Thermal transfer printer
TT420

Operating Instructions

Edition November 2006

Internet: www.HellermannTyton.com

Contents

Notes on the documentation

Warnings

Warnings are presented with three signal words for the different levels of danger.

The signal word DANGER identifies an extraordinarily great and immediate danger that could lead to serious injury or even death.

The signal word WARNING identifies a possible danger that could lead to serious bodily injury or even death if sufficient precautions are not taken.

The signal word CAUTION indicates a potentially dangerous situation that could lead to moderate or light bodily injury or damage to property.

Warnings are always identified with a warning symbol (yellow triangle) and the signal word and specify the source of the danger, possible consequences and measures for avoiding the danger.

Here is an example:

DANGER!

Risk of death via electric shock!

Before opening the housing cover, disconnect the device from the mains supply and wait a few minutes until the power supply unit has discharged.

Notes

! Important information is identified with an exclamation mark on the left-hand side of the page.

i Information is identified with an "i" on the left-hand side of the page.

Item numbers

Item numbers in the text are identified with parentheses, e.g. (9). If no figure number is provided, item numbers in the text always refer to the graphic directly above the text. If a reference is made to another graphic, the figure number is specified, e.g. Fig. 5 (3).

Cross references to chapters and sections

With a cross-reference to chapters and sections, the chapter number and page number are specified, e.g. a reference to this section: (see 4.2.2 on page 12).

Safety and the environment

Read these operating instructions carefully before using the label printer for the first time. The operating instructions describe all the functions of the label printer during operation.

Safety during operation and maintenance is of highest priority. This manual includes the necessary attention and warning notes for the safe handling of the printer.

Do not try to repair or modify the printer yourself. If a mistake arises that cannot be remedied by this manual, switch off the printer, cut the power supply and contact your HellermannTyton dealer.

Intended use

- The label printer is a state-of-the-art device that complies with the recognised safety-related rules and regulations. Despite this, a danger to life and limb for users or third parties could arise and the label printer or other property could be damaged while operating the device.
- The label printer may only be used while in proper working order and for the intended purpose. Users must be safe, aware of potential dangers and must comply with the operating instructions! Faults, in particular those which affect safety, must be remedied immediately.
- The label printer is solely intended to print suitable media that have been approved by the manufacturer. Any other or additional use is not intended. The manufacturer/supplier is not liable for damage resulting from misuse. Any misuse is at your own risk.
- Intended use includes following the operating instructions and maintenance recommendations / regulations specified by the manufacturer.

Safety notes

- The label printer is designed for power supply systems from 100V AC to 240V AC. Connect the label printer only to an earthed electrical outlet.
- Couple the label printer to devices using extra low voltage only.
- Before making or undoing connections, switch off all devices involved (computer, printer, accessories etc.).
- Operate the label printer in a dry environment only and do not get it wet (sprayed water, mist etc.).
- Carry out only the actions described in these operating instructions. Trained personnel or service technicians may only perform other tasks.

DANGER!

Risk of death via mains voltage!

Do not open the housing of the label printer.

Environmentally-friendly disposal

Used devices contain valuable recyclable materials that should be utilized.

$\Rightarrow$ Dispose of used devices separately from other waste, i.e. via an appropriate collection site.

The modular nature of the label printer allows it to easily be disassembled into its component parts so that the parts can be turned in for recycling.

Safety regulations

This printer complies with the following safety regulations

Low Voltage Directive 73/23/EWG

EMV-guideline 89/336/EWG

FCC regulation as part 15 of the FCC-regulation for class-B-computer.

The operation of this hardware can – under unfavourable conditions - lead to disturbances of the radio and TV transmission (interferences), that have to be remedied by the user if necessary.

20 minutes quick installation

This chapter describes the procedure for trouble free printer installation, up to the first labels being printed. The TT420 is designed for HellermannTyton consumables and it is highly recommended to follow the procedure as explained in the following chapters.

1   Unpacking the label printer

⇒   Remove upper cardboard cover and lift the printer out of the box.

⇒   Check label printer for damage that may have occurred during transport.

⇒   Check supplied parts conform to list below;

Supplied parts

- Label printer
- Empty cardboard core, mounted on ribbon winding spindle
- Power cable for EU and UK
- Power supply unit
- USB cable 2m
- Documentation and driver on CD

ℹ️   Retain the original packaging for future shipping needs.

⚠️   **CAUTION!**

The device and the print media can be damaged by moisture and water.

The label printer may only be set up in a dry place protected from sprayed water.

Refer to the safety notes while setting up the printer.

Ensure that the power switch (Image 3, pos 5) is switched off.

2   Parts of the printer

The major parts of the printer are described below.

2.1   FEED/PAUSE button

1	Cover open lever
2	Top cover
3	Ribbon Access Cover
4	FEED/PAUSE Button
5	Indicator Lamp
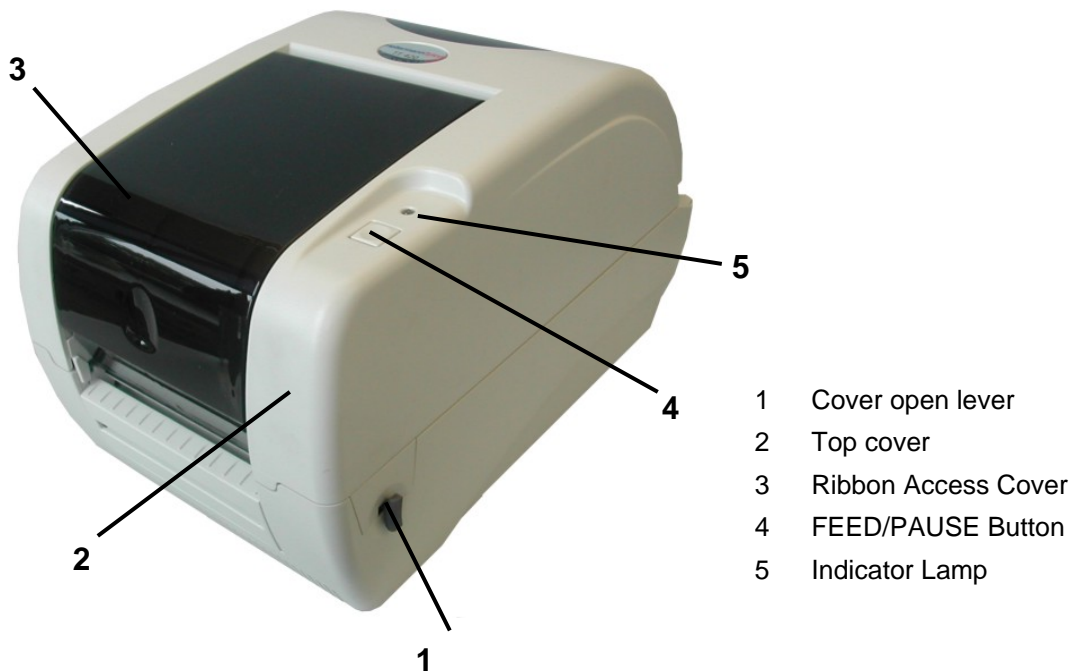
Image 1 Front View

The FEED / PAUSE button (4) enables the user to influence the operation of the printer e.g.:

- Interrupt, continue or cancel print jobs
- Change the sensor mode (not necessary if printer pre-sets are deployed)
- Calibrate the sensor (not necessary if printer pre-sets are deployed)
- Start test functions

i It is advisable to adjust the printer to different materials via the label software / the driver settings.

2.2 Cover open lever

This lever (1) is used to open the top cover (2).
Grip the levers on both sides of the printer and pull them towards you.
The top cover (2) can now be opened upwards.

> **CAUTION!**
> **Please do not open the top cover (2) too far back.**
> ⇒ **Take care of the of the lever stop at the back of the right side!**

2.3 Cover close lever

The lever at the far end of the printer (Image 2, Pos 7) is used to unlock the cover and close it.
Support the top cover (Image 1, Pos 2) with your left hand and pull the locking lever with your right hand. Please keep pulling toward the front until the cover can be closed completely.

2.4 Ribbon access cover

Open the cover (Image 1, pos 3) on the front side with light pressure to access the ribbon rolls (winding and unwinding unit). Press down the cover to lock.

2.5 Material guidance with external feeding

If the Caddy is used adjust the external material guides to fit the material width (see Image 3, pos 6).

2.6 Internal material guidance

The internal parts of the printer can be accessed (see Image 1, pos 1) by opening the top cover using the top cover lever. The media guide (Image 2, pos 3 and 4) can be adjusted by the centre guide and serves as device for positioning and guiding of the label material inside the printer.

The transmissive sensor is to the right of the media guide (Image 2, pos 4). Please take care of the specifications for this sensor in chapter 6.1 on page 19.

> **!**
> The material should not be held too tight or too loose in the media guides (pos 3 and 4).
> An incorrect adjustment causes material jam or poor printing results.
> ⇒ Pay attention to the notes on adjustments in chapter 6 on page 18!

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1   Print head
2   Cover open sensor
3   Media guide
4   Media guide and transmissive sensor
5   Reflective sensor
6   Print roller
7   Lock lever for top cover
8   Label spindle
9   Tear-off edge
10 Cover tear-off edge
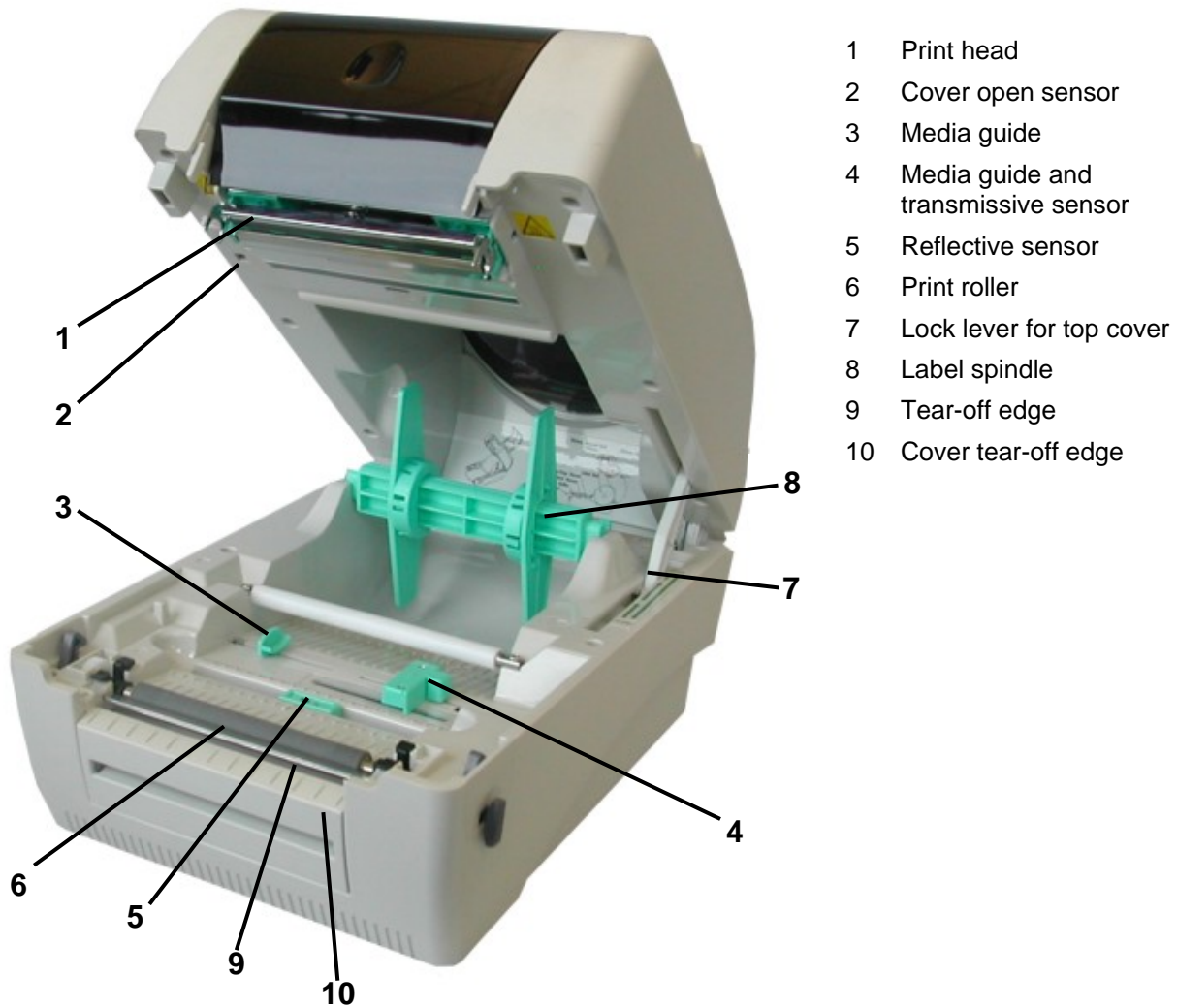
Image 2 Internal parts of the printer

