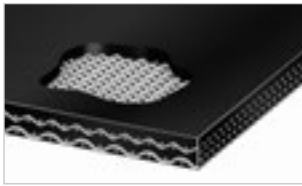
## Stripping of agents (e.g. Idrosolveol or Adhesolv)

- Before starting to remove the film, take off the washing and drying unit
- Now attach a piece of heavy fabric (cotton or wool) of the same width as the film of adhesive applied to a fabric feed roll or alternatively to a screen printing carriage. Soak the fabric thoroughly with stripping agent. While advancing the blanket at slow speed, take care to ensure that the fabric is kept well soaked with stripping agent.
- Exert pressure on the blade located on the printing blanket and continue this operation until the film of adhesive has been completely removed
- Remove the fabric and spray the blanket with stripping agent until it has been completely cleaned. Wipe the blanket thoroughly with stripping agent

In many cases, Habasit printing blankets can be repaired during a short machine downtime. The thermoplastic layer on the conveying side of the blanket offers various repair options.

## Required materials

Material/Tool	Specification
Filling material	Meltable foil ENAS-13XB (black, hard TPU)
Support plate	Steel or aluminum plate with a planarity of 0.1 mm / 200 mm
Soldering tool	Electronic soldering station. Recommendation: Weller WES 50
Soldering bit	Weller ET-MX chrome-plated, special Habasit surface treatment (N-28472)
Cooling plate	Steel or aluminum plate, about 5 mm thick
Surface grinding disk	Round aluminum disk, about 120 mm diameter, round shape is preferable
Universal knife	Stanley box cutter, NT cutter or equivalent
Random sander	Electric random orbit sander (Bosch, Makita, DeWalt or equivalent)
Abrasive paper	150 grit and 400 grit wet and dry paper. Recommendation: SIA 1913 siawat
Double-face adhesive tape	Lohmann Duplofol 0.1 mm thick, 310 mm wide (N-28525)
Cover sheet	ENIS-10 meltable foil. Serves as a transparent, heat-resistant cover sheet, when melting the surface of the printing blanket
Cooling spray	Fluorinated hydrocarbon-free (FHC-free) product



## Repairing

- Move the printing blanket until the damaged area is positioned over a crossbeam
- Slide a support plate under the damaged area and fix it with double-face adhesive tape
- Clean and dry the damaged area of all residual pigments and impurities
- With soldering tool, melt down conveying layer at damaged spot to the fabric, to obtain a vertically melted borderline. Do not melt at a flattening angle as the filling material will not adhere sufficiently
- Fill cleared area with meltable foil by means of the soldering tool
- Make sure that the meltable foil to be filled in is always liquefied; this will produce a homogeneous bond with the material of the conveying cover
- The formerly damaged area will have to be filled with meltable foil above the regular surface of the printing blanket
- Cool area of repair with cooling spray
- Grind off excess material at repaired spot with surface grinding disk. Smooth crosswise to assure a uniform result

## Repairing of minor surface damage with Resina MC ATR 1353

This procedure is suitable for repairing minor surface damage such as scores, grooves and scratches. See "Application of Resina MC" on page 15 for the relevant coating instructions.

## Repairing of permanent adhesive films

This application helps you to repair worn permanent adhesive films or heavy soiling from fibers on the adhesive surface, without completely removing the adhesive coating. See "Application of Resina MC" on page 15 for the relevant coating instructions. In this case, the necessary quantity of Resina MC depends on the state of the permanent adhesive. Resina MC is usually applied several times in small quantities until an absolutely even surface is achieved and a new permanent adhesive can be applied.

