

# Textile Industry Printing Blankets

Habasit – Solutions in motion



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## **Solution provider for the textile printing industry**

Habasit is the leading printing blanket manufacturer worldwide with a market share of over 60%. Habasit Extraline printing blankets are known in the market for excellent quality and high reliability and are used for flat screen, rotary and ink-jet machines as well as for printing tables. Habasit offers printing blankets with different features.

Two Polyester (PET) printing blankets, ENU-20EXBD and ENU-20ELBD, and the Aramid printing blanket ENU-50AXBD set worldwide standards for outstanding quality, ease of installation, high printing accuracy and price / value ratio. This is why leading machine manufacturers in Italy, the Netherlands, Austria, Switzerland, Japan, Korea, Taiwan, China and Singapore choose Habasit Extraline printing blankets.

## **Innovation is a key word at Habasit**

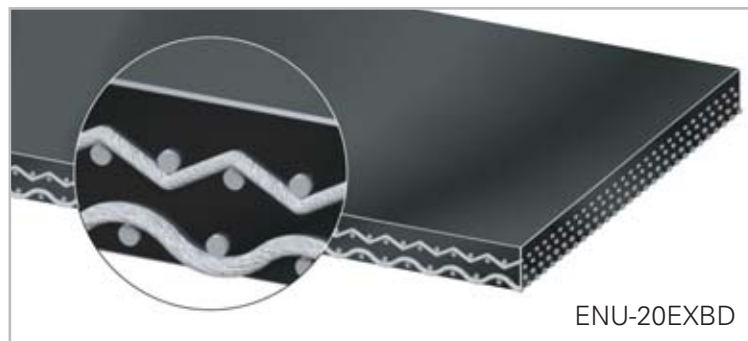
The extensive variety of solutions enables our customers to choose the best product for their application.

## **Competence and experience**

Habasit application engineers, technicians and joining specialists are at your disposal to provide professional consulting, superb customer service and excellent support. Since its foundation in 1946, Habasit has proven this understanding of customer needs for more than 60 years. With a comprehensive global network, Habasit is able to respond to any request that you may have with nothing less than outstanding belting solutions of highest quality, tailored to your specific needs.



Habasit offers three different printing blankets with features for very long and wide machines with more than 18 printing stations, machines with mechanical clamps where a specific thickness is required, and low noise requirements. You can also select a printing blanket according to a specific position of the neutral layer. The choice between the following printing blankets allows you to obtain the highest printing quality.



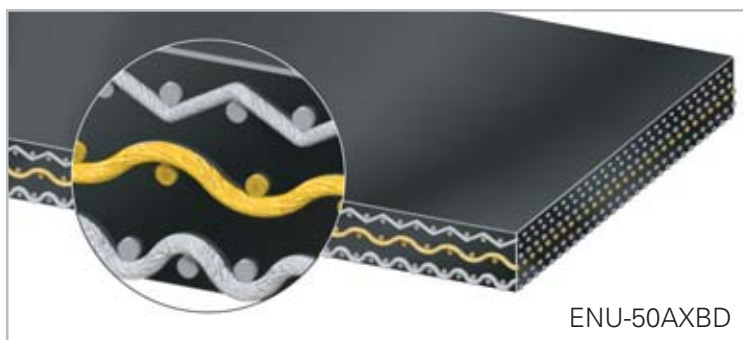
Belt Type	ENU-20EXBD	
<b>Product construction / design</b>		
Conveying side (Material)	Thermoplastic polyurethane (TPU)	
Conveying side (Surface)	Blank / smooth	
Conveying side (Property)	Non-adhesive	
Conveying side (Color)	Black	
Traction layer (Material)	Polyester fabric (PET)	
Number of fabrics	2	
Running side / Pulley side (Material)	Polyester fabric (PET) impregnated with thermoplastic polyurethane (TPU)	
Running side / Pulley side (Surface)	Impregnated fabric	
Running side / Pulley side (Color)	Gray	
<b>Product characteristics</b>		
Permanently antistatic	Yes	
Slider bed suitable	Yes	
Carrying rollers suitable	Yes	
<b>Technical key data</b>		
Thickness	2.15 mm	0.08 in.
Mass of belt	2.3 kg/m <sup>2</sup>	0.47 lbs./sq.ft
Pulley diameter minimum with counter flection	80 mm	3.1 in.
Tensile force for 1% elongation (k1% static) per unit of width (Habasit standard 320.064)	20 N/mm	114 lbs./in.
Tensile force for 1% elongation (k1% relaxed EN 1723) per unit of width (Habasit standard 320.155)	12 N/mm	69 lbs./in.
Admissible tensile force per unit of width	16 N/mm	91 lbs./in.
Operating temperature admissible (continuous)	Min -15°C Max 70°C	Min 5°F Max 158°F
Coefficient of friction on driving pulley of steel	0.15 [-]	0.15 [-]
Coefficient of friction on driving pulley with friction cover	0.35 [-]	0.35 [-]
Coefficient of friction on slider bed of pickled steel sheet	0.2 [-]	0.2 [-]
Coefficient of friction on slider bed of stainless steel sheet	0.15 [-]	0.15 [-]
Seamless manufacturing width	4000 mm	157 in.
<b>Chemical resistance</b>		
Chemical resistance class	6	
Resistant to	All Solids, Dirt, Dryness, Humidity, Putrefaction	
Limited resistance to	Acetone, Butyl acetate, Ethyl acetate, Ethyl alcohol, White spirits with less than 5%	
Not resistant to	Caustic Soda > 10%, Dimethylformamide, Dioxan, Halogenated and most aromatic Sulphuric acid > 50%, Tetrahydrofurane	
<b>Calculations</b>		
Position of the neutral layer (above the running side)	0.8 mm	0.031 in.
<b>Installation and handling instructions</b>		
Recommended initial tension	0.2 – 0.5% depending on machine type	
<b>Joining system</b>		
Flexproof	●	

## Remarks

All data are approximate values under standard climatic conditions: 23°C/73°F, 50% relative humidity (DIN 50005/ISO 554), and are based on the Habasit Master Joining Method.