2.7   Tear-off edge

To use the tear-off edge on the TT420 (Image 2, pos 9) the respective cover has to be removed (see Image 14 on page 37). With the basic settings of the printer the printed labels are forwarded to the tear-off edge after every print job or pushing of the FEED / PAUSE button.

For a proper tear-off pay attention to the following steps:

1. grip the liner paper tightly
2. pull down lightly
3. separate the liner from one side of the tear-off edge to the other

3 Connecting the label printer

1 USB interface

2 Parallel interface (Centronics)

3 Serial interface (RS-232C)

4 Slot for power supply

5 Power switch

6 Material feeding for external feeding
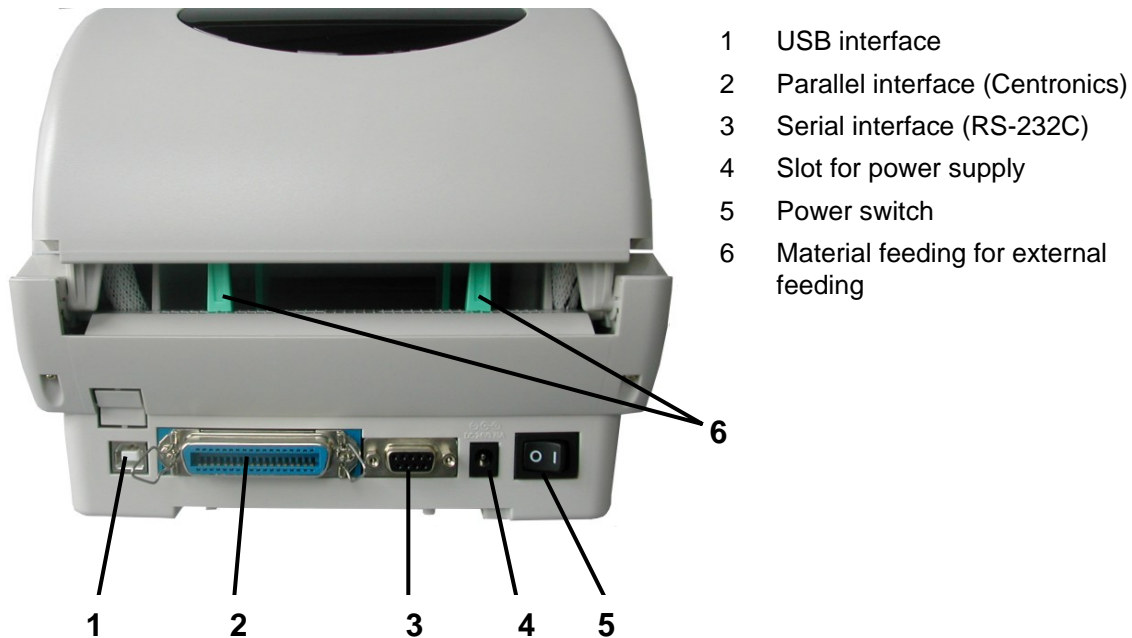
Image 3 Power and computer connections

3.1 Connecting to the power supply

The printer is equipped with a versatile power supply unit. The device may be operated with a mains voltage of 230V AC / 50Hz or 115V AC / 60 Hz without any adjustments or modifications.

CAUTION!

Switch on and off the printer only via power switch (5), not via pulling the power cable, as this can destroy the printer.

!

Do not switch off the printer,

⇒ as long as the print job is not finished.

⇒ if the LED shows green, as data can be lost.

3.2 Connecting to a computer

Connect the printer with a suitable cable to the USB, parallel or serial interface of the computer. A USB cable is preferred and a cable is supplied.

- USB cable (part of delivery) between printer (1) and computer.
- Parallel cable between the parallel interface of the printer (2) and the parallel interface of the computer (LPT1).
- Serial interface RS23C between the printer (3) and the COM-interface of the computer.

4 Loading the ribbon

The printer automatically detects if a ribbon is installed and consequently switches to either thermal direct or thermal transfer print mode. If the printer does not detect a ribbon, the motor that drives the ribbon spindle will be turned off.

! With thermal direct print (paper with heat sensitive surface coating) you must ensure no ribbon is present.
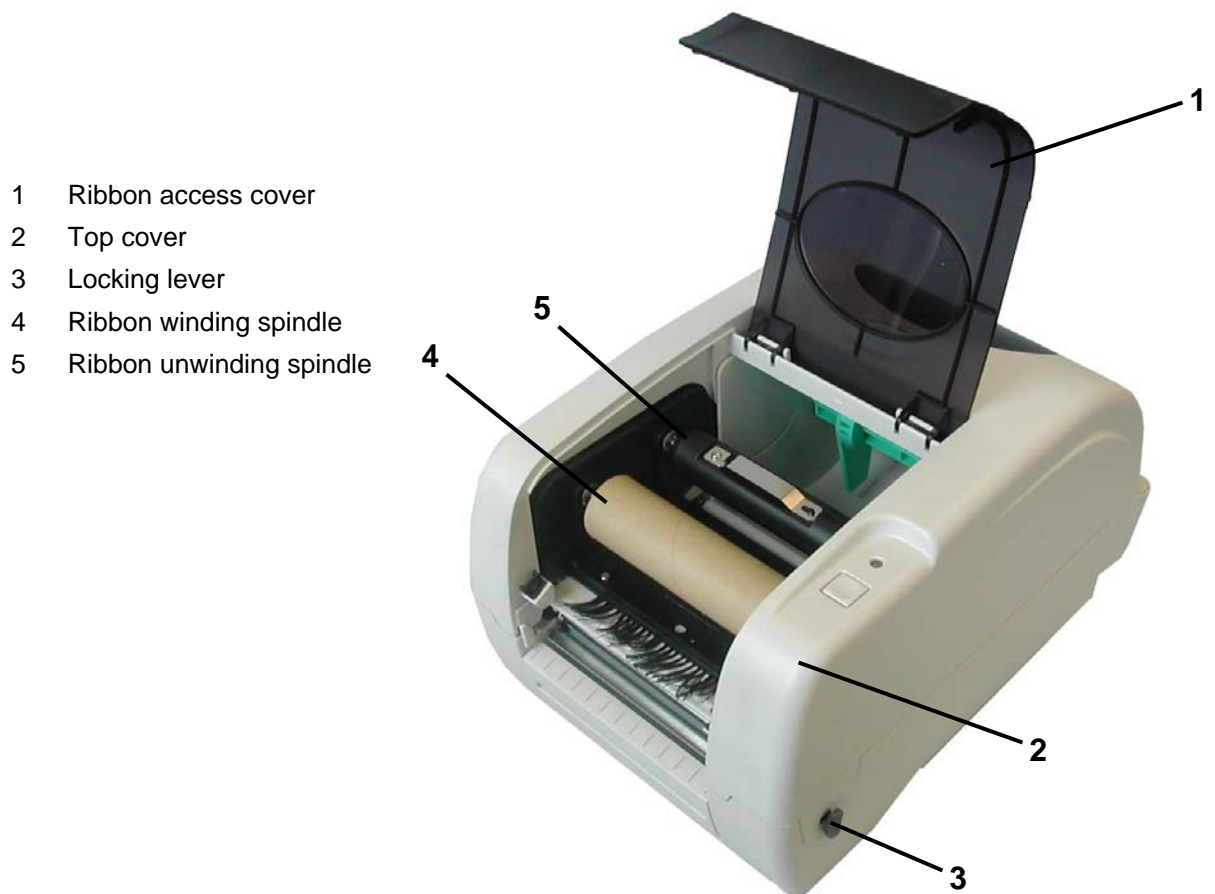
1   Ribbon access cover
2   Top cover
3   Locking lever
4   Ribbon winding spindle
5   Ribbon unwinding spindle

Image 4 Ribbon winding spindles

1.   To open the ribbon access cover (1) push it down first and flip it open.
2.   Open top cover (2) with lock lever (3).
3.   Put paper core on ribbon winding spindle and mount it on the front hub. Pay attention to the orientation of the winding spindle (longer end to the right)!

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ℹ️ On delivery, the printer is equipped with an empty paper core mounted on the winding spindle.
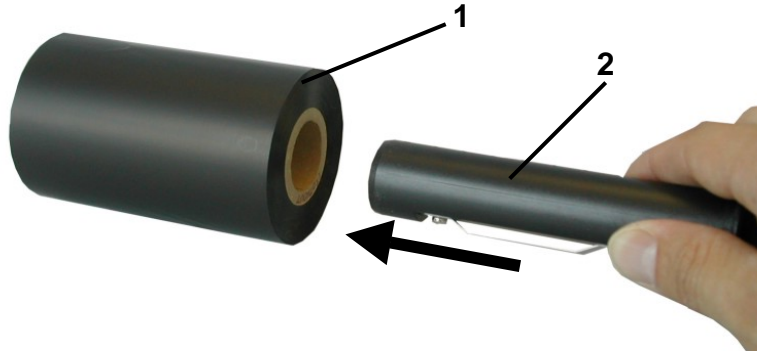
Image 5 Mount ribbon on unwinding spindle

4.   Mount new ribbon (1) on the ribbon-unwinding spindle (2). The coated side of the ribbon has to point downwards!

ℹ️ It is easy to detect the coated side by using an adhesive label; place the adhesive side onto the ribbon to see if ink is removed, if so, this is a sign for the coated side.

