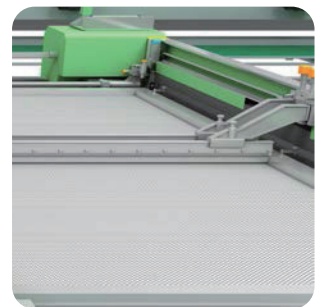
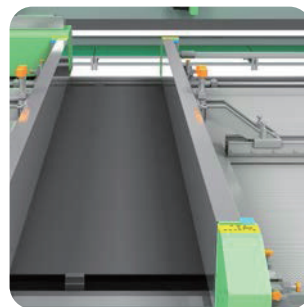
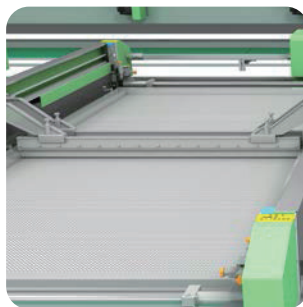
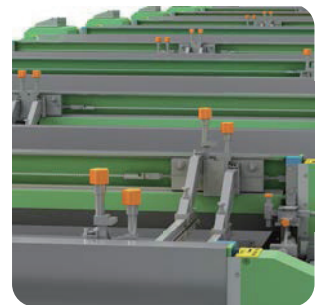
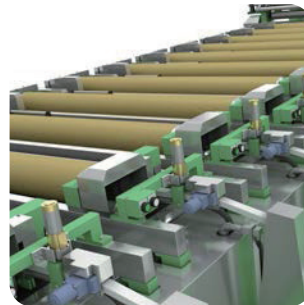
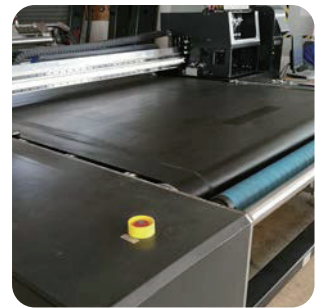
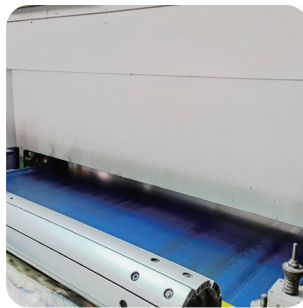


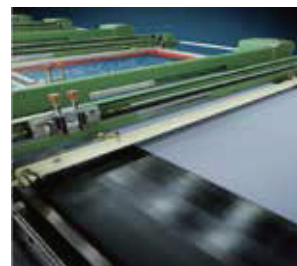
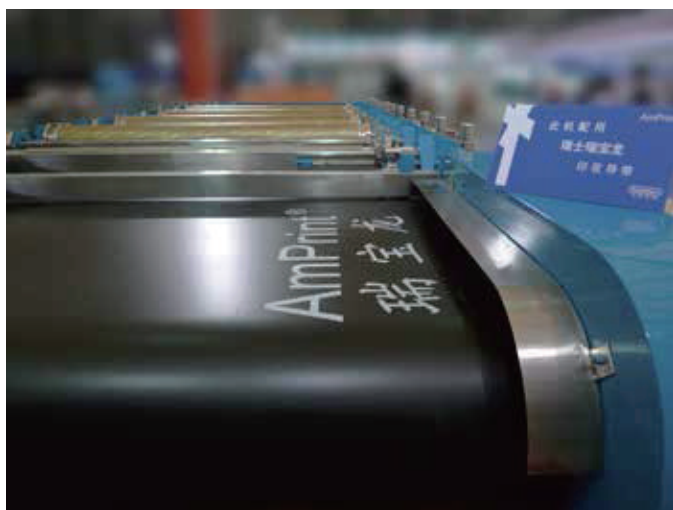
Printing Blanket - Technical Manual



