

DIGITAL PRINTING

DYE SUBLIMATION TRANSFER PRINTING, FIXATION OF
DIRECT PRINTED DISPERSED DYES OR PIGMENT INKS



- ▶ Brilliant colours
- ▶ High print definition
- ▶ Reproducibility



WITH A KLIEVERIK YOU ALWAYS MAKE THE RIGHT CHOICE

With a Klieverik, you will get high-value end-products with brilliant colours and sharp edge definition. A Klieverik machine offers reproducibility and high processing speeds. We offer first time right production, which means less waste and fewer re-prints. A Klieverik calender is made with high-quality components; it is a reliable machine. The down-time of the machine is limited, which means your production is guaranteed.

DYE SUBLIMATION TRANSFER PRINTING AND FIXATION

There are many, many details that go into a Klieverik calender all with a specific purpose in mind. These details culminate into a world class calender which precisely controls the critical variables of **temperature, pressure** and **web handling** during the dye sublimation transfer or fixation process.

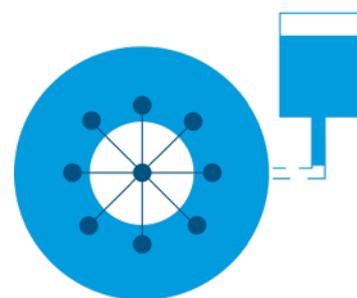
Our calenders use thermal oil for regulating and accurately maintaining the drum's surface temperature. We use a unique expansion vessel for the oil (which expands up to 20%) which insures that the drum is always 100% full of oil. This design, in junction with how we circulate the oil internally within the drum, means no colour output differences over the width or in time.

By using simple laws of thermodynamics, our heating elements are in direct contact with the thermal oil leading to shorter heating up times and higher energy efficiency.

Klieverik uses the longest belt in the industry and a specialized PID™ steering system which minimizes lateral movement of the belt preventing transfer defects. This feature also insures better longevity of the belt.

Our machines can also be customized with different options which are available to ideally match the manufacturing preferences of our customers.

Directly heated drum



Klieverik heated drum: a unique concept. Completely filled with oil because of expansion vessel. Directly heated because heating elements are directly in the oil. Best temperature consistency due to thorough mixing of the oil.

▶ The VERTEX has been designed for the efficient production of single piece Transfer Printing, but is also capable of roll-roll printing. With sharp edge definition, a compact design and its oil filled heating drum, this calender is ideal for the multi-purpose print shop aiming at high quality.

The machine is optimized for ease of operation and is suitable for all kind of PES textiles. The blank pieces are laid down on the infeed table and transported to the front of the calender.

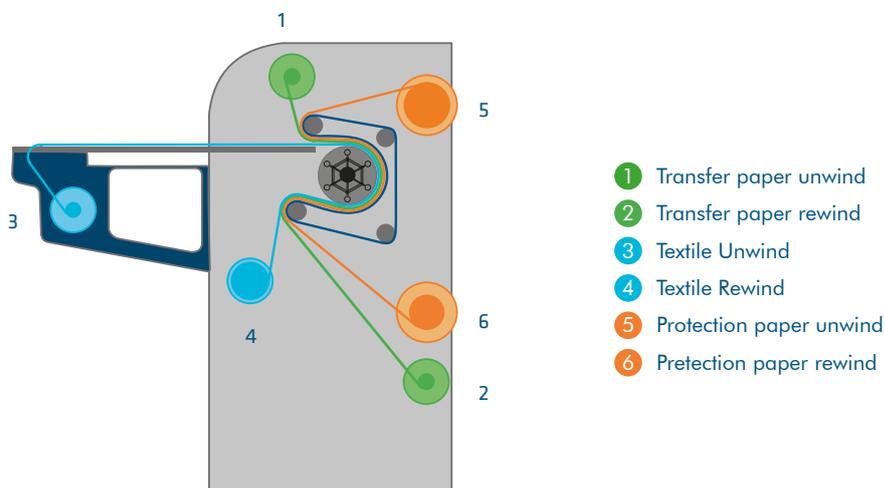
Here the printed pieces can be collected from a box underneath. Tension control for the papers as wells as for the textile is set by air pressure. A compact but state of the Art Touch Screen panel provides easy control.

It is a typical Klieverik; robust design offering a long life time at low operating cost, the best oil-based heating system for very high temperature consistence and an ingenious belt tracking system for first time right production.