5.   Put the ribbon unwinding spindle in the back hub (Image 4, pos 5).
     Pay attention to the orientation of the unwinding spindle (Image 5, pos 2)!
6.   Guide the ribbon underneath the print head to the front and attach it to the winding spindle (see Image 6).
7.   Attach the ribbon with sellotape to the winding spindle (the ribbon is reeled clockwise).
8.   Reel the winding spindle a few times until the ribbon is guided without wrinkles.
9.   Close ribbon access cover (Image 4, pos 1).

⚠️ **CAUTION!**

Pay attention to the unwinding orientation of the ribbon (internally or externally reeled)!

The coated side is NOT to face the print head as the ink would melt onto the print head and damage it.

ℹ️ To ensure a wrinkle free operation we recommend externally reeled ribbons.

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1 Print head
2 Installed ribbon
3 Winding spindle
2 Ribbon access cover
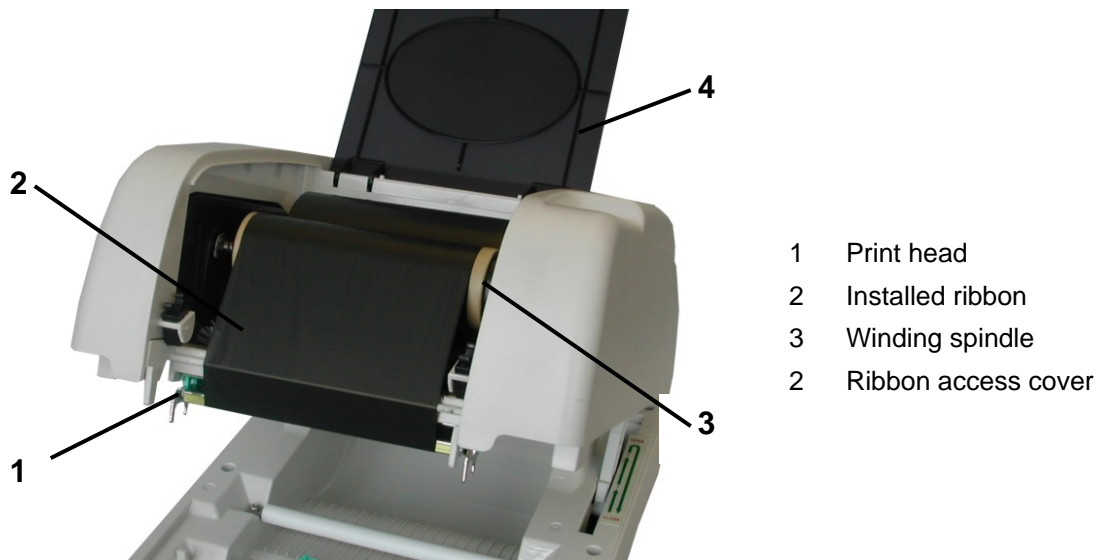
Image 6 Installed ribbon

!	Do not use extremely translucent ribbons (e.g. HellermannTyton TT822OUT). The ribbon sensor cannot detect these and changes into failure mode.
	⇒ Pay attention to recommended ribbons (see also Appendix F)!

5 Load material

> **i** For label material with a core of more than 38.1 mm (1.5 inch) we recommend the use of the external winder TT420 Caddy (see page 43).

1. Switch off printer and open top cover
2. Remove green label winder (Image 2, pos 8)
3. Disassemble material holders (Image 7, pos 2)
4. If the inner core of the material is below 1 inch (25.4 mm), remove gap holders (Image 7, pos 3). The gap guides are intended for cores of 1.5 inch (38.1 mm).

1	Material bar
2	Material holder
3	Gap holder
4	Material roll
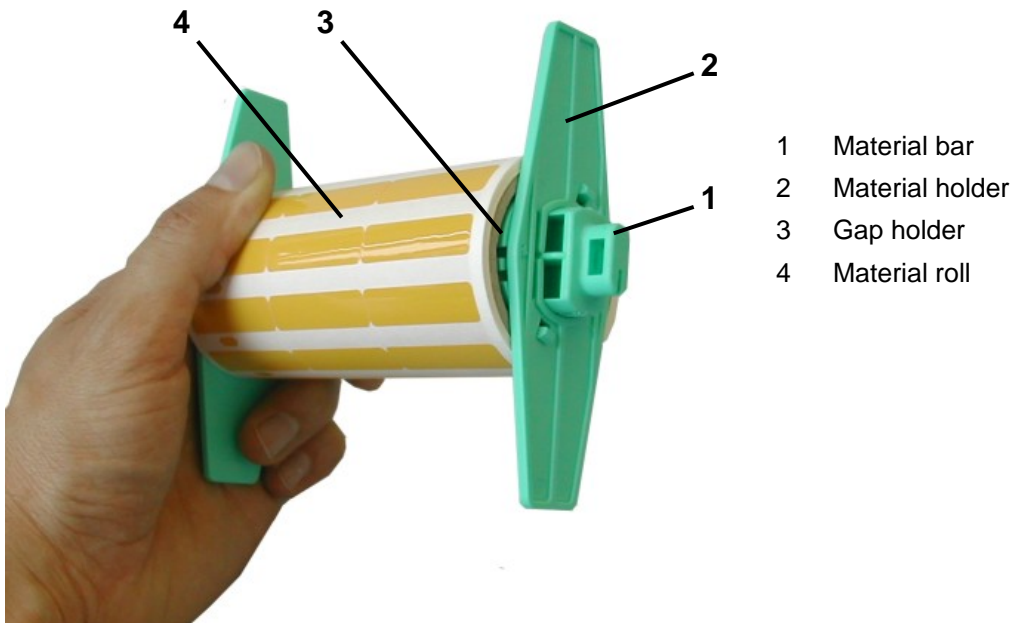
Image 7 label winder

5. Put material roll (4) on the material bar (1)
6. Put material holder (2) with the smooth side facing the material on the material bar (1) and centre the material roll on the bar
7. Insert material holder (Image 8, pos 1) in the relevant notches (2) of the printer

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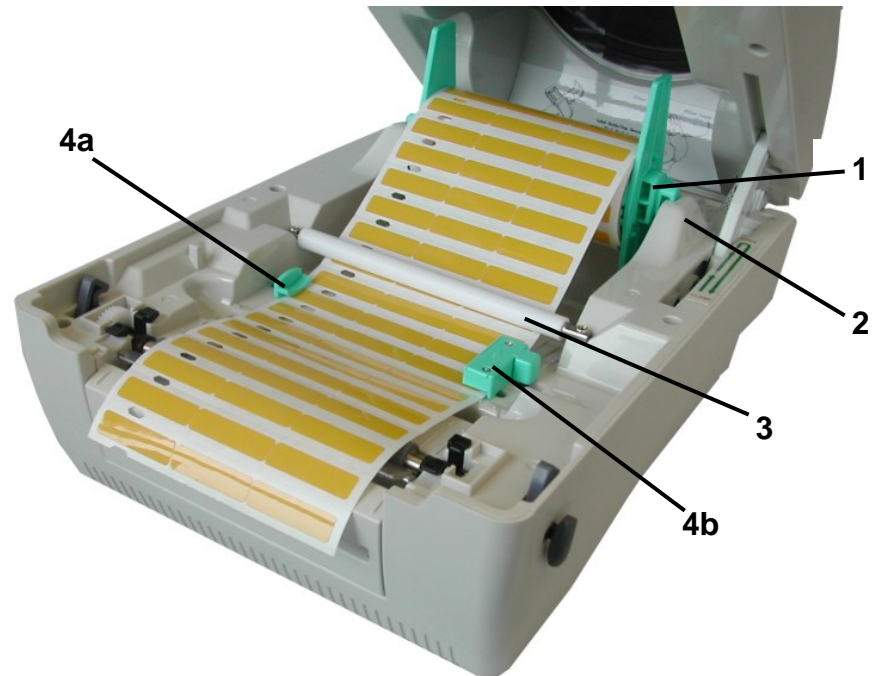
Image 8 Insert label material

8. Feed label material below white roll (3)

9. Feed material between the media guides (4a and 4b)

10. Forward material that it exceeds the printer

11. Adapt the material guides (4a and 4b) to the material

12. Check, if the material direction is straight to avoid a material jam

13. Adjust sensor (see next page / chapter)

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6 Adjustments of label sensor

The TT420 is equipped with a label sensor that indicates to the printer the exact start of the label. The label sensor has to be adjusted according to the used material.

1a Upper transmissive sensor

1b Lower transmissive sensor

2 Reflective sensor

3a Left material guide

3b Right material guide
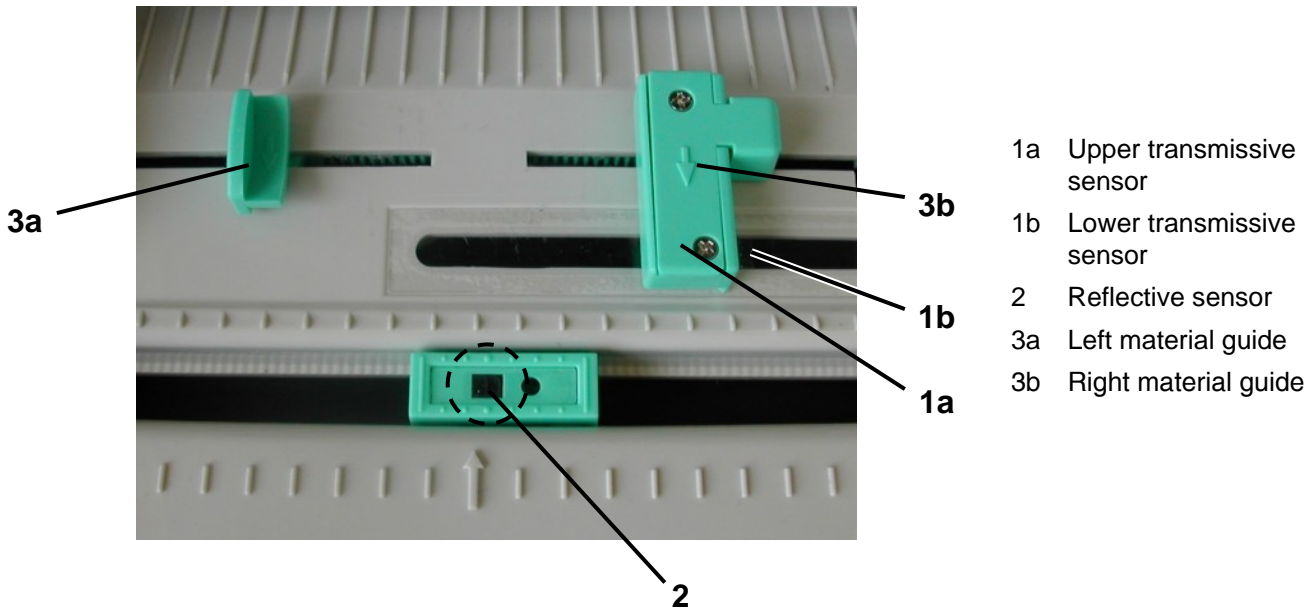
Image 9 Overview label sensors

While choosing the respective sensor mode please pay attention to the following material adjustments:

Material	Sensor mode	Positioning
Plain labels	transmissive	No adjustment, sensor (1) fixed to the right side
Helatag self laminating labels	reflective	Adjust reflective sensor (2) to one of the sensor holes
Helatag identification plates, TIPTAGVA	reflective	Adjust reflective sensor (2) to one of the sensor holes
Printable heatshrink tubing (ShrinkTrak)	reflective	Adjust reflective sensor (2) to the left or right edge
Labels with black marks	reflective	Centre reflective / black mark sensor (2) on the black mark on the back of the liner.