ENU-20ELBD



ENU-50AXBD

**ENU-20ELBD**

Thermoplastic polyurethane (TPU)  
Blank / smooth  
Non-adhesive  
Black  
Polyester fabric (PET)  
2  
Polyester fabric (PET) impregnated  
with thermoplastic polyurethane (TPU)  
Fabric (low-noise); impregnated fabric  
Gray

Yes  
Yes  
Yes

2.6 mm	0.1 in.
3.0 kg/m <sup>2</sup>	0.61 lbs./sq.ft
100 mm	3.9 in.
20 N/mm	114 lbs./in.
12 N/mm	69 lbs./in.
16 N/mm	91 lbs./in.
Min -15°C	Min 5°F
Max 70°C	Max 158°F
0.15 [-]	0.15 [-]
0.35 [-]	0.35 [-]
0.15 [-]	0.15 [-]
0.15 [-]	0.15 [-]
4000 mm	157 in.

6

**ENU-50AXBD**

Thermoplastic polyurethane (TPU)  
Blank / smooth  
Non-adhesive  
Black  
Aramid  
3  
Polyester fabric (PET) impregnated  
with thermoplastic polyurethane (TPU)  
Impregnated fabric  
Gray

Yes  
Yes  
Yes

2.3 mm	0.09 in.
2.6 kg/m <sup>2</sup>	0.53 lbs./sq.ft
80 mm	3.1 in.
50 N/mm	286 lbs./in.
24 N/mm	137 lbs./in.
50 N/mm	286 lbs./in.
Min -15°C	Min 5°F
Max 70°C	Max 158°F
0.15 [-]	0.15 [-]
0.35 [-]	0.35 [-]
0.2 [-]	0.2 [-]
0.15 [-]	0.15 [-]
4000 mm	157 in.

6

aromatics, Xylene

hydrocarbons (> 5% aromatic compounds), Hydrochloric acid > 20%, Methyl ethyl ketone and alike, Sodium hypochlorite / javelle water,

1.0 mm	0.039 in.
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0.2 – 0.5% depending on machine type



0.9 mm	0.035 in.
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0.2 – 0.5% depending on machine type

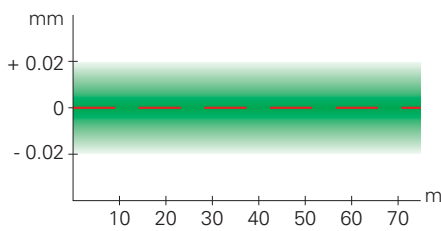


ENU-20EXBD, ENU-20ELBD and ENU-50AXBD are the three printing blankets which have been developed to fulfill your needs. Their main benefits are high printing accuracy, installation and operational facility as well as high chemical and temperature resistance due to new TPU grades and new product design.



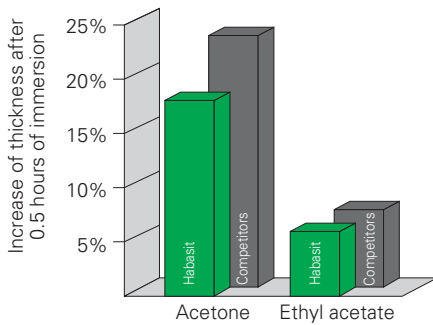
## Features

## Benefits



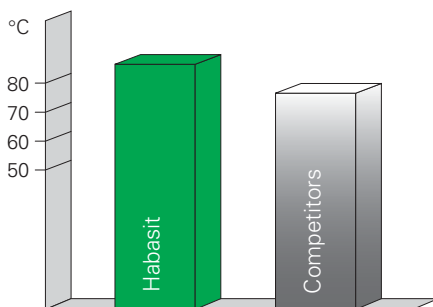
- **Very low deviation of the position of the neutral layer**

- **High and uniform printing accuracy**
- **Less second category quality and waste**
- **Cost savings**



- **High chemical resistance**

- **No surface damage**
- **No delamination (layer separation)**
- **Slower aging of TPU layers**
- **No swelling of edges**
- **Easy to clean**
- **Longer belt service life**



- **High temperature resistance**


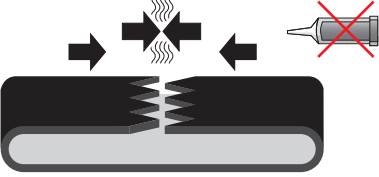
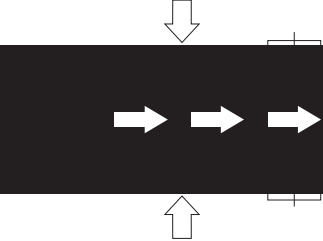
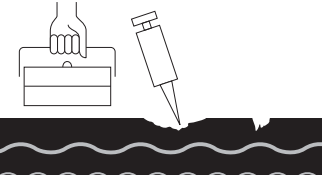

- **Reduced risk when using intermediate dryers**
- **Slower aging of TPU surface**
- **Longer belt service life**



- **Excellent mechanical properties**

- **Less sensitive to mechanical influences**
- **Higher abrasion resistance**
- **Longer belt service life**



	Features	Benefits
	<ul style="list-style-type: none"> <li>• Long service life and high reliability</li> </ul>	<ul style="list-style-type: none"> <li>→ Absolutely homogeneous and closed TPU surface</li> <li>→ No delamination</li> <li>→ Excellent affinity of TPU surface to Thermoplasts</li> <li>→ Easy to clean</li> </ul>
	<ul style="list-style-type: none"> <li>• Quick and easy joining and installation</li> </ul>	<ul style="list-style-type: none"> <li>→ Adhesive-free Flexproof joining system up to 4 m width</li> <li>→ Immediate availability of installation presses in over 80 locations worldwide</li> <li>→ Excellent tracking properties</li> </ul>
	<ul style="list-style-type: none"> <li>• Trouble-free operation</li> </ul>	<ul style="list-style-type: none"> <li>→ Excellent tracking properties due to precise multilayer Polyester and / or Aramid fabric construction</li> <li>→ No adjustments necessary</li> <li>→ No retensioning required due to high modulus of elasticity provided through a fabric traction layer (Polyester or Aramid)</li> </ul>
	<ul style="list-style-type: none"> <li>• Repairable blanket surface</li> </ul>	<ul style="list-style-type: none"> <li>→ Easy surface repair on site possible</li> <li>→ Short machine downtimes</li> <li>→ Longer belt service life</li> <li>→ Cost savings</li> </ul>
	<ul style="list-style-type: none"> <li>• Worldwide printing blanket service</li> </ul>	<ul style="list-style-type: none"> <li>→ Local stock of printing blanket coil material available in key textile printing markets</li> <li>→ Short delivery time</li> <li>→ Short downtimes thanks to fitting on site</li> <li>→ No investment in spare blankets required</li> </ul>

Excellent repeat accuracy,  
perfect / precise printing quality!