## Product description Resina MC ATR 1353

Chemical and physical properties	<b>Appearance</b>	Viscous solution, practically transparent, yellowish
	<b>Viscosity at 25 °C</b>	440 ± 150 cps
	<b>Solvent</b>	Ethyl acetate, acetone
	<b>Tackiness</b>	Not sticky
	<b>Adhesion</b>	Good
Suitable for	<ul style="list-style-type: none"> <li>• Leveling of insufficiently even printing blanket surface</li> <li>• Full neutralization of the tackiness of a permanent adhesive</li> <li>• Obtaining uniform permanent adhesive films, damaged as a result of abrasion/scuffing</li> <li>• Reanchoring of permanent adhesives detached from the printing blanket</li> <li>• Improving the resistance of permanent adhesives to solvent when printing with pigment and dispersion dyestuff</li> </ul>	

**Dosage:** Approx. 150–200 g/m<sup>2</sup> printing blanket

## Product description Primer ATR (synthetic resin in organic solvent)

Chemical and physical properties	<b>Appearance</b>	Viscous solution, opaque
	<b>Viscosity at 25 °C</b>	Approx. 400 cps
	<b>Solvent</b>	Ethyl acetate, acetone
	<b>Tackiness</b>	Not sticky
	<b>Adhesion</b>	Excellent; can be directly applied to the printing blanket
Suitable for	<ul style="list-style-type: none"> <li>• Use as a bonding agent between the surface of the printing blanket and the subsequently applied Resina MC</li> </ul>	

## Application conditions

Primer ATR can be diluted with ethyl acetate prior to application. The mixing ratio depends on the condition of the printing blanket surface or the damage to be repaired (up to 30% ethyl acetate can be added for new printing blankets). We recommend applying the coating at a low printing blanket feed rate.

Due to the constitution of the primer, sediment can form. It is therefore recommended to mix the product thoroughly before removing it from the container. Before applying Primer ATR, the printing blanket must be thoroughly washed, degreased and dried. The primer can later be rubbed down with sandpaper, grain size 300, to obtain improved uniformity of the printing surface.

**Dosage:** Approx. 120 – 150 g/m<sup>2</sup> printing blanket

**Manufacturer:** ATR Chemicals SA, [www.atrchemical.com](http://www.atrchemical.com)

# Selection of recommended permanent and thermoplastic adhesives, reducers and cleaning agents

Manufacturer	Type of product	Designation / Application	Activation °C	Approx. applied quantities (g/m <sup>2</sup> )	Recommended reducer	Recommended agent
Albert Rose Chemie www.kiwo.com	Permanent adhesives	Kiwotex® DK 66 D Cotton, cotton mixtures, synthetics	–	150 – 200	Water	Kiwotex® stripper
		Kiwotex® DK 54 L Cotton, blended fabrics (Medium heavy cloth)	–	150 – 200	Kiwosolv® L72	Kiwotex® stripper
	Thermoplastic adhesives	Kiwotex® TDK 35 L Synthetics and heat-sensitive fabrics	30 – 60	150 – 200	Kiwosolv® L72	Kiwotex® stripper
		Kiwotex® TDK 55 L Synthetics and heavy cloth	50 – 70	150 – 200	Kiwosolv® L72	Kiwotex® stripper
	Protection precoat	Kiwotex® TDK 85 L Protection layer for use of PVA adhesives	–	150 – 200	Kiwosolv® L72	Kiwotex® stripper
ATR Chemicals SA www.atrchemical.com	Protective resines	Primer ATR 2720 P/ soft Protection or levelling of surface	–	120 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
		Resina MC ATR 1353 / hard Protection or levelling of surface	–	120 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
	Permanent adhesives	Adesivo 642 ATR 1642 / soft Wool, lycra and synthetic fibers	20 – 25	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
		Attamin GO ATR 1566 / hard Cotton, cotton blends, synthetics	20 – 25	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
	Thermosensitive agents	Atrasol T ATR 1597 / soft Silk, cotton, polyester, lycra	15	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
		Atrasol X ATR 1597 / hard Silk, cotton, polyester, lycra	20	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
	Thermoplastic adhesives	Atrasol LV ATR 1721 / soft Synthetics and their lycra blends	> 30	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
		Atrasol OG ATR 1731 / hard Synthetics and their lycra blends	> 45	100 – 150	Ethyl acetate	Adhesolv (ATR 3322) Idrosolveol (ATR 1222)
	Cleaning agents	Remover NLP ATR 1336 Removing of dyes and fabric piles	–	–	–	–
	GRAFITEX www.grafitex.com	Thermoplastic adhesives	Grafiplast TP-630	30	20 – 25	Ethyl acetate
Grafiplast TP-640			40			
Grafiplast TP-650			50			
Grafiplast TP-660	60					
Grafiplast TP-680	80					
Grafiplast TP-690	90					
Permanent adhesive	Grafiplast DK-620 Table printing, T-shirts	20		Ethyl acetate Acetone (brief contact)	Ethyl acetate Acetone (brief contact)	
Wet adhesive	Grafiplast WK-621	20		Water	Ethyl acetate	
Villa Industrie Chimiche s.r.l. www.acfifs.federchimica.it	Primer	Resina SF	–	50	Ethyl acetate	Persolván NV
	Permanent adhesives	Vistasol® K (KL / G1 / GM1) Silk, cotton, polyester	–	100	Ethyl acetate	Persolván NV
		Vistasol® PM2 Wool, nylon, acrylic fibers, jersey of synthetic fibers	–	100	Ethyl acetate	Persolván NV
		Vistasol® PM3 Silk, cotton, polyester, acetate, jersey of cotton	–	100	Ethyl acetate	Persolván NV
	Thermoplastic adhesives	Vistasol® TP40	40	150 – 200	Ethyl acetate	Persolván NV
		Vistasol® TP50	50	150 – 200	Ethyl acetate	Persolván NV
Synthetic resin	Resina BR / BR2 Repair / levelling of damaged blanket	–	50	Ethyl acetate	Persolván NV	