CONTENTS >>>

● Introduction	Normal printing blanket 03
	Special printing blanket 04
● Printing Machine Design	Platen design 05
	Roller design for screen printing machine 05
	Correcting roller design 05
● Packaging and Installation	Delivery package specification 06
	General packaging attentions 06
	On-site installation 06
● Tensioning and Debugging	Printing blanket tensioning 07
	Suggestions for screen printing machine debugging 07
● Maintenance	Repair of small holes 08
	Wrinkle repair 08
	Repair with inset 08
	Edge tying repair 09
	Maintenance notice 09
● Printing Blanket Maintenance and Chemical Resistance	10

Applications >>>



Introduction >>>

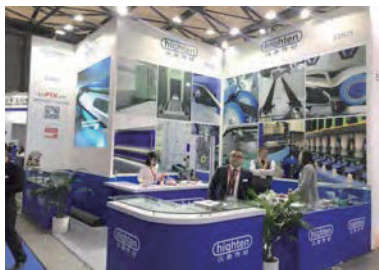


In printing processing, Highten focus on high-accurate printing blanket, which improves the accuracy of the printing machines. We have developed over 10 kinds of printing blankets that are equipped with almost high-grade China OEM: KEYCHENG, MBK, JEEWONG, DEGAO, JILONE, HUI SHENG.

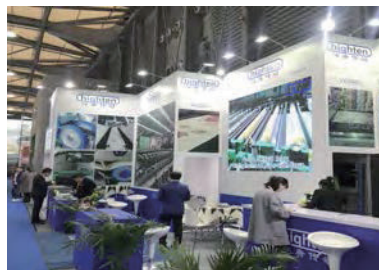
In October, 2019, Highten invests new printing blanket fabrication center, which occupies 5000m². The stock of the Printing Blanket width can up to 4500mm, on-site jointing machines can up to more than 20 sets. The vice president of CTMA attended the opening ceremony.