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6.1 Transmissive sensor

The transmissive sensor (Image 9, pos 1) consists of a sending and receiving unit. One part is inside the right material guide (1a), the other part is inside the printer on the lower part (1b).

The transmissive sensor is fixed to the right media guide (Image 9, pos 3b). The sensor is 6mm away from the right edge of the label material (Image 10, pos 1). The gap of the labels (2) has to be a minimum of 2mm.

6mm

Feed direction

1 Edge of liner

2 label gap

3 Position of transmissive sensor towards right edge of label
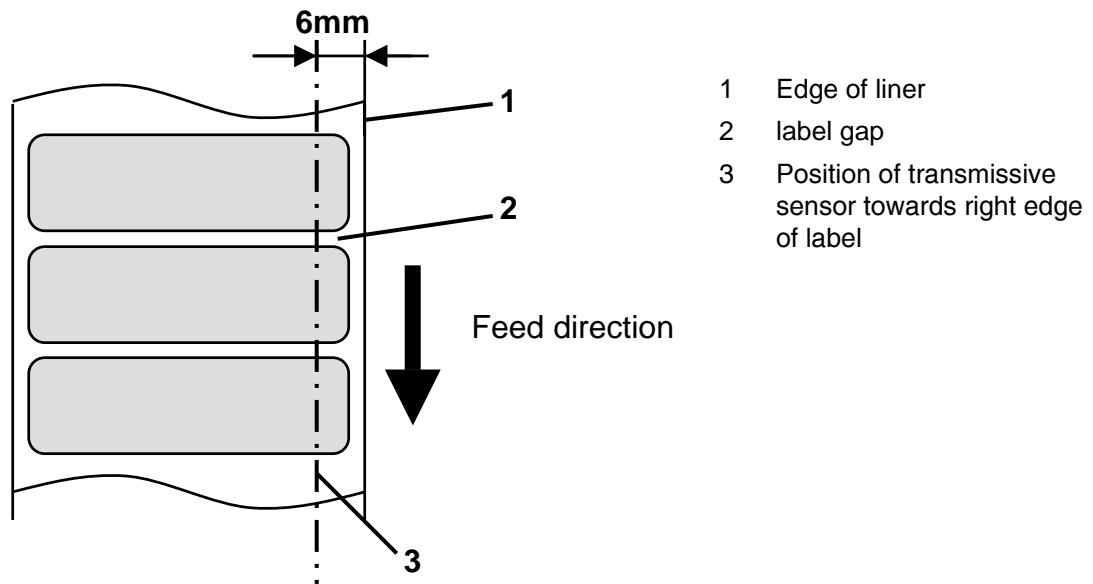
Image 10 Positioning the transmissive sensor

! If the label gaps are not being detected within the above mentioned 6mm distance from the right liner edge, (e.g. ShrinkTrak) the transmissive sensor cannot be used.

⇒ Use reflective sensor instead!

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6.2   Reflective sensor

This fully adjustable square-shaped sensor (3) is used for the reflective mode. The adjustment allows for the positioning on a sensor hole or black mark.

1	Helatag self laminating label
2	Sensor hole
3	Positioning of reflective sensor on sensor hole
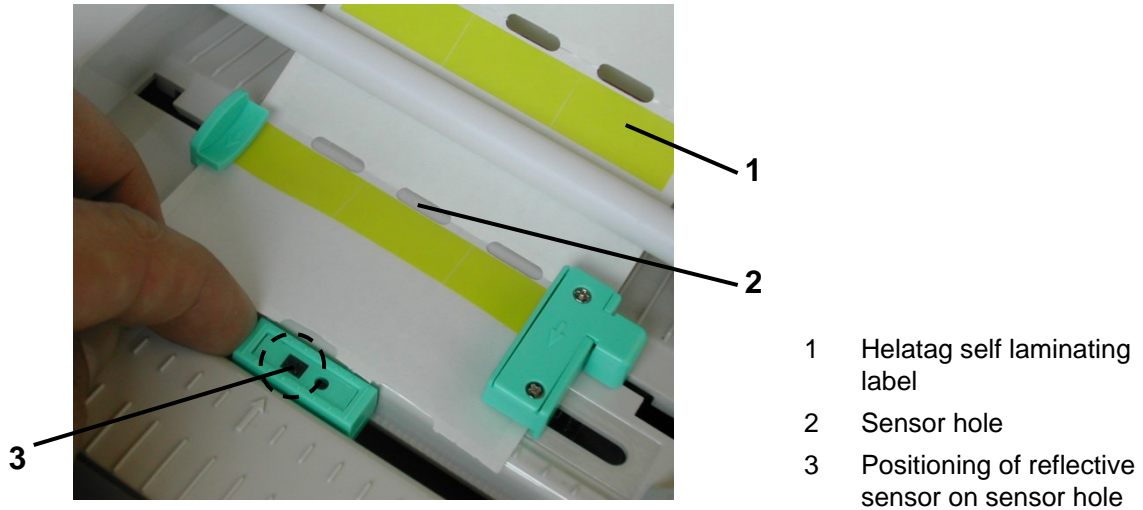
Image 11   Orientation of reflective sensor-to-sensor hole of Helatag self-laminating labels

i   HellermannTyton Helatag self-laminating labels are equipped with either one or more sensor holes. The reflective sensor can be adjusted to any of these holes.

1	ShrinkTrak
2	Adjustment of reflective sensor to the left ShrinkTrak edge
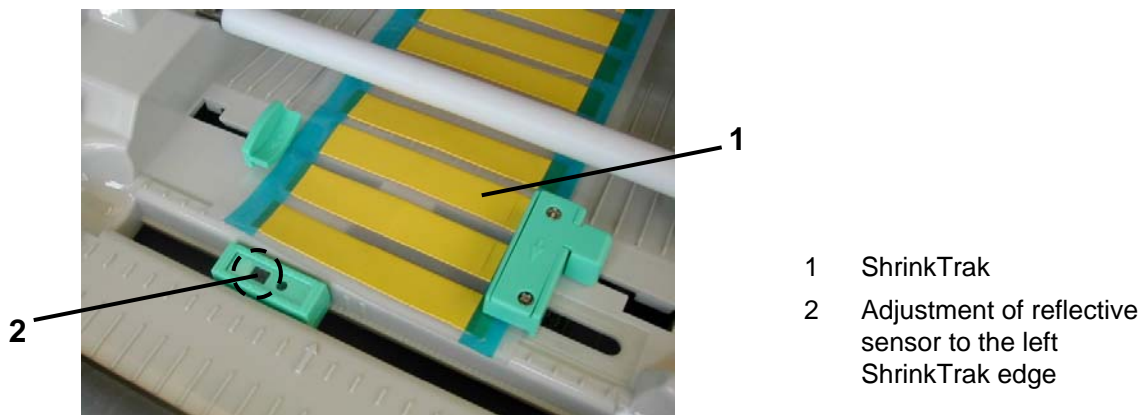
Image 12   Optimal adjustment of reflective sensor with ShrinkTrak

i   If HellermannTyton ShrinkTrak is used, the reflective sensor should not be adjusted to the centre but moved to either the left or right edge of the material as the marker remains at a consistent distance to the sensor. Ensure the square sensor field is not moved into the blue edge of the carrier material.

Some labels are equipped with a black mark on the back of the liner instead of a sensor hole.

For proper detection of the black mark, this should be at least 2 mm high and 8 mm wide.
The black mark sensor should be adjusted to the centre of the black mark.

1   Black mark on the back of the liner

2   Central adjustment of black mark sensor

3   Labels on the front side

Feed direction
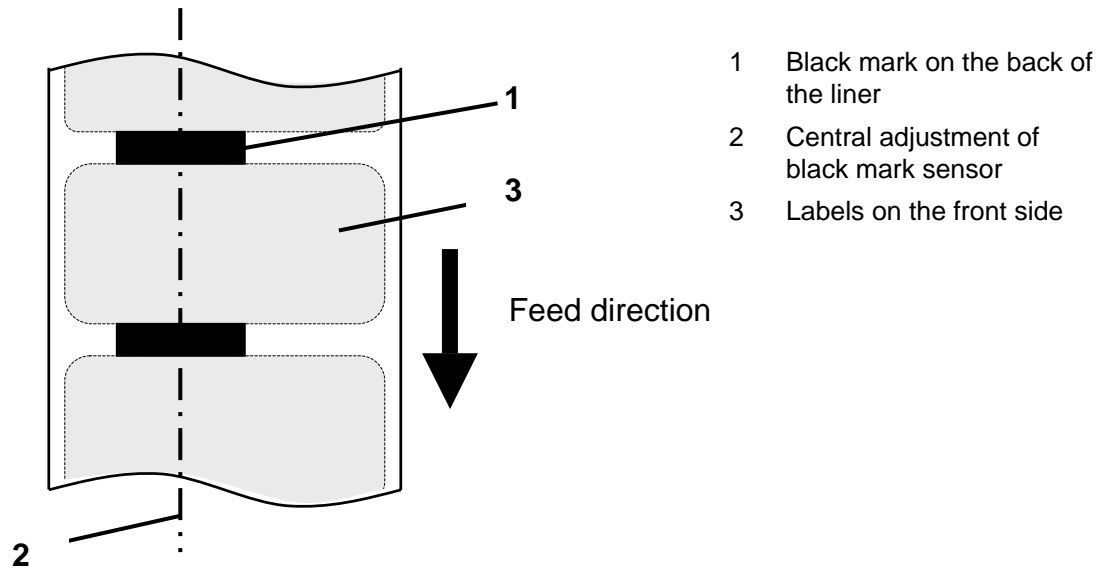
Image 13 Adjustment of black mark sensor to the black marks

7 Driver installation

The driver interprets the data of the label printing software (e.g. TagPrint PRO) and forwards them in a language that the printer understands. Only careful installation of the driver guarantees the trouble free operation of the printer.

Depending on your operating system and the chosen interface to the PC (USB, parallel or serial) the installation procedure can be different.

! To install the printer driver the necessary rights to install hardware are necessary.

⇒ Inform your system administrator

! The standard settings of Windows 95 and Windows NT4.0 do not support the USB interface.

⇒ Use different interface
⇒ Inform the system administrator

7.1 Operating system Windows XP and USB interface

! Install the printer only via the automatic USB interface detection as described in this manual. If the printer is installed without automatic detection the printer might not be detected afterwards.