Pattern out of register, shifting focus,  
repeat markings etc!





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

## Immaculate printing blanket surface

Habasit printing blankets are delivered with superb surface quality. All use and maintenance of the blanket should strive to preserve it. The reason is the following:

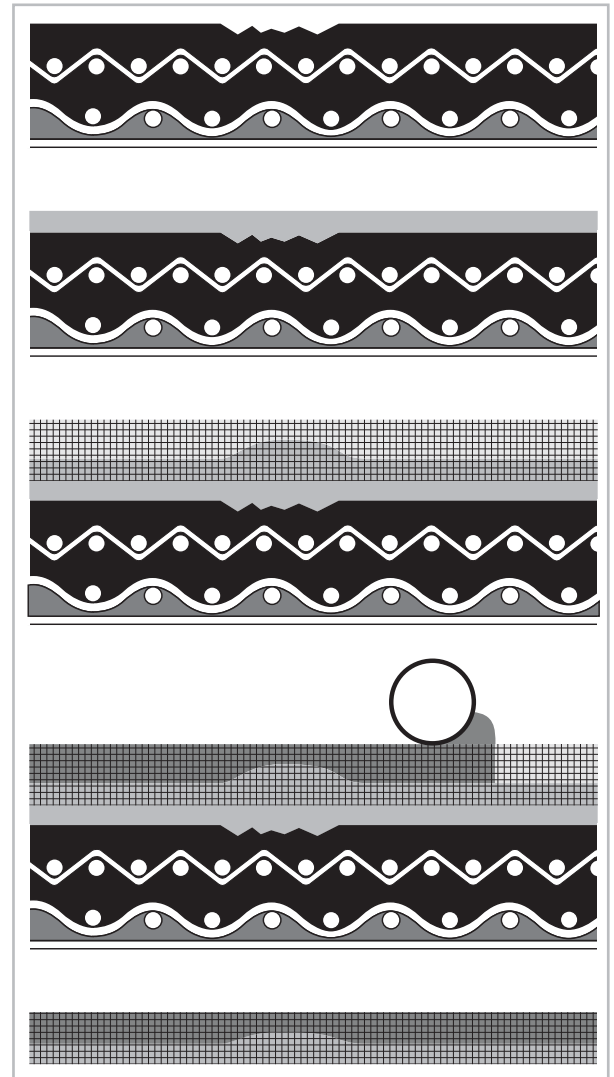
For instructional purposes we look at a damage in the printing blanket surface, which might be caused by an accident or careless maintenance work:

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

When the fabric is pressed on, the adhesive (we are assuming a water soluble adhesive here) 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, depth of penetration is limited by the adhesive that already fills part of the thickness of the fabric.

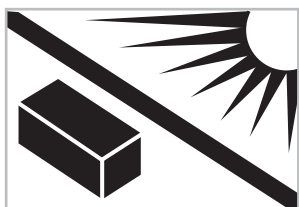
Where the fabric adhered to the damaged part of the blanket, less dye is absorbed by the fabric; this spot shows weaker coloration; a printing flaw is the result.



This example showed results when water soluble adhesive is used, as consequences are most severe there. However, damages of the printing blanket surface have negative effects on printing result regardless of the adhesive system used.

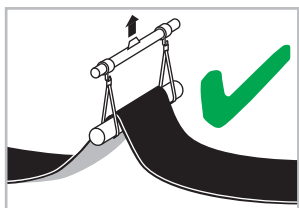
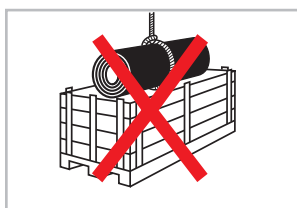
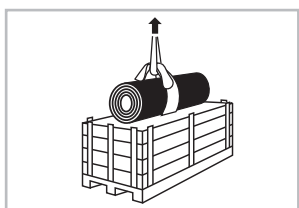
**Treat the surface of a printing blanket as you would a baby's skin. Scratching, gouging, cutting it is to be avoided at all costs. So is creasing, crimping and buckling of the blanket as a whole. If damages are present, repair them (see page 17) or have them repaired.**

## Storage



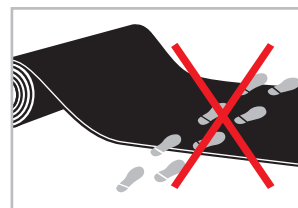
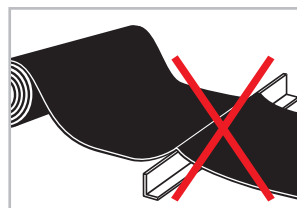
Store printing blankets in their **original** packaging, **protect from sunlight** and keep in a cool, **dry place** (not below  $-10\text{ }^{\circ}\text{C}/14\text{ }^{\circ}\text{F}$  or above  $+25\text{ }^{\circ}\text{C}/77\text{ }^{\circ}\text{F}$ , relative humidity between 40 and 65%.) Storage should **not exceed two years**.

## Handling



### Handle with Care!

Employ only the piece of fabric supplied by Habasit by using it as a sling to remove the blanket from the box.



**Do not crease, crimp, buckle** the printing blanket **or pull it across the floor or over edges**.  
**Do not step** on the printing blanket.

## Tensioning

### Tensioning Values

ENU-20EXBD  
ENU-20ELBD  
ENU-50AXBD



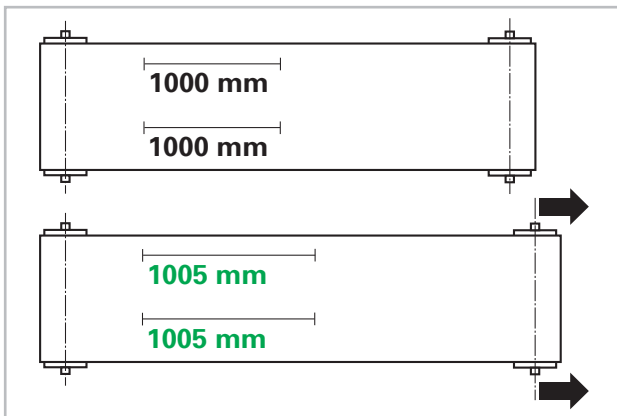
0.2 – 0.5 % depending on machine type

### Do not tension

**ENU-20EXBD and ENU-20ELBD** over **0.8%**  
**ENU-50AXBD** over **0.5%**

For additional instructions please contact Habasit or consult the machine manual.