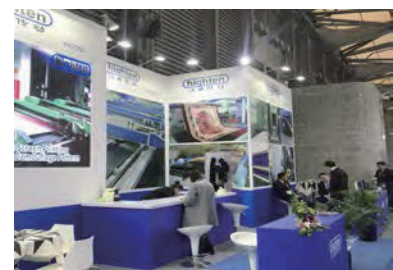
Exhibition >>>



SHANGHAITEX 2019



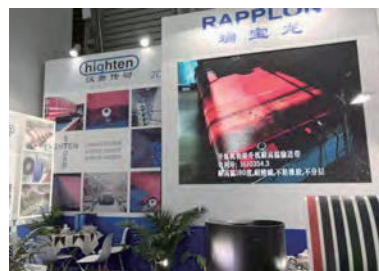
SHANGHAITEX 2019



SHANGHAITEX 2019



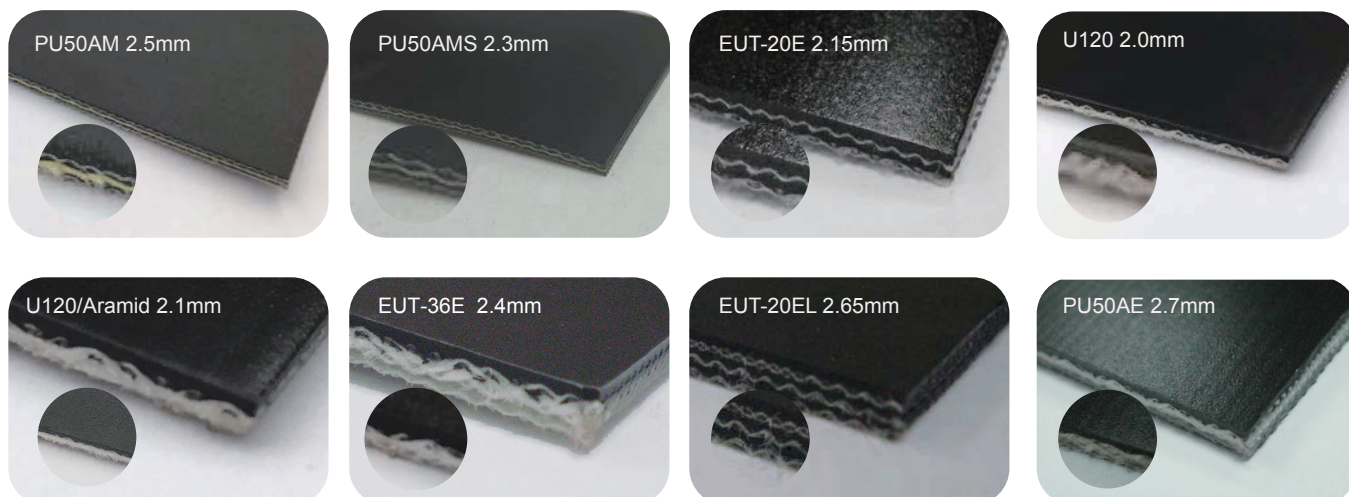
ITMACH 2019



SHANGHAI RPE 2019



CEMAT 2019



Product Model	PU50AM	PU50AMS	EUT-20E	U120	U120/Aramid	EUT-36E	EUT-20EL	PU50AE
Main Technical Parameters								
Thickness mm	2.5	2.3	2.15	2.0	2.1	2.4	2.65	2.7
Thickness tolerance mm	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
Hardness °ShA	92	92	92	92	92	92	92	92
Weight (KG/M ²)	2.8	2.5	2.4	2.3	2.3	2.4	2.9	3
Conveying side	TPU	TPU	TPU	TPU	TPU	TPU	TPU	TPU
Traction layer	Aramid	Aramid	PET	PET	Aramid	PET	PET	PET
Running side	PET	PET	PET	PET	PET	PET	PET	PET
Minimum pulley diameter (mm)	100	100	75	30	70	45	80	100
Tensile for forcing 1% elongation (N/mm)	50	50	20	25	35	25	30	25
Continuous working temperature °C	-15/+80	-15/+80	-15/+80	-15/+90	-20/+90	-15/+90	-15/+80	-15/+90
Maximum production width (mm)	3200	3500	3350	4000	4000	4000	4000	4000
Recommended elongation at fitting (%)	0.2-0.5	0.2-0.5	0.3-0.8	0.3-0.8	0.2-0.5	0.3-0.8	0.3-0.8	0.3-0.8
Antistatic	yes	yes	yes	yes	yes	yes	yes	yes
Product Features Applicable To								
Features applicable to	- Flatbed printing machines - Rotary printing machine - Digital printing	- Flatbed printing machines - Rotary printing machine - Digital printing	- Rotary printing machine(stork, mbk) - Short flatbed printing machines	- Blanket printing machine - cutting piece printing machine	- Rotary printing machine(stork, mbk) - Short flatbed printing machines	- Blanket printing machine - cutting piece printing machine	- Rotary printing machine - Rotary printing machines with gang drive - Flat-bed machines with clamp propulsion system - Digital printing	- Rotary printing machine - Rotary printing machines with gang drive - Flatbed machines with clamp propulsion system - Digital printing

High strength printing blanket:PU50AWA

High tension strength

- Aramid tension layer
- Easy cleaning white surface
- Character: Adhesive

High wearability

- ◆ Help you realize perfect print matching!
- ◆ Reduce your blanket adjustment frequency and shutdown loss!

Suitable for: Flatbed printing machine

- Fully sealed edges make it water proof, abrasion-resistant and last longer
- No delamination
- Max width: 3200mm
- Specially developed polyurethane surface can contact acetone and other ketones solvents temporarily



Corrosion resistant

Chemical resistant solvent

Super abrasion-resistant aramid blanket:PU50AEHS/23

No bubbles

- Aramid crosslink
- Thickness 2.3mm
- Special structure - no delamination
- Operation temperature up to 100 °C
- Max width: 4000mm

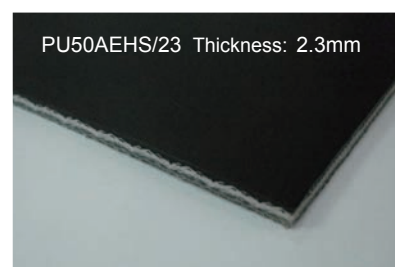
High temperature

resistance

Super printing

Accuray

Patent No:218102799498



Super abrasion-resistant aramid blanket: PU50AEHS

High tension strength

- Cross-link structure avoids delamination
- Aramid tension layer 50N Tensile force for 1% elongation (k1% static) per unit of width(mm)
- 4 times that of normal polyester printing blanket.
- More durable edges and bottoms,super abrasion-resistant black treatment
- Double life than normal aramid PB
- Max width: 4000mm