1. Ensure the printer is switched off.
2. Connect the printer via the USB cable.
3. Switch on the printer
4. Windows XP will detect new hardware via the linked USB port and automatically starts the hardware assistant.

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5. The hardware assistant is asking for a Windows update. Please select *No, not this time* and continue with *Next>*

6. Choose the second option *Install from a list or specific location (Advanced)*
7. Put the CD (part of delivery) in the CD drive.
8. Continue with *Next>*
9. Now choose the CD drive via the option *Include this location in the search*
10. Choose the directory *Browse \Driver* on the CD

11. Continue with *Next>*

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Hardware Installation

⚠ The software you are installing for this hardware:

Printers

has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.

[Continue Anyway]   [STOP Installation]

12. Windows XP indicates the upper message regarding a Windows logo test.

13. **Ignore** this message and go to next step with `Continue Anyway`

14. The relevant driver data is now copied from the CD. Please wait until this process is finished.

Found New Hardware Wizard

Completing the Found New Hardware Wizard

The wizard has finished installing the software for:

🖨 TT420

Click Finish to close the wizard.

[< Back]   [Finish]   [Cancel]

15. As soon as all data is copied, the assistant shows a message that the new printer is successfully installed.

16. End the assistant with `Finish`

! If you choose to use a different USB port on your computer you need to de-install the printer driver and then re-install as above.

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7.2 Operating system Windows 2000 and USB interface

! Install the printer only via the automatic USB interface detection as described in this manual. If the printer is installed without automatic detection the printer might not be detected afterwards.
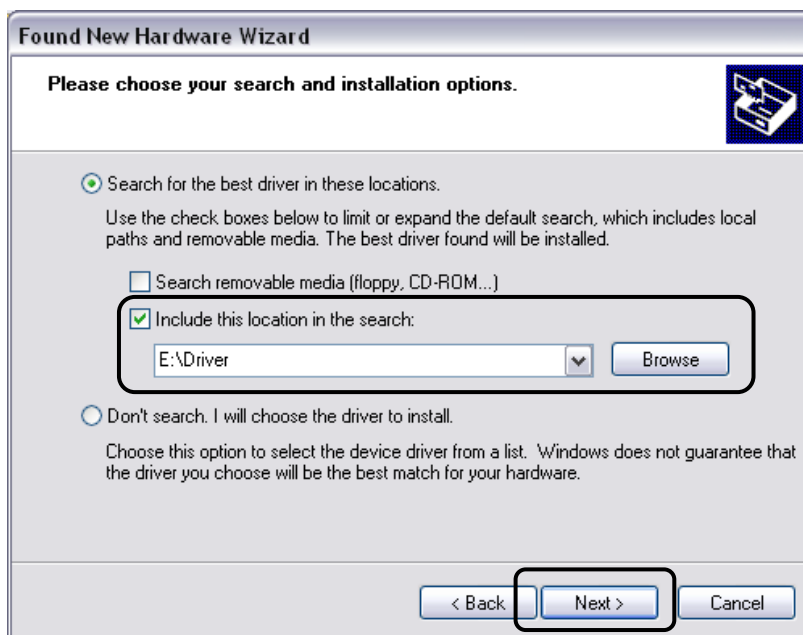
1. Ensure the printer is switched off.
2. Connect the printer via the USB cable.
3. Switch on the printer.

Found New Hardware

Searching For Drivers

4. Windows 2000 detects new hardware via the connected USB port and automatically starts the hardware assistant.

Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install a device driver for a hardware device.

To continue, click Next.

< Back   Next >   Cancel

5. Continue with *Next>*

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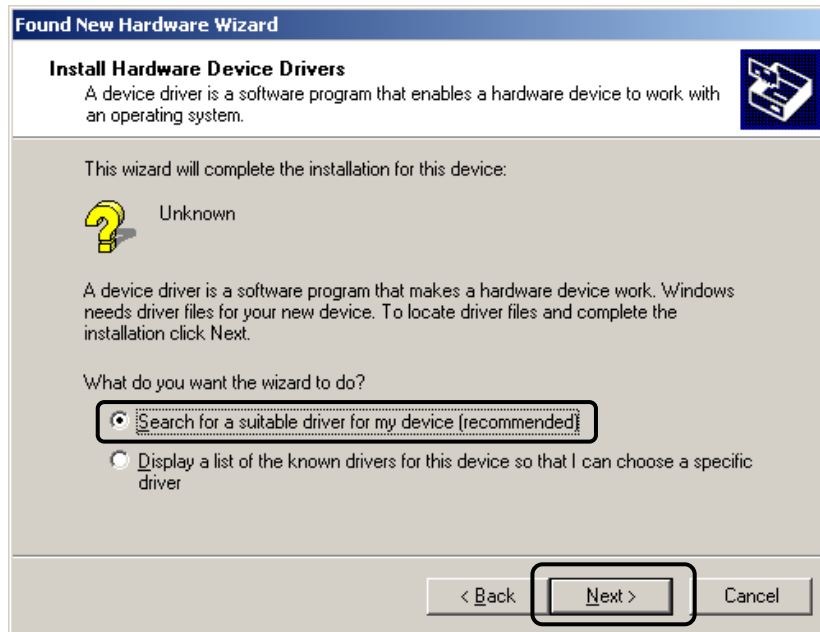
6. Choose the first option *Search for a suitable driver for my device*
7. Continue with *Next>*
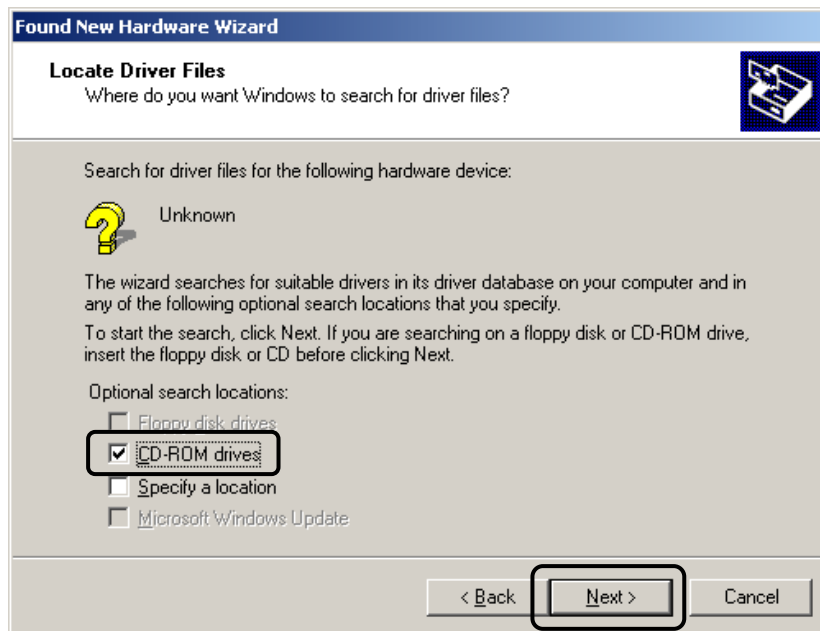
8. Choose the option *CD-ROM drives*
9. Put the CD (part of delivery) into the CD drive.
10. Continue with *Next>*
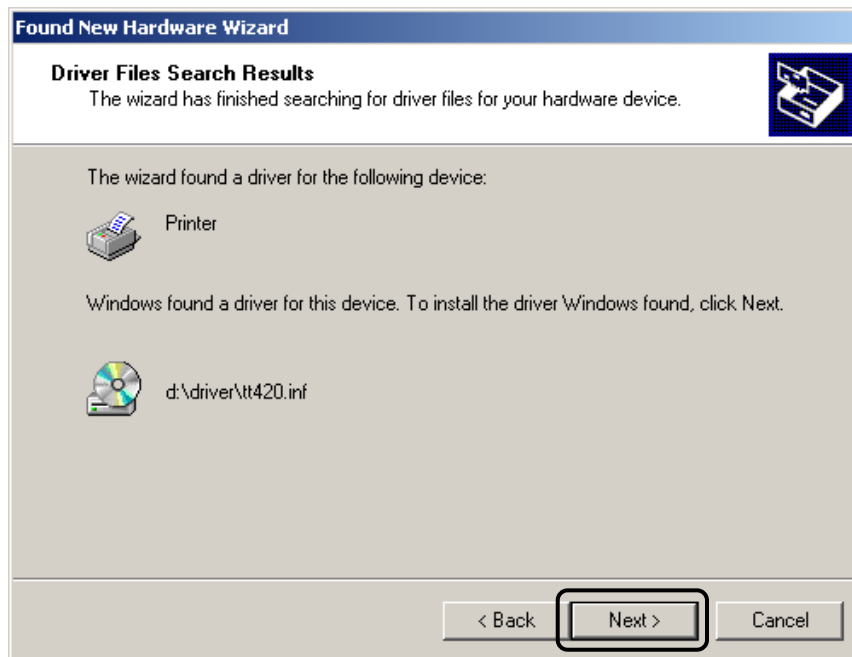
11. The assistant has to detect and suggest automatically the file **tt420.inf** in the directory **\Driver**

12. Continue with **Next>**

13. In some occasions, Windows 2000 provides a Windows signature warning. If you see this message go ahead with **Continue Anyway**

14. The relevant driver data is now copied from the CD. Please wait until this process is finished.

15. As soon as all data is copied, the assistant shows a message that the new printer is successfully installed.
16. End the assistant with *Finish*

!	If you choose to use a different USB port on your computer you need to de-install the printer driver and then re-install as above.

8 Loading printer pre-sets

During the printer installation procedure additional files are copied that will automatically change the printer settings of the TT420 to suit the required HellermannTyton materials. This automated feature will enable you to work in an easier way.

⇒ Please note that the pre-set data are stored in the folder *C:\TT420Init*

> **i** If alternative label material and ribbon combinations are used, we recommend to use the manual setting and calibration of the sensors as described in page 40.

If only one material type (e.g. Helatag plain labels) is used on the printer, the recommendation is to load the pre-sets directly in the system preferences of the Windows operating system. This makes the reloading of the pre-sets obsolete when restarting the system.