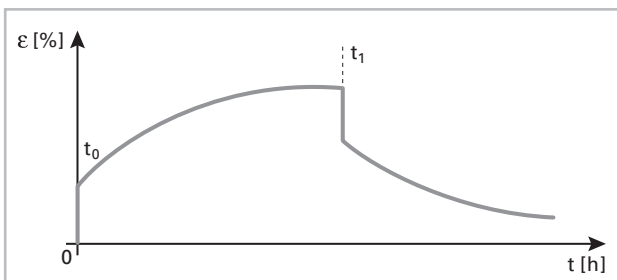
### Tensioning Procedure



- Place two measuring marks **1000 mm** on each side of the printing blanket (it must be free of tension at that time).
- Tension with tensioning device until the required initial tension is achieved.
- Measure marks on both sides of the printing blanket. At 0.5 % initial tension, for instance, the distance between the marks will have increased to **1005 mm**.

### Elastic-plastic behavior, 'permanent elongation'

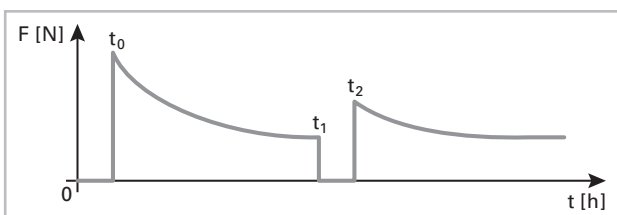
Synthetic materials show what is known as viscoelastic behavior when put under tension. When a constant force is applied, the material (in this case the belt) first elongates according to its stiffness. For conveyor belts stiffness per unit of width is expressed as 'k1% static'. However, under constant load, there is more elongation over time (what is sometimes called 'permanent elongation'), until after a long time the final elongation is reached. The latter can be calculated using 'k1% relaxed'.



Similarly, when the force is taken away, the part of elongation corresponding to 'k1% static' is released immediately. The rest of the elongation again takes a long time to recover. So it turns out that it really is not permanent at all.

This behavior is depicted in the diagram on the left: At  $t_0$  a constant force is applied. At  $t_1$  it is taken away again.

Conveyor belts are not normally tensioned with constant force, but with constant elongation. They then show the behavior depicted in the second diagram:



Elongating them generates a force in the belt according to 'k1% static'. This force then continuously decreases, until after a long time it has sunk to a force corresponding to 'k1% relaxed'.

If this belt is slackened, it begins to recover its 'permanent elongation'. It takes a long time for this 'plastic portion' of the elongation to completely disappear.

In the second diagram  $t_0$  corresponds to the time when the belt is first elongated. Tension decreases, until at  $t_1$  the elongation is taken away and the force disappears. This starts the recovery process, so that when, at  $t_2$ , the belt is elongated to its previous length once more, the force is higher again. It then decreases again until it reaches the value defined by k1% relaxed.

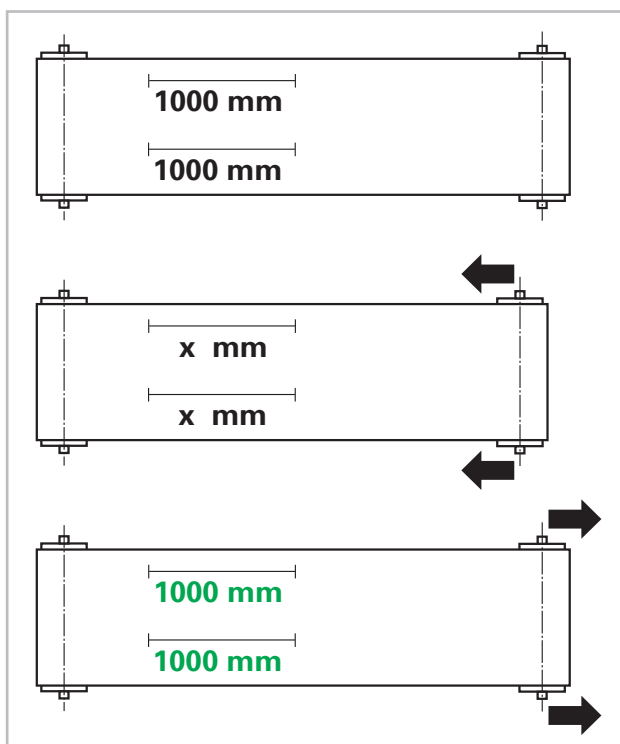
**While there is some relaxation after initial tensioning, this process comes to an end finally. Habasit considers this effect by using k1% relaxed in calculations. Constant re-tensioning is not required and not recommended.**



Still, there are situations when a blanket needs to be un-tensioned to perform other maintenance work on the printing machine. How to handle this situation is described in the following:

### Proper re-tensioning

If a belt is re-tensioned before the 'permanent elongation' has completely recovered, it is impossible to know its true state of elongation, unless the belt has been marked before slackening. The correct procedure therefore is as follows:



- Place two measuring marks of at least 1000 mm length on each side of the printing blanket (it must have its normal working elongation at that time).
- Slacken with the tensioning device until completely slack. The measuring marks will be shorter now, but the absolute length is not really of interest. Perform the maintenance work that made slackening the blanket necessary in the first place.
- Re-tension until the measuring marks have their previous length again.

This makes sure that the blanket is tensioned again with the proper percentage relating to its virgin, un-tensioned length.

If the measuring marks from the first tensioning still are visible, these can be used as well.