VERTEX HYBRID TRANSFER PRINTING CALENDER

▶ LAY-OUT



K-CONNECT: SERVICE MODULE

Klieverik machines are robust and made to last. With the Klieverik Service Module, you will be able to schedule your own downtime, and reduce the risk of unexpected issues on your machine. Overall this will result in a stable production, higher efficiency and lower production costs.

The K-Connect Service Module gathers all the relevant information available in your calendar, processes it and generates pop-up messages on the display of your calendar.

▶ OPTIONAL: SERVICE PLUS

This additional package will allow you to create a structured overview of the behaviour of your calendar. All relevant pop-up messages will be divided into levels of urgency and send to internal email accounts. With the Service Plus package, the generated emails will also be shared with the Klieverik Service Team. The advantage of this is package is that you will always have an Klieverik Expert monitoring your machine and contact you when action is required.



▶ SPECIFICATIONS VERTEX

| Type | Drum Size MM | Drum Size INCH | Drum Width MM | Drum Width INCH | Working Width MM | Working Width INCH | Through put (30 sec. dwell) M ² /HR | Through put (30 sec. dwell) FT ² /HR | Linear speed (30 sec. dwell) M/MIN | Linear speed (30 sec. dwell) FT/MIN |
|--------|--------------|----------------|---------------|-----------------|------------------|--------------------|--|---|------------------------------------|-------------------------------------|
| VERTEX | 760 | 30 | 2000 | 78.7 | 1650 | 64.9 | 439 | 4.727 | 4.1 | 13.45 |

Vertex
where all comes together



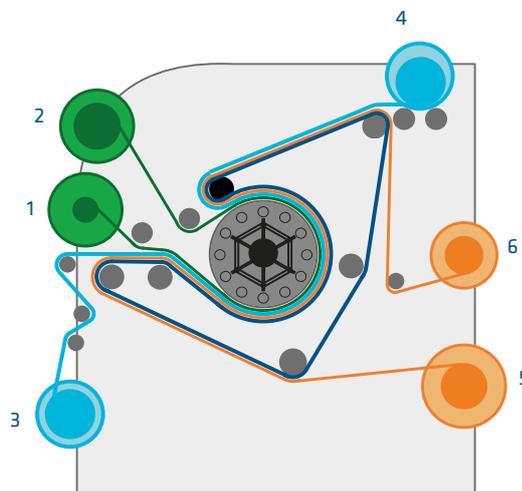
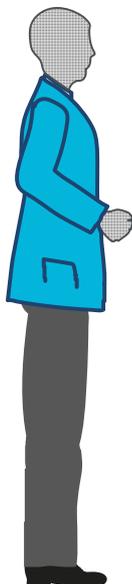
Klieverik GTC belt calenders can be used for roll-to-roll dye-sublimation transfer printing (paper to textile) as well as for dye fixation of direct printed dispersed dyes or pigments. Our GTC belt calenders are well suited for entry level professionals to high-end production facilities.

With sharp edge definition, high processing speeds, less waste and fewer re-prints, these calenders are designed for maximizing profitability. These machines are suitable for all kinds of materials, like wovens, stretch, knits and non-wovens and are mostly used for signage, fashion and home decor.



TRANSFER & FIXATION BELT CALENDERS MODEL GTC

► LAY-OUT MODEL GTC



- 1 Transfer paper unwind
- 2 Transfer paper rewind
- 3 Textile Unwind
- 4 Textile Rewind
- 5 Protection paper unwind
- 6 Protection paper rewind

▶ FEATURES AND OPTIONS

THE CALENDERS ARE STANDARD EQUIPPED WITH:

1. Low tension textile unwind
2. Textile tensioning device
3. Universal unwind shaft for textiles rolls for any core diameter
4. Wind and unwinding shafts for transfer and protection paper, each with tensioning device
5. Contact winder for textile
6. Scraper blades to prevent paper or textile from wrapping around the drum and cleaning of the drum
7. Cooling down and start-up timer
8. Air pressure operated paper tension setting
9. Touchscreen
10. Low Tension textile winding for stretch sensitive materials

OPTIONS

11. Driven substrate expander
12. Edge cutting unit
13. Compressor
14. Exhaust hood
15. Pressure laminating roller
16. Pneumatic winding shafts
17. K-Connect Service Module