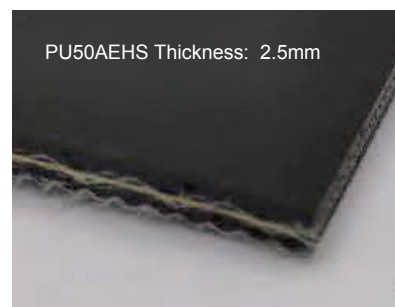
High wearability

Magnetic printing blanket

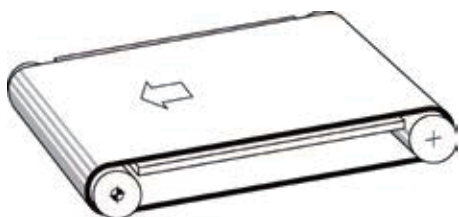
Long service life

High printing accuray

Patent No:2218102799498

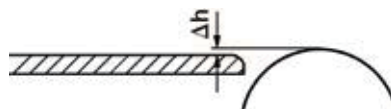


Platen design

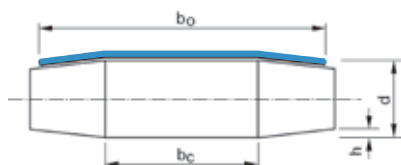


- ◆ The surface of platen must be lower than that of roller wheel and roller shaft; edge corners of the platen must be rounded off!
- ◆ Belt correction and its service life are depend on the cleanness of platen surface.
- ◆ Moisture between the platen and blanket may lead to extra adhesion (absorption effect), and thus result in higher energy consumption or overload. Therefore, the friction between platen and the bottom fabric of blanket should be reduced.

- ◆ Material of platen can be pickled steel plate, stainless steel sheet, hard plastic board or hard wooden board, etc.



Roller design for screen printing machine



- ◆
$$b_c = \frac{b_o}{2} \quad \text{for } b_o \leq 2000 \text{ mm}$$
- ◆
$$b_c = b_o - 1000 \quad \text{for } b_o > 2000 \text{ mm}$$
- ◆
$$h \approx 1.3 \sim 1.6 \text{ mm}$$

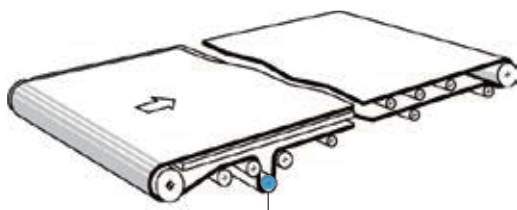
- ◆ Other tail wheels, pressure wheels, guide wheels and tension wheels are usually designed into cylinder shape.



- ◆ Higher roller crown (H) may lead to: Correction effect loss caused by the contact failure of belt and cone.



Correcting roller design



Correcting roller

For effective correction, design of the correcting roller (as shown in the illustration) of screen printing machine should focus on the following 2 points:

- ◆ 1. Realization of moving up and down or left and right
- ◆ 2. Wrap angle of about 180 °C

Delivery package specification



- ◆ Wrap a thin film externally before packaging;



- ◆ Cover a vacuum pressure-proof bag outside the thin film that wraps the blanket up



- ◆ Diameter of paper tube for blankets should be 180mm~200mm; the three paper tubes should be tied tightly; the width of paper tube should be 15cm larger than blanket width;

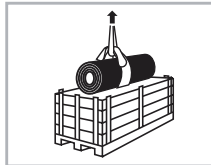


- ◆ There are bumper foam boards on 6 sides of the wooden box; after finishing package, place two belts on the boards so that customers can pull it out easily;

Handling



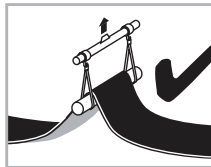
★ Please contact Highten if you encounter any problems during installation and adjustment.