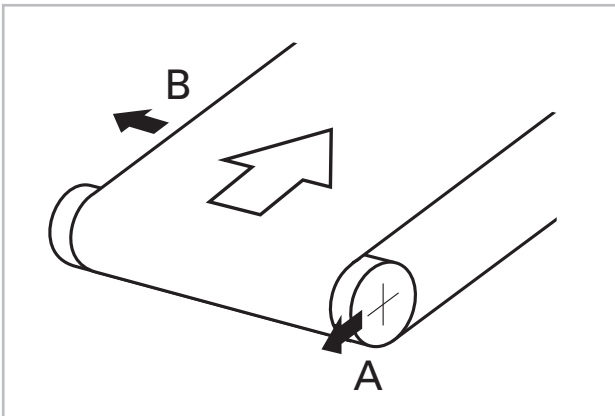
**Re-tensioning a released blanket with the method described for a new blanket can result in over-tensioning, as the new elongation will be added to the not yet released part of 'permanent elongation'.**

## Tracking

'Tracking' refers to the procedure of adjusting a printing blanket so that it runs straight and stable (without any sideways movement) through the machine. Usually this is achieved through one or several of the following means:

- proper tensioning of the left and right edges of the blanket
- adjustable snub rollers on the return path
- fixed guiding blocks set against the edge of the printing blanket
- automatic tracking control devices with a sensor on the edge of the printing blanket, controlling a tracking roller

Fixed guiding blocks as well as automatic tracking control devices should only be engaged after straight and steady running has been ensured by other means (especially proper tensioning of the right and left edge). They are good to compensate for any additional influences that might be added 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 that tensioning of one printing blanket side only has: 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). Conversely, if the blanket has a tendency to run off to the right, the right side should be tensioned to counteract that tendency.

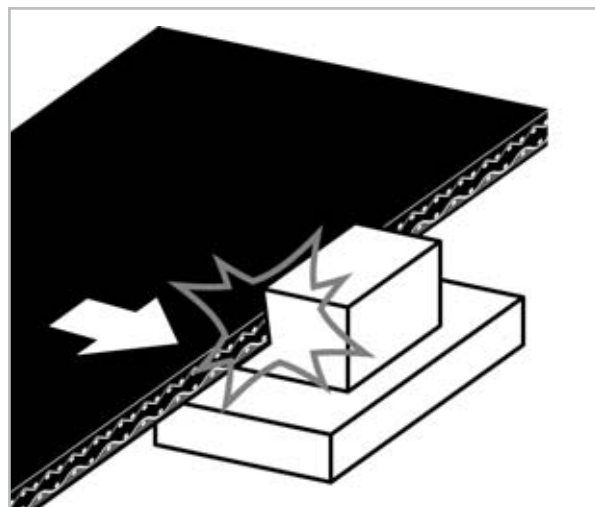
**Rule of thumb: the printing blanket always has the tendency to move to the side that has less tension.**

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

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 one. If a tendency of the printing blanket to run off to one side is observed (e.g. the blanket rubbing against guiding blocks on one side more than the other), re-tracking should be considered. Don't over-adjust, though. Constant fiddling with adjustments is not good either.

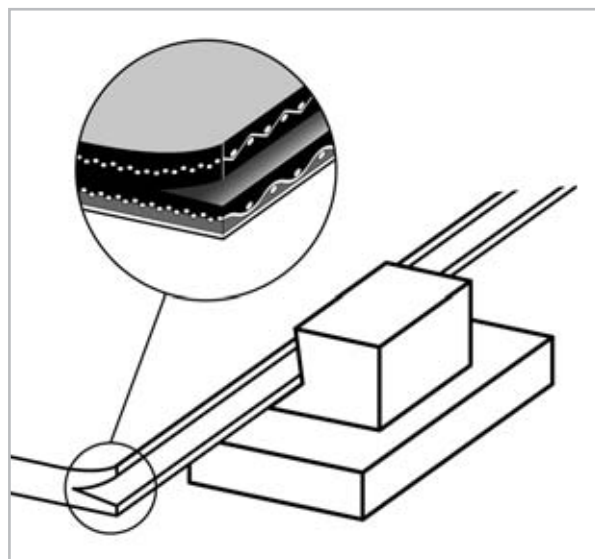
## Effects of a mis-tracking printing blanket

Printing blankets are often guided by mechanical guide blocks. In this case it is easily overlooked if the printing blanket begins to mis-track, as the guiding blocks keep it in position. They constantly exert a force on the blanket to do so, though:



As a result of this, the edge of the printing blanket can be damaged. If the edge of a printing blanket is split as in the illustration on the right, the most probable cause is that it constantly pushes up against the guiding blocks and should be re-tracked.

Also, even though the split edge is no problem in itself, it is prone to further damage. It therefore should be re-trimmed.



## Trimming

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

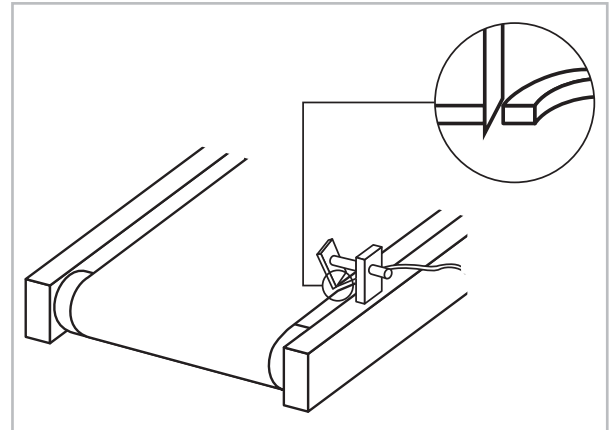
The proper procedure is as follows:

- Tension the blanket to its proper elongation as explained in the respective section.
- Switch off automatic tracking controls, if present.
- Track the blanket until it runs straight in the center of its slider bed as described in the respective section of this manual.
- Let the blanket run in for several hours and observe tracking. If necessary, re-track, until steady running is achieved.

Tracking is best observed by fixing a ball point pen on the machine frame and having it trace on the blanket (silver colored ink works well on the black surface.)



- Fix a trimming device on the machine frame. This should feature a blade that is **beveled on one side only**, so that the plain side can be set against the blanket that remains in the machine, the beveled side against the cut off strip. Carefully adjust the blade in running direction of the blanket, so that it does not exert lateral forces on the blanket when engaged.
- Run the blanket at creep speed, carefully lower the blade into 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.
- If two trimming devices are available, both sides can be cut at the same time. That has the additional advantage that any lateral forces of the trimming operation will cancel each other out.



With the edge now perfectly trimmed, automatic control devices have a reliable basis; they now can be switched on.