8. Air pressure operated paper tension setting



14. Exhaust hood



15. Pressure laminating roller

▶ SPECIFICATIONS MODEL GTC

| Type | Drum Size MM | Drum Size INCH | Drum Width MM | Drum Width INCH | Working Width MM | Working Width INCH | Through Put (30 Sec.Dwell) M ² /HR | Through Put (30 Sec. Dwell) FT ² /HR | Linear Speed (30 Sec.Dwell) M/MIN | Linear Speed (30 Sec.Dwell) FT/MIN |
|-------------|--------------|----------------|---------------|-----------------|------------------|--------------------|---|---|-----------------------------------|------------------------------------|
| GTC81-1850 | 195 | 7.7 | 1850 | 72.8 | 1650 | 64.9 | 69 | 746 | 0.70 | 2.3 |
| GTC81-2750 | 195 | 7.7 | 2750 | 108.3 | 2550 | 100.4 | 107 | 1152 | 0.70 | 2.3 |
| GTC81-3500 | 195 | 7.7 | 3500 | 137.8 | 3200 | 125.9 | 134 | 1446 | 0.70 | 2.3 |
| GTC101-1850 | 365 | 14.4 | 1850 | 72.8 | 1650 | 64.9 | 170 | 1830 | 1.70 | 5.6 |
| GTC101-2750 | 365 | 14.4 | 2750 | 108.3 | 2550 | 100.4 | 260 | 2800 | 1.70 | 5.6 |
| GTC101-3500 | 365 | 14.4 | 3500 | 137.8 | 3200 | 125.9 | 326 | 3509 | 1.70 | 5.6 |
| GTC111-2000 | 500 | 19.7 | 2000 | 78.7 | 1800 | 70.8 | 270 | 2906 | 2.50 | 8.2 |
| GTC111-2750 | 500 | 19.7 | 2750 | 108.3 | 2550 | 100.4 | 345 | 3714 | 2.50 | 8.2 |
| GTC111-3500 | 500 | 19.7 | 3500 | 137.8 | 3200 | 125.9 | 495 | 5328 | 2.50 | 8.2 |
| GTC131-2000 | 760 | 30.0 | 2000 | 78.7 | 1800 | 70.8 | 443 | 4765 | 4.10 | 13.5 |
| GTC131-2750 | 760 | 30.0 | 2750 | 108.3 | 2550 | 100.4 | 627 | 6750 | 4.10 | 13.5 |
| GTC131-3500 | 760 | 30.0 | 3500 | 137.8 | 3200 | 125.9 | 787 | 8470 | 4.10 | 13.5 |
| GTC141-2000 | 1070 | 42.1 | 2000 | 78.7 | 1800 | 70.8 | 605 | 6508 | 5.60 | 18.4 |
| GTC141-2750 | 1070 | 42.1 | 2750 | 108.3 | 2550 | 100.4 | 857 | 9219 | 5.60 | 18.4 |
| GTC141-3500 | 1070 | 42.1 | 3500 | 137.8 | 3200 | 125.9 | 1075 | 11569 | 5.60 | 18.4 |

▶ The GTC Single Piece Flowline Model (SP FL) has been designed for the efficient production of single pieces transfer printing, but is also capable of cut sheet repeat jobs or roll-to-roll transfer printing. All kind of materials, like woven, stretch, knits and non-woven can be printed with applications ranging from athletic apparel to doormats. This calender is named 'Flowline' because of the way the material is transported through the machine.

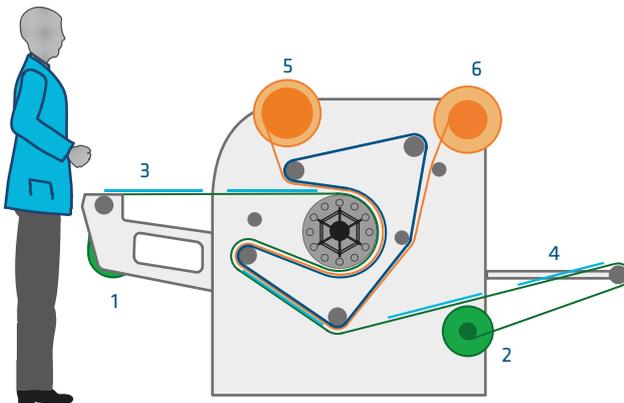
The blank pieces of fabric are first laid down on the infeed table and are then automatically transported (or 'flow') to the back of the calender in the exact same order. The transferred pieces of fabric can easily be gathered and sorted by size and colour or design. It is also possible to have the transferred pieces flow to the front of the machine by simply changing the directional plate under the infeed table. This feature is great for sampling or short runs.