- ◆ Use only appropriate hoisting gear to remove the blanket from its package.



- ◆ Do not remove printing blanket with an individual, unpadded rope.



- ◆ Do not cease, crimp buckle the printing blanket or pull it across the floor or over edges. Do not step.



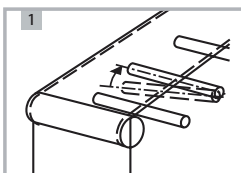
- ◆ Avoid damaging the printing blanket: Do not crush, buckle, drag over floor, touch with sharp objects, etc.



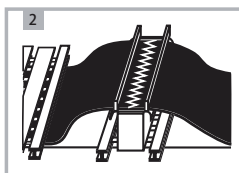
- ◆ Store them in the original packaging, protect from sunlight and keep in a cool & dry place. (not below -10°C/14°F or +25°C/77°F, relative humidity between 40% and 65%.)



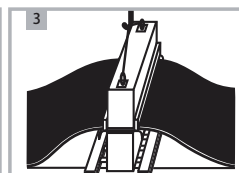
Joining



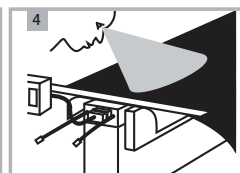
- ◆ Align drive tension and supporting rollers to form a right angle to the sides of the installation.



- ◆ Press upper insert in the heating press.



- ◆ Close heating press.

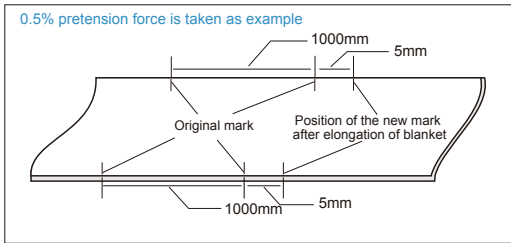


- ◆ Open heating press. Check surface quality of joint visually.



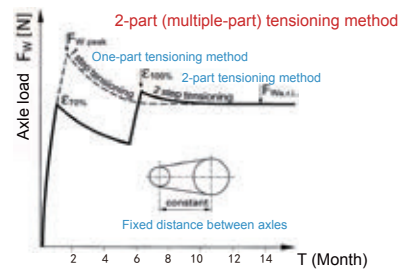
- ◆ Before operation, treat printing blanket surface with silica powder.

Printing blanket tensioning



Special: The pretension force of aramid printing blankets should be within 0.2%~0.5%, and not exceed 0.8% at maximum.

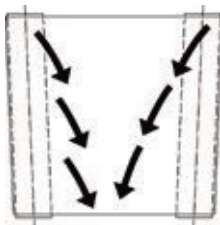
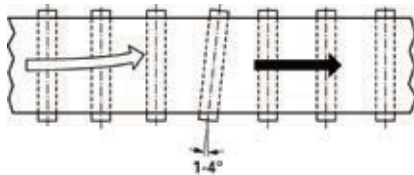
- ◆ Pretension force application method: Place two measuring marks 1000mm apart on either side of the printing blanket, and then tension the printing blanket with the tensioning device on the machine to achieve the intended extension (pretension force). Caution! No tension before operating!



★ Use multiple-part tensioning method:

- ◆ Suitable for the structural elongation of aramid printing blanket and prevention of delaminated edges of blanket;
- ◆ Reduce shaft load and has longer service life.

Suggestions for flatbed blanket debugging



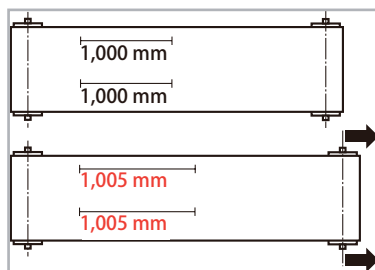
★ Support roller adjustment:

Note: Before installing, the support roller must be vertical to the operation direction of printing blanket!

Note: Cylinder roller wheel may easily lead to belt deviation as belt moves towards the direction with lower tensile force due to inertia. Therefore, the designing of belt correction is very important.