Frequent changes of material types (i.e. plain labels, ShrinkTrak, laminating labels, ...) result in setting the pre-sets from the application (i.e TagPrint PRO). Please note that the pre-sets need to be reloaded every time the application program is restarted.
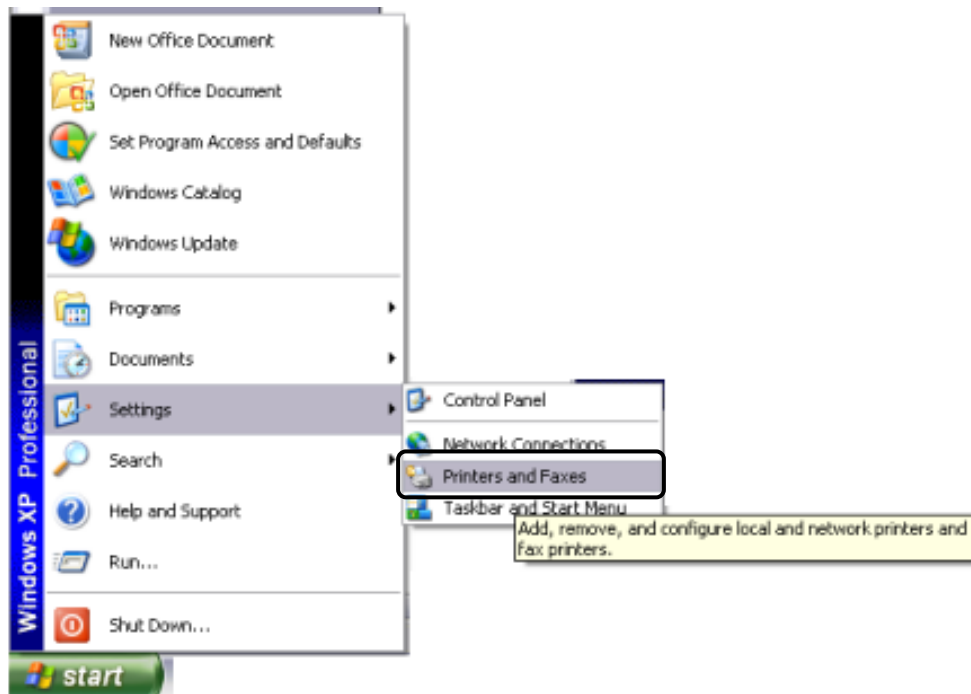
1. Choose the printer overview with *Start -> Settings -> Printers and Faxes*

2. Highlight the previously installed TT420 printer and choose *Select printing preferences*
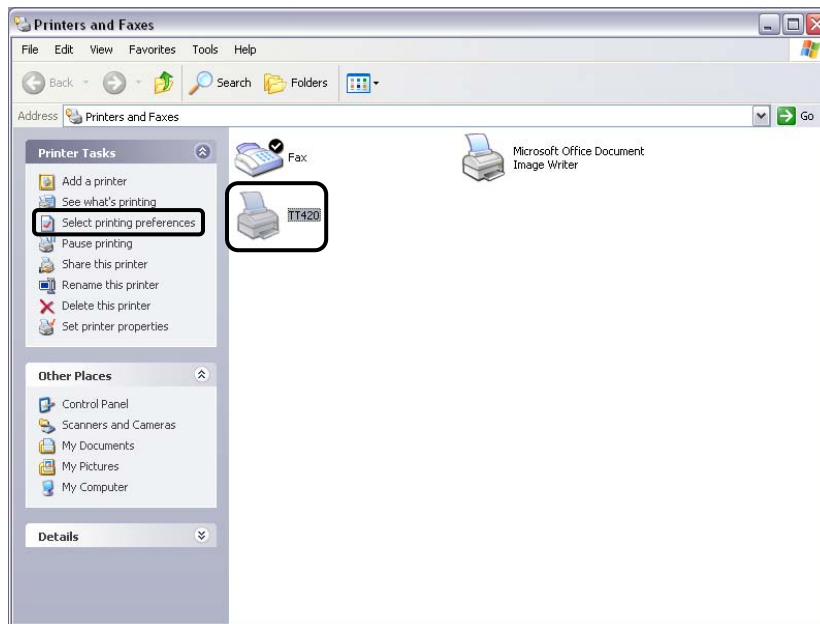
3. When the printer preferences are shown, select the register card *Import/Export settings* and select *Import*
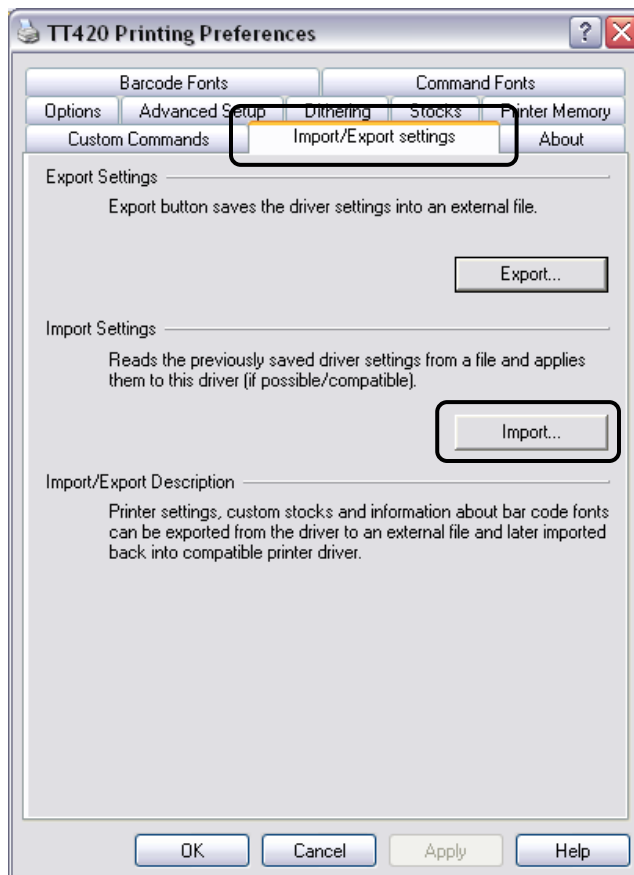
4. Next the file directory is displayed. Locate the TT420 pre-sets from the directory My
    Computer *-> Drive C:\ -> Subdirectory C:\TT420Init*
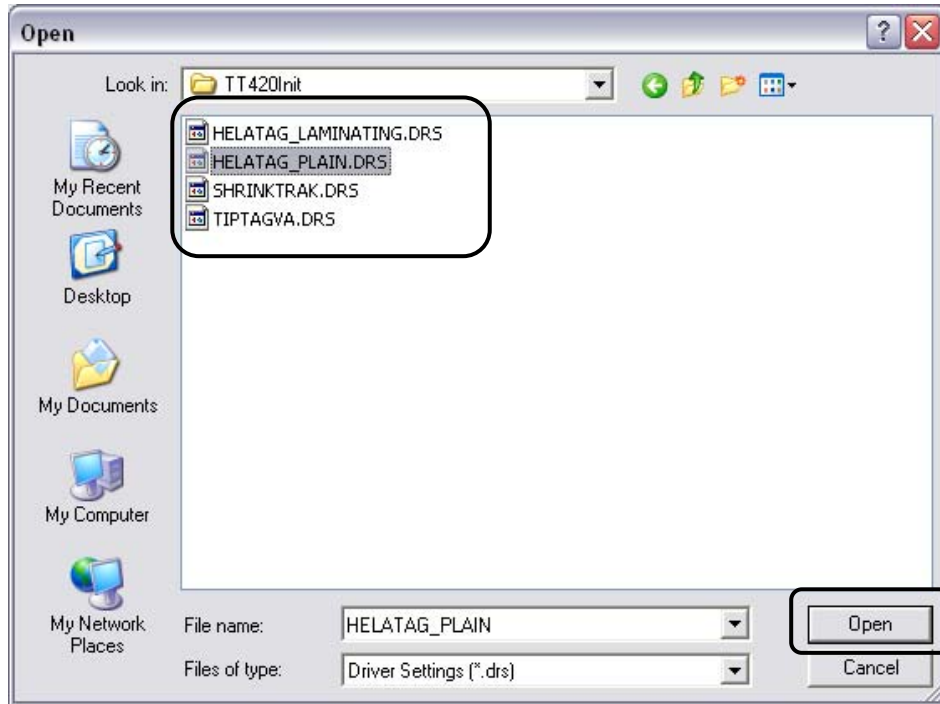
> [i] When using the Import option for the first time the path to the TT420 INIT files need to be
> selected manually. Windows saves this path information and any subsequent queries will be
> led straight to this subfolder.

5. At this point, select the printer pre-set that corresponds with the required label media.
    Confirm the selection with *open*

Loaded media	Sensor mode	Pre-Set
Plain labels, rectangular shape	transmissive	HELATAG_PLAIN
Helatag self laminating labels	reflective	HELATAG_LAMINATING
TIPTAGVA and Helatag identification plates (material type 932)	reflective	TIPTAGVA
Printable sleeves ShrinkTrak	reflective	SHRINKTRAK

> [i] The printer pre-sets optimizes the TT420 settings regarding, printing speed, thermal heat,
> material sensor settings and back-feed modus.
>
> ⇒ Please take care about the physical sensor settings as described in the sensor setup

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chapter
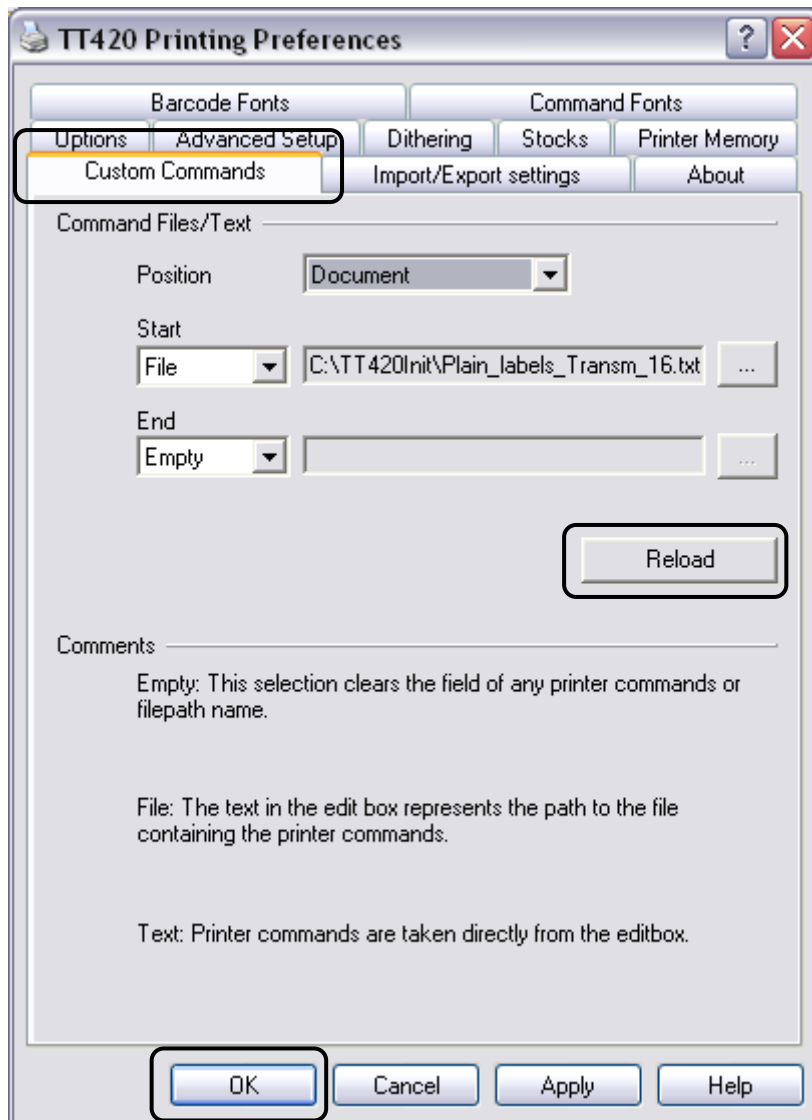
6. The final step is to activate the selection. This is done through choosing the registry card *Custom Commands* and select once *Reload*

7. To exit the printer preferences, select *OK*.

9   Print first label from application

The final step of the printer installation is to test the printer with a label application software. The following example is showing HellermannTyton's TagPrint PRO 2.0 with a typical type plate design deploying a Helatag TAG73TD1-799 and a TTDTHOUT ribbon.