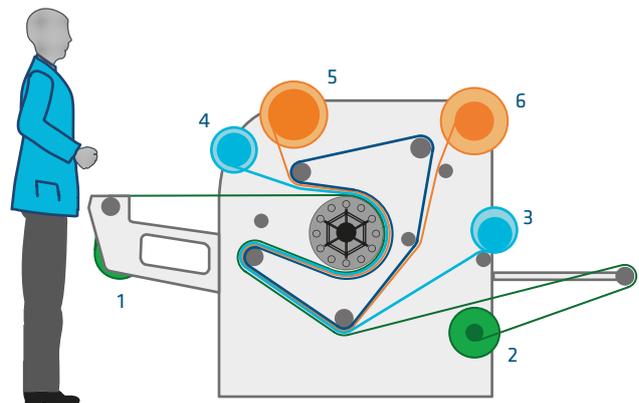
TRANSFER PRINTING CALENDERS SINGLE PIECES - MODEL GTC- SP FLOWLINE

▶ LAY-OUT GTC- SP FLOWLINE

- 1 Transfer paper unwind
- 2 Transfer paper rewind
- 3 Textile Unwind
- 4 Textile Rewind
- 5 Protection paper unwind
- 6 Protection paper rewind



Single Piece Transfer Printing



Roll-to-roll Transfer Printing

▶ FEATURES AND OPTIONS

THE CALENDERS ARE STANDARD EQUIPPED WITH:

1. Infeed table with adjustable height
2. Protection bar to prevent an operator from damaging the printed paper
3. Front outfeed for single sheet production
4. Wind and unwinding shafts for transfer and protection paper, each with tensioning device
5. Cooling down and start-up timer
6. Textile unwind and winding position for roll-to-roll printing
7. Air pressure operated paper tension setting
8. Touchscreen
9. Exhaust extraction bar
10. Low Tension textile winding for stretch sensitive materials

OPTIONS

11. Pressure laminating roller
12. Extended infeed table
13. Compressor
14. Pneumatic winding shafts
15. K-Connect: Service module



2. Protection bar



12. Extended infeed table



13. Compressor

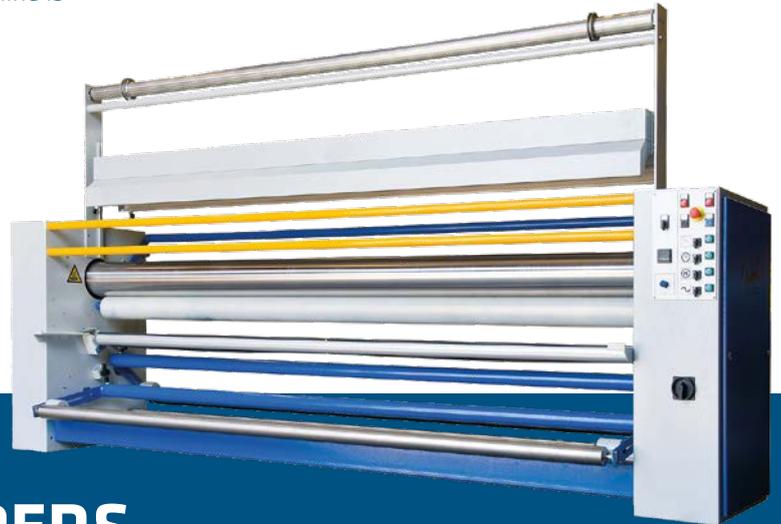
▶ SPECIFICATIONS MODEL GTC-SP FLOWLINE

| Type | Drum Size MM | Drum Size INCH | Drum Width MM | Drum Width INCH | Working Width MM | Working Width INCH | Through Put (30 Sec. Dwell) M ² /HR | Through Put (30 Sec. Dwell) FT ² /HR | Linear Speed (30 Sec. Dwell) M/MIN | Linear Speed (30 Sec. Dwell) FT/MIN |
|------------------|--------------|----------------|---------------|-----------------|------------------|--------------------|--|---|------------------------------------|-------------------------------------|
| GTC81-1850 SPFL | 195 | 7.7 | 1850 | 72.8 | 1650 | 64.9 | 59.4 | 642 | 0.60 | 2.0 |
| GTC101-1850 SPFL | 365 | 14.4 | 1850 | 72.8 | 1650 | 64.9 | 115 | 1226 | 1.15 | 3.8 |
| GTC111-2000 SPFL | 500 | 19.7 | 2000 | 78.7 | 1800 | 70.8 | 175 | 1884 | 1.6 | 5.3 |
| GTC131-2000 SPFL | 760 | 30.0 | 2000 | 78.7 | 1800 | 70.8 | 262 | 2824 | 2.43 | 8.0 |
| GTC141-2000 SPFL | 1070 | 42.1 | 2000 | 78.7 | 1800 | 70.8 | 369 | 3974 | 3.42 | 11.2 |