**Important remarks:** Chemicals can damage your health. Always consult the manufacturer's Material Safety Data Sheet (MSDS) to ensure proper storage and use as well as to prevent health and safety problems and to avoid any risks for your staff and the product. This list is based on information provided by manufacturers and does not claim to be complete. Habasit cannot be held responsible for problems caused by incorrect use of these chemicals. Always follow Habasit's or the manufacturer's recommendations, or consult the manufacturer's instructions.

## General information

Solvents may cause damage. Keep contact time as brief as possible. We advise against using any kind of non recommended solvents.

→ See also "Selection of recommended permanent and thermoplastic adhesives, reducers and cleaning agents" on page 21

- Mineral products such as cleaners, thinned mineral acids and their salts do not react with the printing blanket
- Soluble dyestuffs will not affect the printing blanket as long as the white spirits used in the thickenings are perfectly emulsified and contain only a low percentage of aromatic compounds (< 5%)
- Under normal working conditions, no damage will occur in the pH range from 3 to 11
- The printing blanket will not be damaged by atmospheric variations
- For detailed technical data for each belt type, please consult the specific product data sheet which can be downloaded from [www.habasit.com](http://www.habasit.com)

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Countries	Responsible Habasit company	Available PP/PM presses for fitting on-site			
		2,400 mm	3,000 mm	3,600 mm	4,200 mm
Argentina	USA	●	●	●	
Australia	South East Asia	●	●		●
Austria		●	●	●	
Belgium		●		●	
Bangladesh	India			●	
Brazil	USA	●	●	●	●
Canada		●	●	●	
Chile	USA	●	●		
China (PRC)	East Asia	●	●	●	●
Columbia	USA	●			
Czech Republic	Austria	●			
Egypt	Italy	●			
Finland	Sweden	●	●		
France		●		●	
Germany		●	●	●	●
Great Britain		●	●	●	
Greece	Italy	●			
Hungary	Austria	●	●	●	
India		●		●	●
Indonesia	South East Asia	●	●		
Israel	Italy	●			
Italy		●			●
Japan		●	●	●	●
Mexico	USA	●	●	●	●
Netherlands		●	●	●	
Pakistan	South East Asia		●		●
Poland	Austria	●	●	●	
Romania	Austria	●			
Russia	Austria	●	●	●	
Singapore	South East Asia	●	●	●	●
South Korea	South East Asia	●	●	●	
Spain		●	●		●
Sweden		●	●	●	
Switzerland	Germany	●	●	●	●
Taiwan	East Asia	●	●		●
Thailand	South East Asia	●			
Turkey	Italy	●		●	●
USA		●	●	●	●
Venezuela	USA	●			