## Cleaning

### Cleaning Agents Recommendation

The following cleaning agents are suitable for cleaning:

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

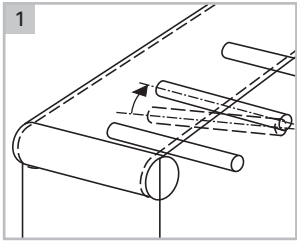
### Attention!

Limited contact with acetone admissible, not resistant to MEK and chlorinated hydrocarbons. After cleaning rinse printing blanket carefully with water.

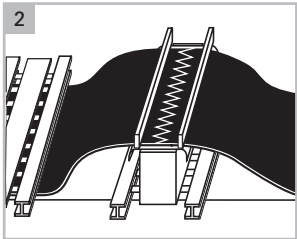
### Warning!

Not resistant to strong acids and chlorinated solvents.

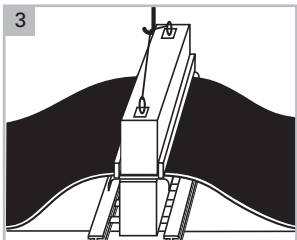
→ For further information see page 18ff.



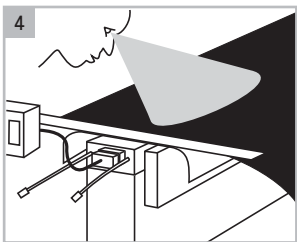
1 Align rollers and cover up sharp parts / edges.



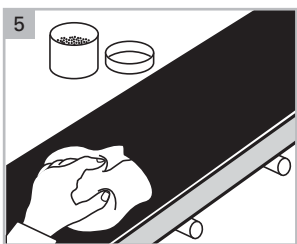
2 Insert prepared ends into press.



3 Hot pressing according to Habasit joining data sheet.



4 Visual check of joint.



5 Cleaning and pre-treatment of printing blanket surface with soap, water and silica powder.

In many cases, Habasit printing blankets can be repaired with short machine downtimes. The thermoplastic layer on the conveying side of the blanket offers various repairing possibilities.

## Required materials

Material / Tool	Specification
Filling Material	Meltable foil ENAS-13XB (black, hard TPU)
Support plate	Steel or aluminium plate with a planarity of 0.1 mm / 200 m
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 aluminium plate, about 5 mm thick
Surface grinding disk	Round aluminium disk, about 120 mm dia. 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 (FHC) free product

## Repairing



- Move the printing blanket until the damaged area is positioned over a crossbeam.



- Slide support plate under damaged area and fix it with double-face adhesive tape.



- Clean 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.



## **Water soluble adhesives**

May be applied directly on the printing blanket with the adhesive application system.

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 may result in mechanical damage (scores / scratches) on the printing blanket surface when operation restarts.

## **Thermoplastic and permanent adhesives**

Both types can be used without any 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 wet adhesives are used, priming with a thermoplastic adhesive offers substantial advantages. A thermoplastic adhesive with an activating temperature of approx. 80°C (176°F) 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 also list "recommended adhesives" page 18/19)

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

- Should any problems of adhesion arise, check whether the pre-treatment with silica powder was done with sufficient care. In case of doubt, repeat pre-treatment.
- Always reorder silica powder from the nearest Habasit Affiliated Company or from Headquarters in Reinach, Switzerland. Do not use any other products.
- Never roughen 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 "flag" and let the solvent evaporate. The printing blanket is now completely degreased and adhesion is improved.

# Selection of recommended permanent and thermoplastic Adhesives, Reducers and Cleaning Agents

Manu- facturer	Type of Product	Designation/ Application	Approx. Activation	Approx. Applied Quantities (g/m <sup>2</sup> )	Recommended Reducer	Recommended Cleaning agent
Albert Rose Chemie www.kiwo.com	Permanent Adhesives	<b>Kiwotex® DK 66 D</b> Cotton, cotton mixtures, synthetics	–	150 – 200	Water	<b>Kiwotex® Stripper</b>
		<b>Kiwotex® DK 54 L</b> Cotton, blended fabrics (Medium heavy cloth)	–	150 – 200	<b>Kiwosolv® L72</b>	<b>Kiwotex® Stripper</b>
	Thermoplastic Adhesives	<b>Kiwotex® TDK 35 L</b> Synthetics and heat sensitive fabrics	30 – 60	150 – 200	<b>Kiwosolv® L72</b>	<b>Kiwotex® Stripper</b>
		<b>Kiwotex® TDK 55 L</b> Synthetics and heavy cloth	50 – 70	150 – 200	<b>Kiwosolv® L72</b>	<b>Kiwotex® Stripper</b>
	Protection Pre-coat	<b>Kiwotex® TDK 85 L</b> Protection layer for use of PVA adhesives	–	150 – 200	<b>Kiwosolv® L72</b>	<b>Kiwotex® Stripper</b>
ATR Chemicals S.A. www.atrchemical.com	Primer	<b>Primer ATR</b> (ATR 2720P)	30	120 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
	Thermoplastic Adhesives	<b>Atrasol G.P. 1</b> (ATR 1717)	30	10 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atrasol N.B.</b> (ATR 1720)	30 – 40	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atrasol M</b> (ATR 1801)	40	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atrasol R 25</b>	40	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
	Thermo- sensitive Adhesives	<b>Atrasol T</b> (ATR 1597) Silk, cotton, polyester, lycra	25 – 30	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atrasol X</b>	25 – 30	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atrasol Y</b>	25 – 30	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
		<b>Atramin GO</b> (ATR 1566) Wool, lycra and synthetic fibers	25 – 30	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
	Permanent Adhesives	<b>Adesivo 642</b> (ATR 1642) Wool, lycra and synthetic fibers	25 – 30	100 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)
Synthetic Resin	<b>Resina M.C.</b> (ATR 1353) Repair / leveling of damaged blanket	–	120 – 150	Ethyl Acetate	<b>Adhesolv</b> (ATR 3322) <b>Idrosolveol</b> (ATR 1222)	
BASF AG www.basf.de	Wet Adhesives	<b>Lubasin® S Neu</b> For synthetic substrates where high tack is needed	–		Water	Water
		<b>Lubasin® RF Neu</b> For synthetic substrates where high tack is needed on rotary printing machines	–		Water	Water
	Thermoplastic Adhesives	<b>Lubasin® TP</b> For special substrates where high tack is needed (PES)			Ethyl Acetate	Buthyl Acetate
Buser Drucktechnik AG www.buser.ch	Thermoplastic Adhesives	<b>Thermoplast N</b> Universal, for most substrates	40 – 60	100 – 150	Ethyl Acetate	Ethyl Acetate
		<b>Thermoplast I</b> For difficult substrates	low	100 – 150	Ethyl Acetate	Ethyl Acetate

**Important remarks:** Chemicals can damage your health. In any case 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 risk for your staff and the product. This list is based on the information of the manufacturers and does not claim to be complete. Habasit cannot be made responsible for problems which are caused by the wrong use of these chemicals. Always follow Habasit's or the manufacturer's recommendations or consult the manufacturer's operating instructions.