The beltless calender type GFC is designed for the fixation of dispersed dyes and pigments printed directly on the material. Flags, banners and backlit material are ideal to be processed on this type of calender. The stable temperature thanks to the thermal oil and electrically heated drum will give you consistent brilliant colours. Tension of the substrate at the infeed and outfeed is very well controlled by means of special weights that keep the substrate from moving. This machine is especially characterized by its low cost features.

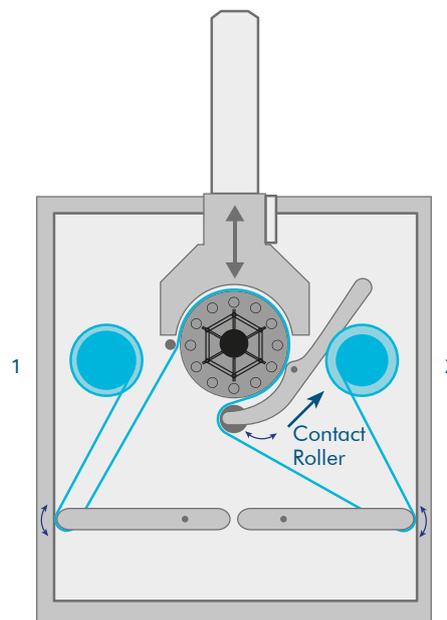
- A low investment - no belt required
- Low cost of operation - no protection paper required
- Low cost of maintenance - no wear or tear parts of significant value

The machine is easy to operate and suitable for all kinds of (thermo-) stable materials. There is no risk of ink staining by non-fixed material as long as it is sufficiently dried and the rollers and drum are properly cleaned before start-up. Heating up is quick, less than 1 hour and there is no need for a cooling down period before switching off the machine.



FIXATION CALENDERS MODEL GFC

► LAY-OUT MODEL GFC



- 1 Textile Unwind
- 2 Textile Rewind

▶ FEATURES AND OPTIONS

THE CALENDERS ARE STANDARD EQUIPPED WITH:

1. Driven winding and unwinding position
2. Tensioning guiding rollers
3. specially designed for complete fume extraction with fan and lifting device
4. Touchscreen

OPTIONS

5. Driven substrate expander for material with curly edges
6. Pneumatic winding shafts



3. Exhaust hood



4. Touchscreen



6. Pneumatic winding shafts

▶ SPECIFICATIONS MODEL GFC

| Type | Drum Size MM | Drum Size INCH | Drum Width MM | Drum Width INCH | Working Width MM | Working Width INCH | Through put (30 sec. dwell) M ² /HR | Through put (30 sec. dwell) FT ² /HR | Linear Speed (30 sec. dwell) M/MIN | Linear Speed (30 sec. dwell) FT/MIN |
|-------------|--------------|----------------|---------------|-----------------|------------------|--------------------|--|---|------------------------------------|-------------------------------------|
| GFC81-1850 | 195 | 7.7 | 1850 | 72.8 | 1650 | 64.9 | 82.5 | 888 | 0.83 | 2.72 |
| GFC81-2750 | 195 | 7.7 | 2750 | 108.3 | 2550 | 100.4 | 128 | 1377 | 0.83 | 2.72 |
| GFC81-3400 | 195 | 7.7 | 3400 | 133.9 | 3200 | 125.9 | 160 | 1722 | 0.83 | 2.72 |
| GFC101-2000 | 365 | 14.4 | 2000 | 78.7 | 1800 | 70.8 | 169 | 1821 | 1.53 | 5 |
| GFC101-2750 | 365 | 14.4 | 2750 | 108.3 | 2550 | 100.4 | 239 | 2580 | 1.53 | 5 |
| GFC101-3500 | 365 | 14.4 | 3500 | 137.8 | 3200 | 125.9 | 310 | 3338 | 1.53 | 5 |

Our complete range of calenders gives you the perfect choice to suit your production capacity. We manufacture industrial large drum machines with processing speeds up to 10 meter per minute or 32.8 ft per minute. Accurate control of temperature, web guiding and blanket pressure result in high quality reproducible products.