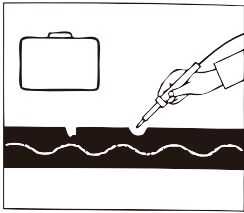
★ Debugging suggestions:

- ◆ 1. Debugging of printing blankets should be started finishing the blanket interface for 12h in order to ensure its service.
- ◆ 2. Before lowering speed operation of the machine, the printing blanket should be placed in the middle of the machine, tensioning line should be marked and the blanket should be confirmed with no sundries inside during debugging.
- ◆ 3. After the blanket starts to operate stably, the tensioning force can be increased gradually; in general, operation continues safter the tensile force of aramid printing blanket reaches 0.3%~0.5%. Moreover, be sure if the blanket is deviated.
- ◆ 4. It is suggested to operate the printing blanket continuously during the first 48h. Long time shutdown is not allowed.
- ◆ 5. After the printing blanket starts to run stably, measure the longitudinal and transverse precision, and then start to cut edge.

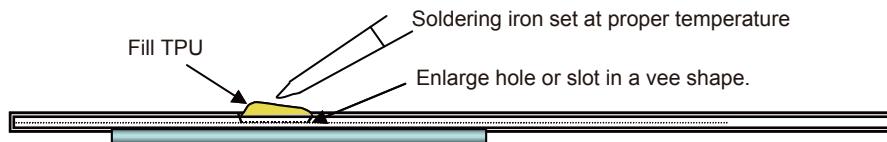


Printing blanket maintenance

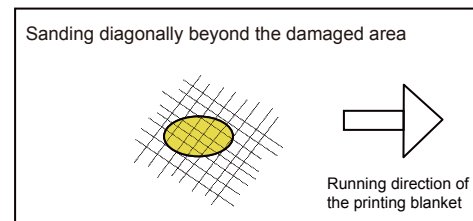
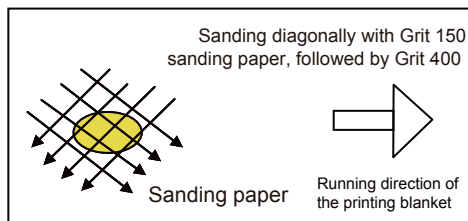
Repair of slot or holes on printing blanket surface:



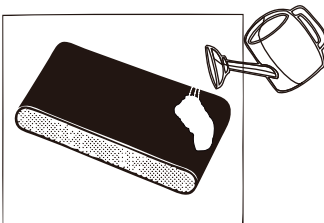
- ◆ Fill with TPU foil:
 - Set the soldering iron at proper temperature;
 - Fill in the TPU meltable foil little by little to cover the cavity area;
 - The filling must be free from trapped air bubbles;
 - Continue filling till it is above the PB level;
 - Cool down with cooling spray before sanding;



- ◆ Sanding method:
 - Similar sanding with grade 400, till the surface is smooth by running your finger tip over sanded area.
 - Repeat the process if necessary, till desired result has been achieved.

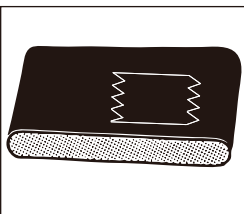


Wrinkle repair of printing blanket:



- ◆ - The wrinkle surface must be operated to the center of big roller wheel; place several layers of cotton cloth, the thickness of which is up to 2 to 3mm, on the wrinkle range; fix the probe of temperature detector on the wrinkle area with adhesive, so as to control temperature in later processing. If necessary, fix a piece of cloth on the wrinkle part with adhesive.
 - Pour hot water of 80℃~90℃ on cloths for continuously 25 mins, and observe temperature detector to keep temperature not higher than 70℃. Then, cool it down.
 - Observe if the wrinkle disappeared when cloths is cooled down, and then move the damaged area away from the big roller wheel.
 - If the blanket is still wrinkle, repeat the actions above.