# Selection of recommended permanent and thermoplastic Adhesives, Reducers and Cleaning Agents (contd.)

Manu- facturer	Type of Product	Designation/ Application	Approx. Activation	Approx. Applied Quantities (g/m <sup>2</sup> )	Recommended Reducer	Recommended Cleaning agent
CEVMI Chimie 00 33 147 27 89 51	Cleaning Agents	<b>Super Tex</b> Removing of adhesive	–	–	–	–
		<b>Champion</b> Cleaning of printing blanket machine parts	–	–	–	–
		<b>Ravvivante 96</b> Removing or reactivating of adhesives	–	–	–	–
Dr. Th., Böhme KG Chem. Fabrik GmbH & Co. www.boehme-chemie.com	Cleaning Agents	<b>Lavaquick TP</b> Removing of thermoplastic adhesives and dyestuff	–	–	–	–
GRAFITEX www.grafitex.com	Thermoplastic Adhesives	<b>Grafiplast TP-630</b>	30	20 – 25	Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate	Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate Ethyl Acetate
		<b>Grafiplast TP-640</b>	40			
		<b>Grafiplast TP-650</b>	50			
<b>Grafiplast TP-660</b>		60				
<b>Grafiplast TP-680</b>		80				
<b>Grafiplast TP-690</b>		90				
Permanent Adhesive	<b>Grafiplast DK-620</b> Table printing, T-Shirts	20	Ethyl Acetate Acetone (brief contact)	Ethyl Acetate Acetone (brief contact)		
	Wet Adhesive	<b>Grafiplast WK-621</b>			20	Water
NCH Corporation www.nch.com	Cleaning Agents	<b>ND-150</b> Degreasing and cleaning of printing blanket	–	–	–	–
Villa Industrie Chimiche s.r.l. www.acfis.federchimica.it	Primer	<b>Resina SF</b>	–	50	Ethyl Acetate	<b>Persolvan NV</b>
	Permanent Adhesives	<b>Vistasol® K</b> (KL / G1 / GM1) Silk, cotton, polyester	–	100	Ethyl Acetate	<b>Persolvan NV</b>
		<b>Vistasol® PM2</b> Wool, Nylon, Acrylic fibers, Jersey of synthetic fibers	–	100	Ethyl Acetate	<b>Persolvan NV</b>
		<b>Vistasol® PM3</b> Silk, cotton, polyester, acetate, jersey of cotton	–	100	Ethyl Acetate	<b>Persolvan NV</b>
	Thermoplastic Adhesives	<b>Vistasol® TP40</b>	40	150 – 200	Ethyl Acetate	<b>Persolvan NV</b>
		<b>Vistasol® TP50</b>	50	150 – 200	Ethyl Acetate	<b>Persolvan NV</b>
Synthetic Resin	<b>Resina BR / BR2</b> Repair / leveling of damaged blanket	–	50	Ethyl Acetate	<b>Persolvan NV</b>	
STAL 35 rue d'Yours F-69540 Irigny + 33 478 50 51 52	Cleaning Agents	<b>ST 500</b> Removing of dyestuff	–	–	–	–
		<b>ST - 14</b> Removing of adhesives	–	–	–	–
Stork Prints B.V. www.stork.com	Pre-coat	<b>4R0338892</b>	–	40	–	<b>Stork Stripper</b>
	Thermoplastic Adhesives	<b>4R0809880</b>	–	160	–	<b>Stork Stripper</b>
	Stripper	<b>4R0809879</b>	–	–	–	–

**Important remarks:** Chemicals can damage your health. In any case 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 risk for your staff and the product. This list is based on the information of the manufacturers and does not claim to be complete. Habasit cannot be made responsible for problems which are caused by the wrong use of these chemicals. Always follow Habasit's or the manufacturer's recommendations or consult the manufacturer's operating instructions.

## Application of RESIN

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

- Primary coating of Habasit printing blankets
- Repairing of minor surface damages
- Repairing of permanent adhesive films

### 1. Primary coating of Habasit printing blankets

By preventive coating of the surface of Habasit printing blankets with Resin MC, the 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.

Coating instructions:

- Before starting with the coating procedure, the printing blanket support rollers must be helically wrapped with Teflon strips. The Teflon prevents the rollers from becoming smudged.
- Switch off the washing and drying unit.
- Apply a coat of Primer ATR (ATR412, approx. 120 g/m<sup>2</sup> printing blanket) directly to the printing blanket. This Primer acts as a bonding agent between the printing blanket surface and the subsequently applied Resin MC.
- For easier application Primer and Resin MC can be mixed with ethyl acetate according to the product description.
- Wait for approx. 30 minutes to 1 hour before applying Resin MC. The required amount of Resin MC is dependent on the state of the printing blanket. 150 – 200 g Resin MC per square meter of the printing blanket is normally sufficient.
- Use the same doctor blade as used for applying the thermoplastic permanent adhesive.
- Allow the printing blanket to run in creep speed.
- To achieve the best possible results, it is recommended to initially apply Resin MC with a doctor blade positioned perpendicular to the printing blanket.
- After applying a third of Resin MC (50 – 60 g/m<sup>2</sup>), interrupt the process for approx. half an hour and then move the doctor blade forward from right to left.
- Then apply another third of Resin MC, interrupt the process again for half an hour, and move the doctor blade forward from left to right.
- Finally, apply the remainder of Resin MC.

This procedure will ensure to obtain a more uniform film of Resin MC.

Very good results can also be obtained with a doctor blade standing transverse to the running direction.