1. Within a running TagPrint PRO, go to the printer symbol and select the previously installed TT420 printer.
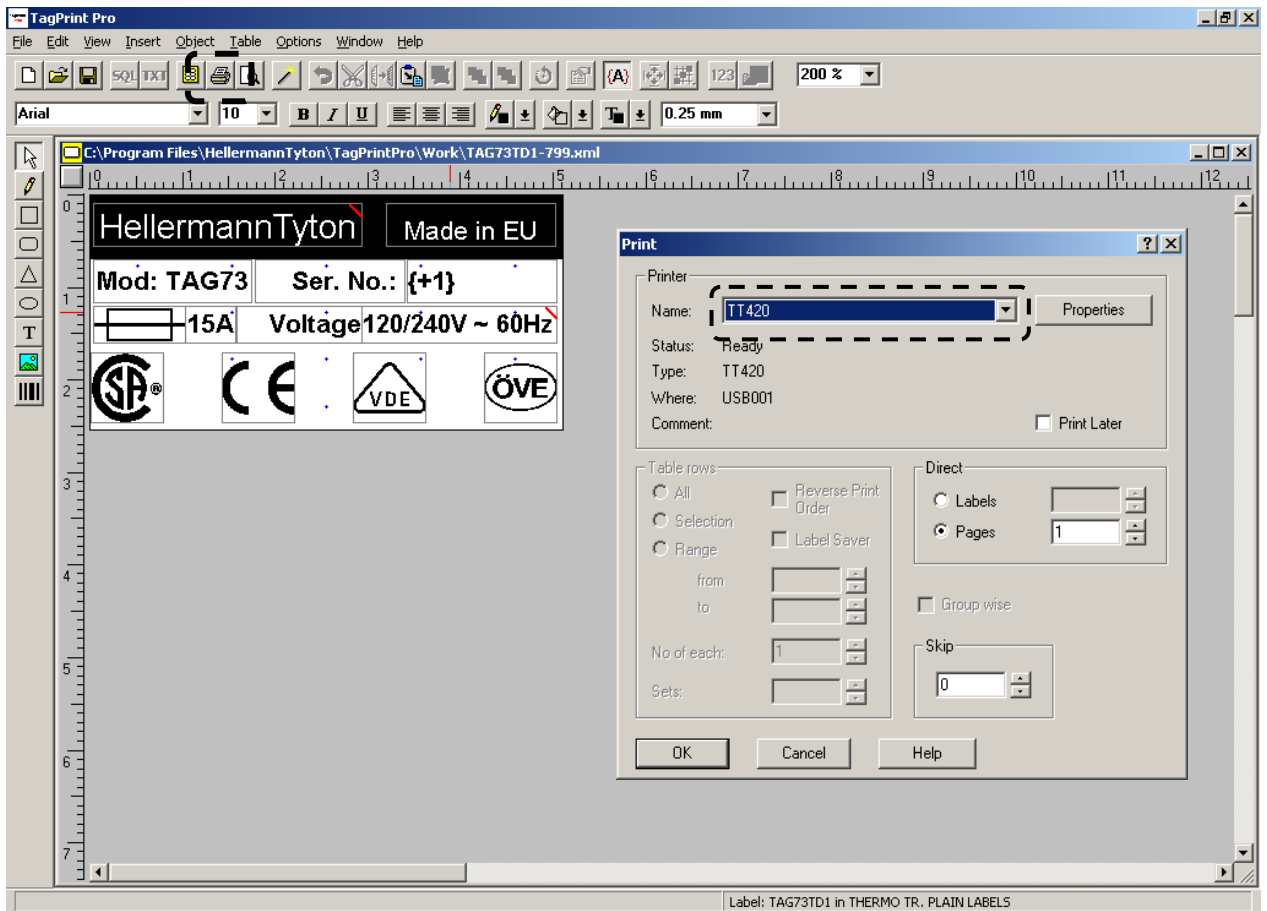
2. If the printer has been already pre-configured as described in chapter 8, the first labels can be printed just hitting the *OK* button.

If new material has been loaded into the printer or the printer cover has just been opened, the printer might use up to 2 labels to align the material sensor correctly. This might result in 2 wasted label printouts.

⇒ Print 2 test labels to check if the material sensor is working correctly.

3. If the printer pre-sets have not been deployed at this stage, or if the loaded material type has been changed, please follow the recommendations as listed below:

After choosing the TT420 from the application printing function, select Properties and load the printer pre-sets as described in chapter 8, step 3. Loading the correct printer pre-sets allows trouble free printing with the selected material.
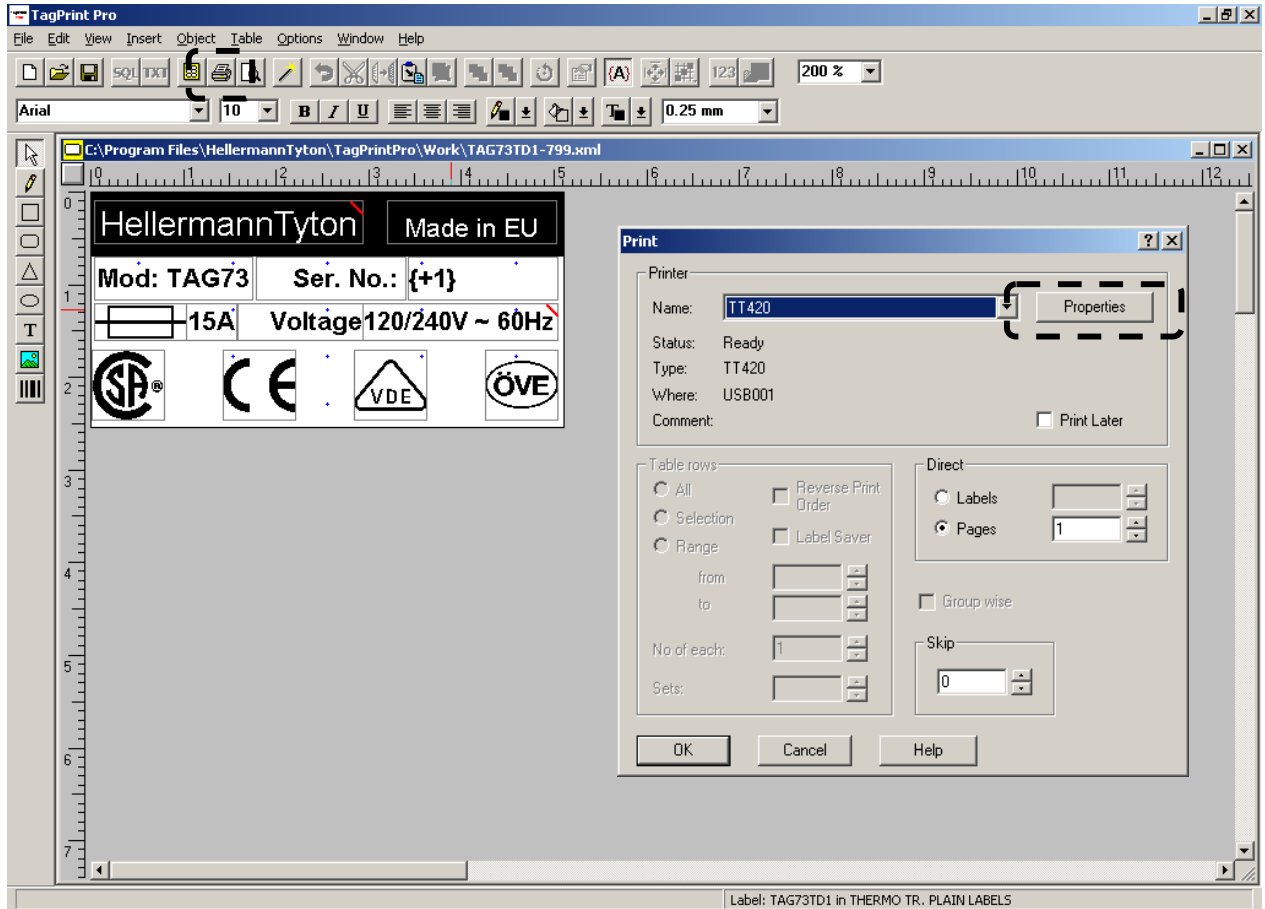
Appendix A   Cleaning and basic maintenance

> **DANGER!**
> **Risk of death via electric shock!**
> ⇒ **Disconnect the printer from the power supply before performing any maintenance work.**

A.1   Maintenance plan

Maintenance task	When
General cleaning (page 35)	As necessary
Clean print roller (page 36)	each time the label roll is changed or when the print image and label transport are adversely affected.
Clean print head (page 36)	**direct thermal printing:** each time the label roll is changed **thermal transfer printing:** each time the transfer ribbon is changed or when the print image is adversely affected
Clean label sensor (page 36)	when the label roll is changed
Replace print head (page 37)	when errors in the print image occur
Replace print roller (page 39)	when print image and label transport are adversely affected

Table 1 Maintenance plan

A.2   Tools and cleaning agents

Cleaning agents

- Soft brush
- Soft cloth

- Pure alcohol
- Special cleaning pen Spotclean

- Roller cleaner
- Cotton swabs

A.3   General cleaning

> **CAUTION!**
> **Abrasive cleaning agents can damage the printer!**
> ⇒ **Do not use abrasives or solvents to clean the outer surfaces or assemblies**

- Remove dust and paper dust in the printing area with a soft brush or vacuum cleaner.
- Clean outer surfaces with an all-purpose cleaner.

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A.4   Cleaning the print head

Substances may accumulate on the print head during printing and adversely affect printing, e.g. differences in contrast or vertical stripes.

⚠	**CAUTION!** **Print head can be damaged!** ⇒ **Do not use sharp or hard objects to clean the print head.**

1.   Remove labels and transfer ribbon from the printer.
2.   Clean print head surface with special cleaning pen or a cotton swab dipped in pure alcohol.
3.   Allow print head to dry for 2–3 minutes before starting the printer.

A.5   Cleaning the print roller

Substances may accumulate on the print roller during printing and adversely affect printing, e.g. differences in contrast or vertical stripes.

1.   Remove labels from printer
2.   Remove print roller (page 39)
3.   Remove deposits with roller cleaner and a soft cloth.
4.   Build in again print roller

!	If the print roller is damaged replace it (see page 39)

A.6   Cleaning the label sensor

The label sensor can become dirtied with paper dust. This can adversely affect label detection.

⚠	**CAUTION!** **Label sensor can be damaged!** ⇒ **Do not use sharp or hard objects or solvents to clean the label sensor.**

1.   Remove labels from printer
2.   Clean reflective and transmissive sensor with brush, cleaning pen Spotclean or with a cotton cloth dipped in pure alcohol (IPA).