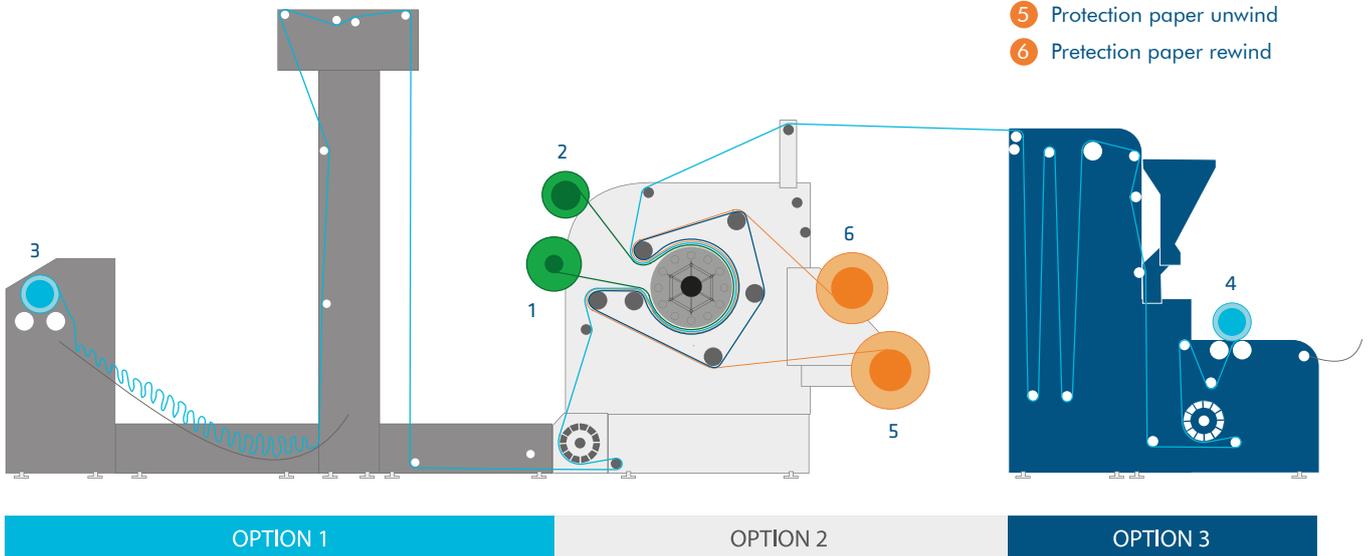
The production lines can be equipped with driven and tension(less) controlled winding and unwinding positions, web guiding and edge cutting equipment, accumulators or scray's for uninterrupted production. With the proper options, all kind of materials can be processed: Woven, non woven, knitted or stretch materials, thin or thick.



HIGH VOLUME PRODUCTION EQUIPMENT ROLL-TO-ROLL - MODEL GTC/TC

► LAY-OUT HIGH VOLUME PRODUCTION LINE

- 1 Transfer paper unwind
- 2 Transfer paper rewind
- 3 Textile Unwind
- 4 Textile Rewind
- 5 Protection paper unwind
- 6 Protection paper rewind



▶ FEATURES AND OPTIONS

THE CALENDERS ARE STANDARD EQUIPPED WITH:

1. Automatic textile centring
2. Heavy duty shafts
3. Brush expander/Driven expanding roller
4. Fabric cooling
5. Cooling down and start-up timer
6. Non-stop winding solution



OPTIONS

7. External (Gas) Heating
8. Laminating roller
9. Metal foil printing
10. Web guiding equipment
11. Chilled cooling rollers and scaffold
12. Accumulator for continuous production
13. Large roll unwind and rewind
14. Pneumatic knives for cutting and trimming
15. K-Connect: Service Module