**EMEA**

**Germany**

Habasit GmbH, Eppertshausen  
Phone: +49 6071 969 0  
www.habasit.de

**Switzerland**

Habasit GmbH, Reinach  
Phone: +41 61 577 51 00  
www.habasit.ch

**Austria**

Habasit GmbH, Vienna  
Phone: +43 1 690 66  
www.habasit.at

**Italy**

Habasit Italiana SpA  
Domestic Phone: 199 199 333  
International: +39 0438 911 444  
www.habasit.it

**France**

Habasit France S.A.S., Mulhouse  
Phone: +33 389 338 903  
www.habasit.fr

**Spain**

Habasit Hispánica S.A.  
Barberá del Vallés  
Phone: +34 937 191 912  
www.habasit.es

**United Kingdom & Ireland**

Habasit UK Ltd., Elland  
Phone: +44 333 207 6570  
www.habasit.co.uk

**Netherlands**

Habasit Netherlands BV, Nijkerk  
Phone: +31 332 472 030  
www.habasit.nl

**Belgium & Luxembourg**

Habasit Belgium N.V., Zaventem  
Phone: +32 27 250 430  
www.habasit.be | habasit.lu

**Turkey**

Habasit Kayis San.  
Ve Tic. Ltd. Sti., Istanbul  
Phone: +90 444 70 43  
www.habasit.com.tr

**Nordic countries**

Habasit AB, Hindas, Sweden  
Phone: +46 301 226 00  
www.habasit.se

**Poland**

Habasit Polska Sp. z o.o.  
Dąbrowa Górnicza  
Phone: +48 32 639 02 40  
www.habasit.pl

**Russia**

OOO Habasit Ltd.  
Moscow Region  
Phone: +7 495 966 1566  
www.habasit.ru

**Ukraine**

Habasit Ukraine LLC., Vinnytsa  
Phone: +38 044 290 88 99  
www.habasit.ua

**South Africa**

Habasit South Africa Pty Ltd.  
Gauteng  
Phone: +27 10 001 6770  
www.habasit.co.za

**APAC**

**Japan**

Habasit Nippon Co., Ltd.  
Yokohama  
Phone: +81 45 476 0371  
www.habasit.co.jp

**China**

Habasit East Asia Ltd.  
Fotan, Shatin, N.T., Hong Kong  
Phone: +852 2145 0150  
www.habasit.com.hk

Habasit (Shanghai) Co. Ltd.

Shanghai  
Phone: +8621 2281 6131  
Phone: +8621 5488 1218  
www.habasit.com.hk

**Taiwan**

Habasit (Taiwan) Ltd.  
New Taipei City  
Phone: +886 2 2267 0538  
www.habasit.com.tw

**India**

Habasit India, Coimbatore  
Phone: +91 422 262 78 79  
www.habasit.in

**Singapore**

Habasit Far East Pte Ltd.  
Singapore  
Phone: +65 6862 5566  
www.habasit.com.sg

**Australia**

Habasit Australia Pty Ltd.  
Silverwater, Sydney  
Phone: +61 1300 945 455  
www.habasit.com.au

**New Zealand**

Habasit New Zealand Pty Ltd.  
Auckland  
Phone: 0800 000 070  
www.habasit.co.nz

**AMERICAS**

**USA**

Habasit America  
Suwanee, Georgia  
Phone: +1 800 458 6431  
www.habasitamerica.com

**Canada**

Habasit Canada Ltd., Oakville  
Phone: +1 905 827 41 31  
www.habasit.ca

**Mexico**

Habasit Rocua, Zapopan  
Phone: +52 33 3824 2358  
www.habasitrocua.mx

**Habasit AG**

Römerstrasse 1  
CH-4153 Reinach, Switzerland  
Phone +41 61 715 15 15  
Fax +41 61 715 15 55  
E-mail info@habasit.com  
www.habasit.com

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