After applying the necessary quantity of Resin MC, run the printing blanket forward at ambient temperature (without heating) for approx. 2 hours, before applying the thermoplastic or water soluble adhesive.



**2. Repairing of minor surface damages**

This procedure is suitable for repairing minor surface damages such as, for instance, scores, grooves, scratches. See item 1 of this chapter for the relevant coating instructions.

**3. 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 removing completely the adhesive coating. See item 1 of this chapter for the relevant coating instructions. In this case, the necessary quantity of Resin MC is dependent on the state of the permanent adhesive. Resin MC is usually applied several times in small quantities until achieving an absolutely even surface for the application of the new permanent adhesive.

**Product description "Resin MC"** (synthetic resin in an organic solvent)

Chemical and physical properties:	<b>Appearance</b> <b>Viscosity at 25°C</b> <b>Solvent</b> <b>Tackiness</b> <b>Adhesion</b>	viscous solution, practically transparent, yellowish 600 +/- 150 cps ethyl acetate, acetone not sticky 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>• re-anchoring 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>	

**Application conditions:**

Resin MC can be diluted with ethyl acetate prior to application, the mixing ratio being dependent on the condition of the printing blanket's surface or the damage to be repaired (up to 50% ethyl acetate can be added for new printing blankets).

Prior to using Resin MC, a coat of Primer ATR, Atramin 578 or Atramin Super must be applied. It can be subsequently rubbed down with sandpaper, grain size 250, to obtain improved uniformity of the printing blanket. It is recommended to carry out the coating at a low printing blanket feed rate.

Due to its constitution, sediment can form. It is therefore recommended to mix the product carefully before removing it from the container.

**Dosage:**

ca. 150 – 200 g/m<sup>2</sup> printing blanket

**Manufacturer:**

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

**Product description "Primer ATR"** (synthetic resin in organic solvent)

Chemical and physical properties:	<b>Appearance</b> <b>Viscosity at 25°C</b> <b>Solvent</b> <b>Tackiness</b> <b>Adhesion</b>	viscous solution, opaque approx. 400 cps ethyl acetate, acetone not sticky 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 Resin MC.</li> </ul>	

**Application conditions:**

Primer ATR can be diluted with ethyl acetate prior to application, the mixing ratio being dependent on the condition of the printing blanket's surface or the damage to be repaired (up to 30% ethyl acetate can be added for new printing blankets).

It is recommended to apply 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 the Primer ATR, the printing blanket must be thoroughly washed, degreased and dried. The primer can subsequently be rubbed down with sandpaper, grain size 300, to obtain improved uniformity of the printing surface.

**Dosage:**

ca. 120 – 150 g/m<sup>2</sup> printing blanket

**Manufacturer:**

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



### 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 of the printing area) and let react for 1 to 2 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 fortnight with the following cleaning solution and to rinse it with water after a reaction time of about 1 to 2 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.

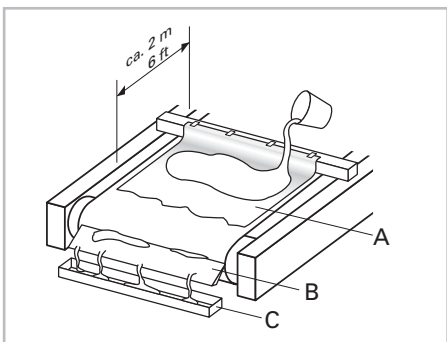


In case of extreme, persistent soiling, alkaline cleaning pastes may be used. However, such pastes are to be applied locally only. Due to their high degree of aggressiveness, their time of contact with the printing blanket should not exceed 10 minutes.

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

#### 1. Preparation Work

- All heating devices have to be turned off and cooled down.
- All mechanical parts have to be released from the printing blanket surface.
- Fix a flag, a piece of absorbent cloth or molleton, close to the return drum. The flag has the same size as the adhesive layer and a length of about 2 meters.
- Install a plastic squeegee (e.g. polyurethane elastomer, Shore 95) on the return drum and make adjustment so that the squeegee slightly 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









## 2. Procedure

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

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

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

## Recommended chemicals / 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>Trichlorethene</b>	
Ether	<b>Ethyl Ether</b>	
	<b>Tetrahydrofuran (THF)</b>	

### Legend



= Usable



= Usable, but limited contact (max. 1 minute) with printing blanket surface only



= Not recommended



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Countries	Responsible AC	Available PP / PM presses for fitting on site			
		2400 mm	3000 mm	3600 mm	4200 mm
Argentina	USA	●		●	
Australia	South East Asia	●	●		●
Austria		●	●	●	
Belgium		●		●	
Brazil	USA	●	●		
Canada		●	●	●	
Chile	USA	●	●		
China (PRC)	East Asia	●	●	●	●
Columbia	USA	●			
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	●			
Singapore	South East Asia	●	●	●	●
South Korea	South East Asia	●	●	●	
Spain		●	●		●
Sweden		●	●	●	
Switzerland		●	●	●	●
Taiwan	East Asia	●	●		●
Thailand	South East Asia	●			
Turkey	Italy	●		●	●
USA		●	●	●	●
Venezuela	USA	●			
White Russia	Austria	●			

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**Customers come first**

At Habasit we understand that our success depends on your success. Which is why we offer solutions, not just products; partnership, not just sales. Since our foundation in 1946, Habasit has brought this understanding of customer needs to life every day and for every application. That's why we're the No. 1 in belting today. Worldwide.



**Committed to innovation**

Habasit is strongly committed to the continuous development of innovative, value-added solutions. Over 3% of our staff are dedicated exclusively to R&D, and our annual investment in this area exceeds 8% of turnover.



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We deliver the highest quality standards not only in our products and solutions, but also in our employees' daily work processes. Habasit AG is certified according to ISO 9001:2000.



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Habasit offers the largest selection of belting, conveying, processing and complementary products in the industry. Our response to any request is nothing less than a specific, tailor-made solution.

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**HabaDRIVE®**  
Power transmission belts



**HabaSYNC®**  
Timing belts

**HabaCHAIN®**  
Chains (slat and conveyor chains)

**HabiPLAST®**  
Profiles  
Guides  
Wear strips



Machine tapes

Seamless belts

Round belts



Fabrication tools (joining tools)

Gear reducers  
Gearmotors  
Motion control

Electric motors

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