3a. Brush expander

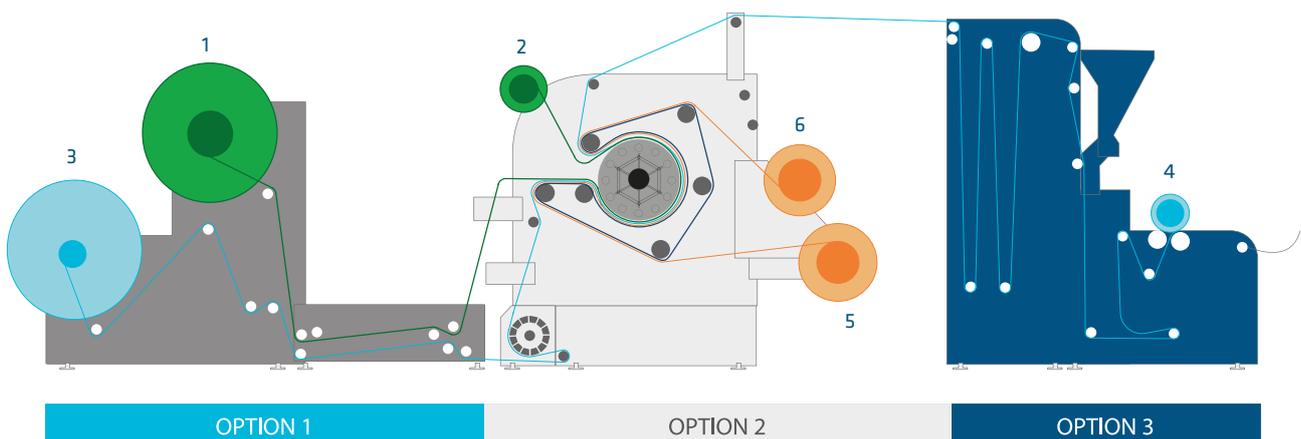


3b. Driven expanding roller



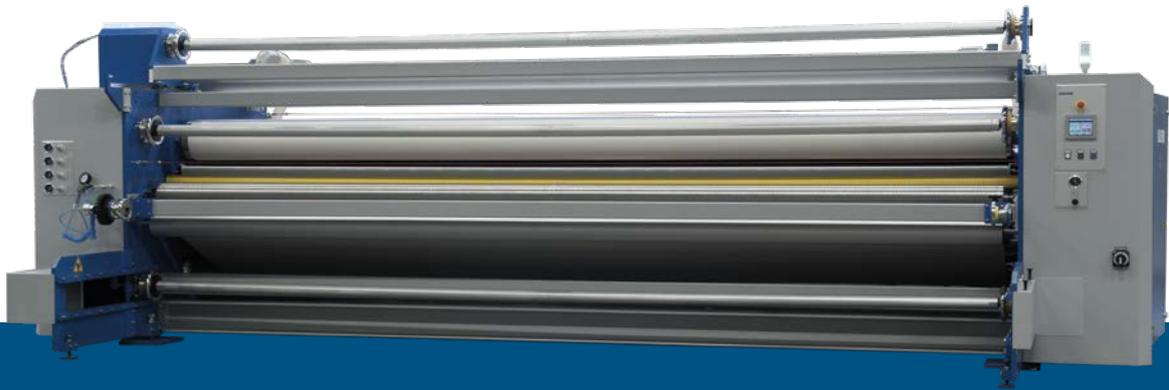
14. Large roll unwind and rewind

▶ LAY-OUT HIGH VOLUME PRODUCTION LINE



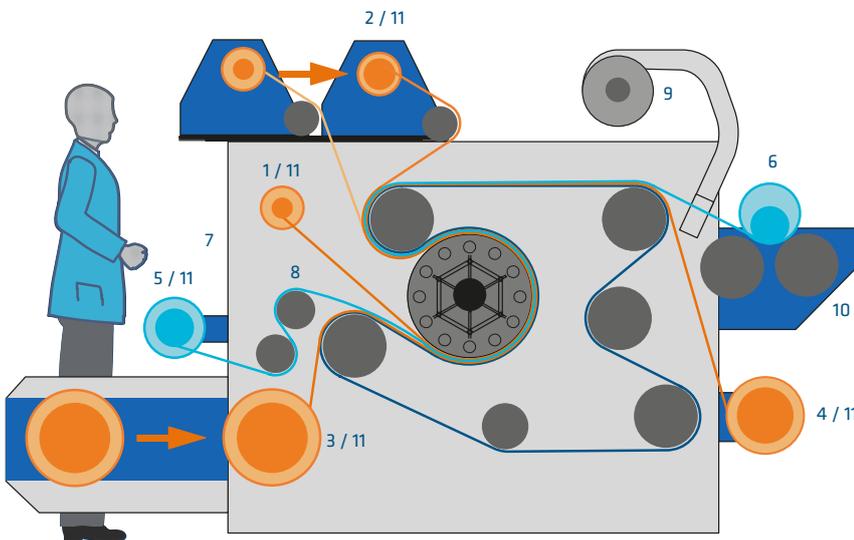
5 Meter wide calender with ergonomic lay-out for ease of handling wide formats. Once the protection paper for the drum has been threaded, feeding the protection paper for the belt and of course the textile is becoming so easy. The wide opening to the drum creates a good accessible machine, whilst the drum is far enough away to prevent danger to the operator. Once fed into the machine, paper and textile are automatically transported to the back of the machine, where it can be winded at a proper working height. Optionally, a modification kit can be offered to

enable transfer printing up to 3,2m width. The Klieverik GTC111-5400 fixation calender offers the well proven Klieverik oil based heating drum in combination with a well thought through ergonomic design for 5 meter wide textile and protection paper. It is a typical Klieverik; robust design offering a long life time at low operating cost, the best oil-based heating system for very high temperature consistency and an ingenious belt tracking system for first time right production.