Repair with insert:



- ◆ The followings should be paid special attention to if new materials will be used for repair:
 - Placing of a piece of new printing blanket will affect precision negatively as the neutral layer of new and old printing blankets cannot be completely the same.
 - Performance of the TPU surface melted in the new printing blanket is different from the old (original)printing blanket.
 - Since repair work is accompanied with predictable risks, precision of the repaired printing blanket cannot be ensured.

Edge tying repair of printing blanket

Edge tying effect of printing blanket

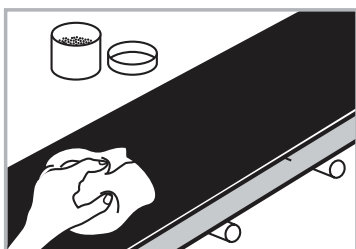
Repair of delaminated printing blanket and printing blanket with damaged edges

In application, printing blankets may be delaminated in their length direction or damaged on their edges due to their own quality problem or blanket deviation. In these cases, edges can be tied again to solve problem and lengthen its service life.

Printing blanket widening

Printing blanket widening service can be provided when the printing range is met, It is preferred to widen both sides of the blanket at the same time to ensure accuracy.

Maintenance notices of printing blanket



- ◆ First clean the surface of the blanket thoroughly in advance, in order to achieve the best repair effect. The cleaning area should be 100mm larger than the area of printing blanket contacting with the heating press. Resin must be removed first before cleaning blanket surface if there is. Since PU blankets should be repaired in the principle of thermal thawing first then cool down, the cleanliness of the part to be repaired will affect the repair effect directly. Furthermore, please pay attention to the 100mm area, which is the buffer zone for blanket with temperature caused by heating press.
- ◆ Confirm the type and batch No. of your printing blanket: blankets of different brands should be repaired with different repair materials. Repairing of printing blankets of the same brand and type differs for different batch number or year of manufacturing; therefore, please provide blanket model and its original information.
- ◆ Service life of remake joint. Since polyurethane printing blankets are manufactured by different means, the PU may get aged after being used for about 3 or 5 years, and the joint may break off. The service life of printing blanket after joint remaking depends on the aging degree of PU. If the surface of a printing blanket becomes yellow and brittle, then it shows that the aging is so serious that the successful ratio of joint remaking is much low. The service life of the blanket left may be only several months. If the printing blanket is used for a short time, has long enough for tooth punching and joint remaking, then the blanket can be used for more than 1 year after repair.

Maintenance tools and auxiliary materials

Maintenance tools



PM400 heating machine



Polisher



Soldering station

Maintenance materials



Molleton



Silicon paper



Silicon powder



PU foil



Adhesives

Cleaning



- ◆ Proceed with extreme care when using any cleaning agents. Before using, please carry out a test on the belt edge outside the printing area.
 - ◆ Soap water (household cleaner)
 - ◆ Butyl Acetate
 - ◆ Ethyl Acetate
 - ◆ Hydrochloric acid 10% (Hydrochloric acid)
 - ◆ Alcohol (Aromatic chemicals < 5%)
- (the contacting time should be shorter than 10min), Rinse off with plenty of clean water.
- ★ Try not to contact with edges in order to prevent damages caused by permeation.

★ Do not exceed operating temperature of 80°C/176°F of printing blanket.



Chemical resistance of printing blanket

Chemical	Solvent	Suggestions
Ethanol	Methyl alcohol	Recommended
	Ethyl hexanol	
	Isopropyl alcohol	
Ester	butyl acetate	Recommended
	Ethyl acetate	
Aromatic	Benzene	It can be used, but it can only contact with the surface of printing blanket for limited time (up to 1min)
	Toluene	
	Xylene	
Fatty group	Ethane	It can be used, but it can only contact with the surface of printing blanket for limited time (up to 1min)
	Cyclohexane	
Alkone	Acetone	Not recommended
	Methyl ethyl ketone (MEK)	
Carbon and hydrogen chloride	Methyl chloride	Not recommended
	(Single) chlorobenzene	
	Chloroform	
	Trichloroethane	
	Trichlorethane	
Ether	Ethyl ether	Not recommended
	Tetrahydrofuran (THF)	



E-mail:richard@highten.net sally@highten.net Elin@highten.net