EXTRA LARGE FORMAT PRINTING ON THE GTC 111-5400

► LAY-OUT GTC- 111-5400



- 1 Protection paper 1 unwind
- 2 Protection paper 1 rewind
Retractable protection paper rewind position for automatic feed through of textile
- 3 Protection paper 2 unwind
Protection paper unwind drawer for easy loading from crane or lifting defice
- 4 Protection paper 2 rewind
- 5 Textile Unwind
Stepless adjustable bearing position for any textile-shaft width (use of shaft digital printer)
- 6 Textile Rewind
- 7 Touch screen operation
- 8 Driven spiral roller
- 9 Fabric cooling
- 10 Low tension contact winder
- 11 Pneumatic tension settings

▶ FEATURES AND OPTIONS

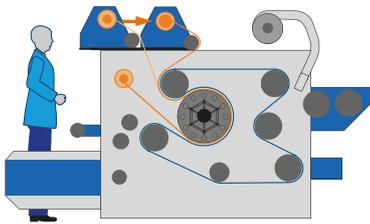
BASIC TECHNICAL FEATURES:

| | |
|---------------------|-----------------------|
| Roller width: | 5400 mm/ 212.6 inch |
| Working width: | 5100 mm/ 200.8 inch |
| Heating drum Ø: | 500 mm/19.7 inch |
| Machine dimensions: | 6930 x 3275 x 2060 mm |
| (w x d x h) | 273 x 129x 81 inch |

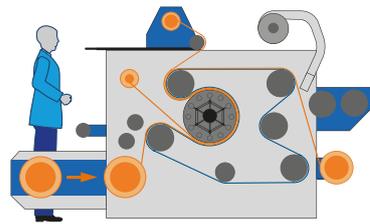
OPTION

K-Connect: Service Module

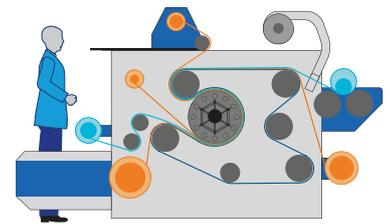
EASE OF OPERATION: INCORPORATED EASY FEEDING



Feeding protection paper 1 into unwind drawer



Feeding protection paper 2 into retractable drawer



Feeding Textile



▶ SPECIFICATIONS MODEL GTC-111-5400

| Type | Drum Size MM | Drum Size INCH | Drum Width MM | Drum Width INCH | Working Width MM | Working Width INCH | Through put (30 sec. dwell) M ² /HR | Through put (30 sec. dwell) FT ² /HR | Linear speed (30 sec. dwell) M/MIN | Linear speed (30 sec. dwell) FT/MIN |
|--------------|--------------|----------------|---------------|-----------------|------------------|--------------------|--|---|------------------------------------|-------------------------------------|
| GTC 111-5400 | 760 | 30 | 2000 | 78.7 | 1650 | 64.9 | 439 | 4.727 | 4.1 | 13.45 |

ABOUT KLIEVERIK

Klieverik Heli B.V. is a dynamic company, focused on rotary thermo-processing equipment for advanced textiles. With more than 40 years of experience we design, manufacture, install and maintain innovative industrial machinery. We manufacture stand-alone equipment and complete production lines. Our highly versatile machinery provides added value and improves the efficiency of textile printing and finishing operations.

We offer solutions with rotary thermo-processing systems, also called heat presses or dwell calenders for:

- ▶ Dye sublimation printing and dye fixation (digital/analog printing)
- ▶ Laminating & coating of (technical) textiles
- ▶ Thermobonding of non woven
- ▶ Production lines for thermoplastic composite prepregs
- ▶ Fusing and laminating of carpet

Klieverik Heli BV
Edisonstraat 8
7575 AT Oldenzaal
The Netherlands
Tel. +31 541 511 155
Email. info@klieverik.com

KLIEVERIK.COM