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A.7 Replacing the print head

The print head of the label printer can be replaced easily. The print head must be replaced if worn and can be done without additional tools.

> ⚠️ **CAUTION!**
>
> **The print head can be damaged by static electricity discharges and impacts!**
>
> ⇒ **Do not touch the contacts on the plug connections.**
>
> ⇒ **Do not touch printing line with hard objects or your hands.**

Removing the print head

1. Switch off printer.
2. Open top cover.
3. Remove labels and transfer ribbon from the printer.
4. Remove the cover of the tear-off edge (1) The cover has two lugs (2) that are used as a tool to remove the print head.
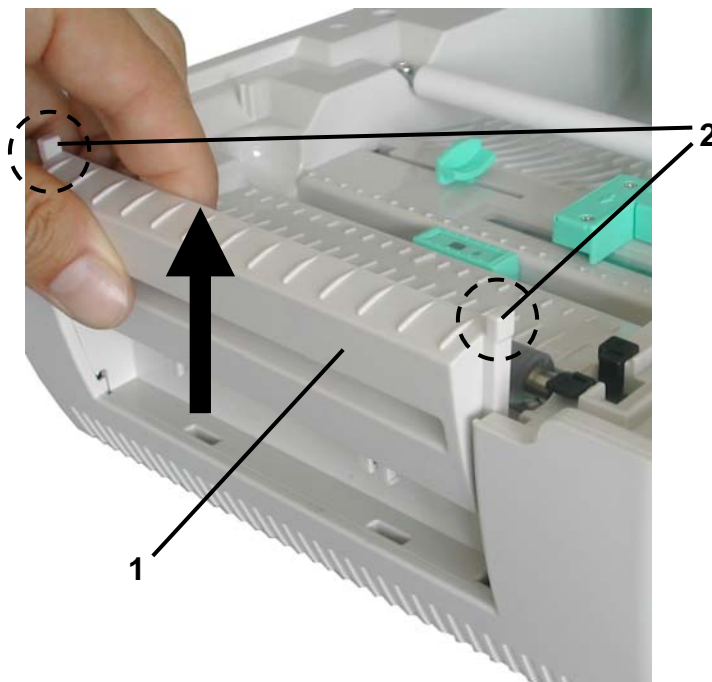
1 Cover tear-off edge
2 Lugs for print head unlocking

Image 14 Cover tear-off edge

5. Use one of the lugs (2) of the tear-off edge cover (2) to push lightly on the green print head snapper (3) and pull the print head (4) downwards.

1 Cover tear-off edge
2 Lugs to unlock print head
3 print head snapper
4 print head
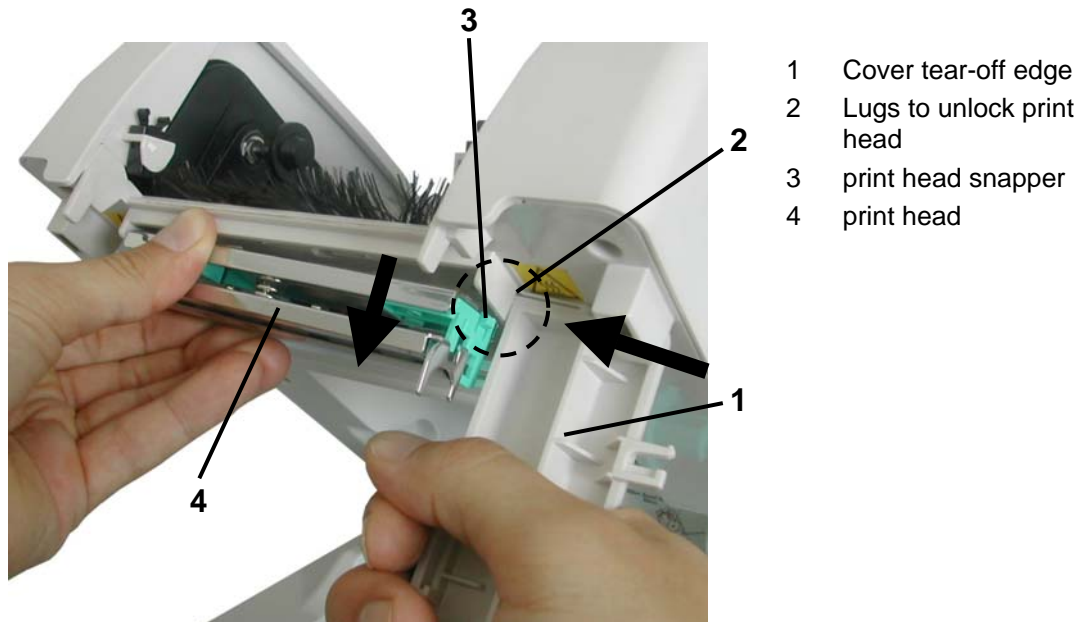
Image 15 Flip out print head

6. Remove the print head (4)
7. Release the plug connection (5) from the print head (4) and put it onto a soft material.

4 Print head
5 Plug connection
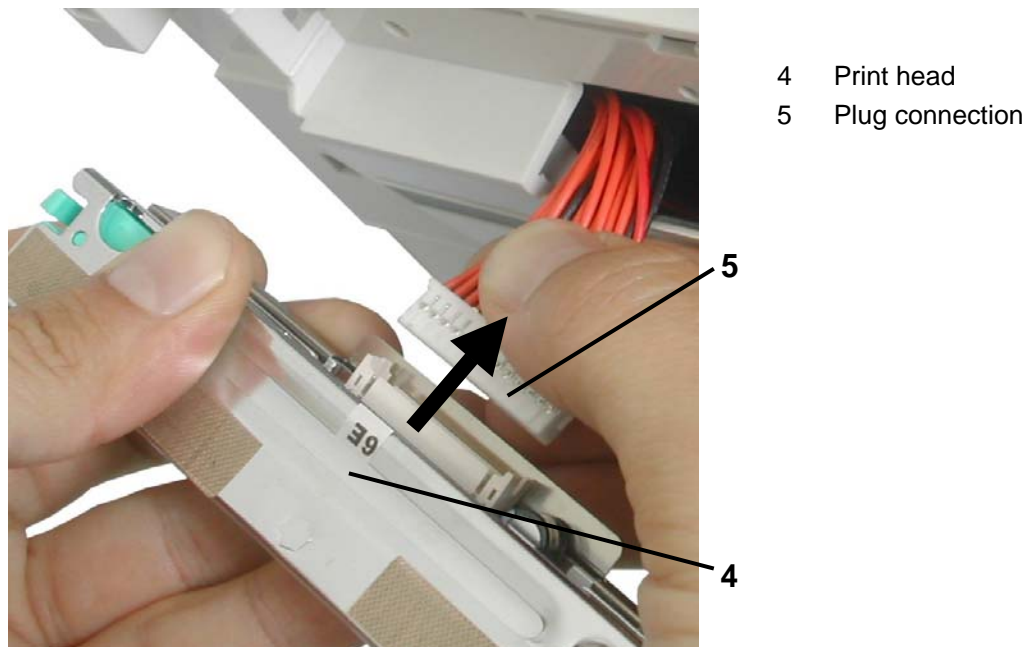
Image 16 Plug connection of print head

Installing the print head

1.   Plug in plug connector (5).

2.   Remount the print head (4) into the print head snapper (3) on one side first and then with slight pressure into the snapper (3) at opposite side.

3.   Insert labels and ribbon (see page 16).

A.8   Changing the print roller

Removing and installing the print roller is very easy and can be done without any additional tool. The change of the rubber print roller is necessary if worn.
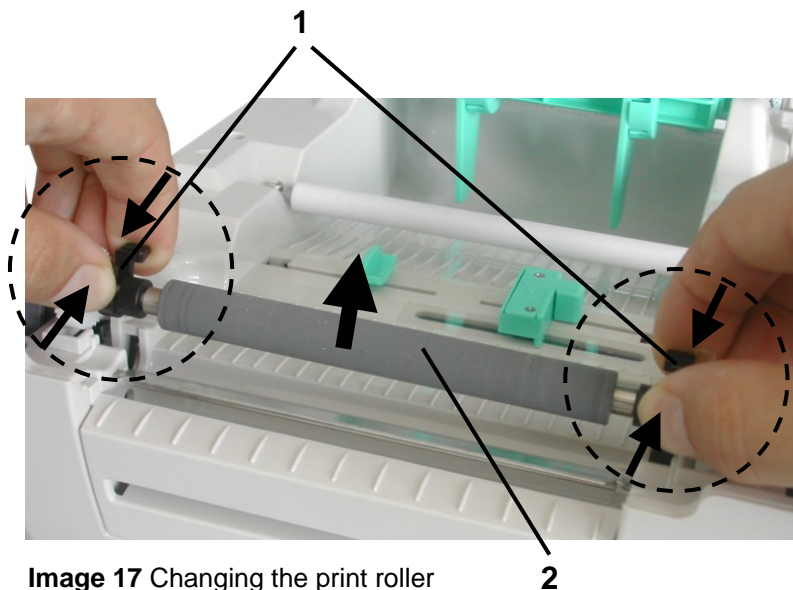
Image 17 Changing the print roller

Removing the print roller

1.   Switch off printer

2.   Open top cover

3.   Remove label material

4.   Push both levers (1) at the same time and remove the print roller (2) upwards.

Installation of print roller

1.   Install new print roller (2) with correct orientation to both sides from above. Both levers have to click with an audible sound.

2.   Replace label material.

Appendix B   Manual selection of label sensor mode

The label sensor can be chosen via two ways:

a) Choice via Windows driver

b) Manual adjustment described as follows

```
┌─────────────────────────┐
│    Switch on printer     │
│    LED blinks green      │
│     Open top cover       │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│     LED blinks red       │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Push FEED/PAUSE       │
│ button for appr. 5 sec.  │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐   FEED/PAUSE     ┌─────────────────────────┐
│    LED shows green       │───  button   ──▶ │    LED disappears.       │
└─────────────────────────┘                   │ reflective /black mark   │
             │                                 │    mode is chosen        │
     After appr. 3 sec.                        └─────────────────────────┘
             ▼
┌─────────────────────────┐   FEED/PAUSE     ┌─────────────────────────┐
│    LED shows orange      │───  button   ──▶ │    LED disappears.       │
└─────────────────────────┘                   │  "No Sensor is chosen    │
             │                                 └─────────────────────────┘
     After appr. 3 sec.
             ▼
┌─────────────────────────┐   FEED/PAUSE     ┌─────────────────────────┐
│     LED shows red        │───  button   ──▶ │    LED disappears.       │
└─────────────────────────┘                   │   transmissive mode is   │
             │                                 │        chosen            │
     After appr. 3 sec.                        └─────────────────────────┘
```

Appendix C   Manual calibration of label sensor

! The sensor calibration enables the proper detection of the labels. The calibration is necessary with every change of material (not change of label dimension).

⇒ Choice of sensor (see page 40)

⇒ Positioning of sensor (see page 18)

Switch of printer

↓

Push FEED/PAUSE button and **hold**. Switch on Printer

↓

LED **shows orange** Printer stays in system mode

↓ After appr. 3 sec.

LED **blinks orange**

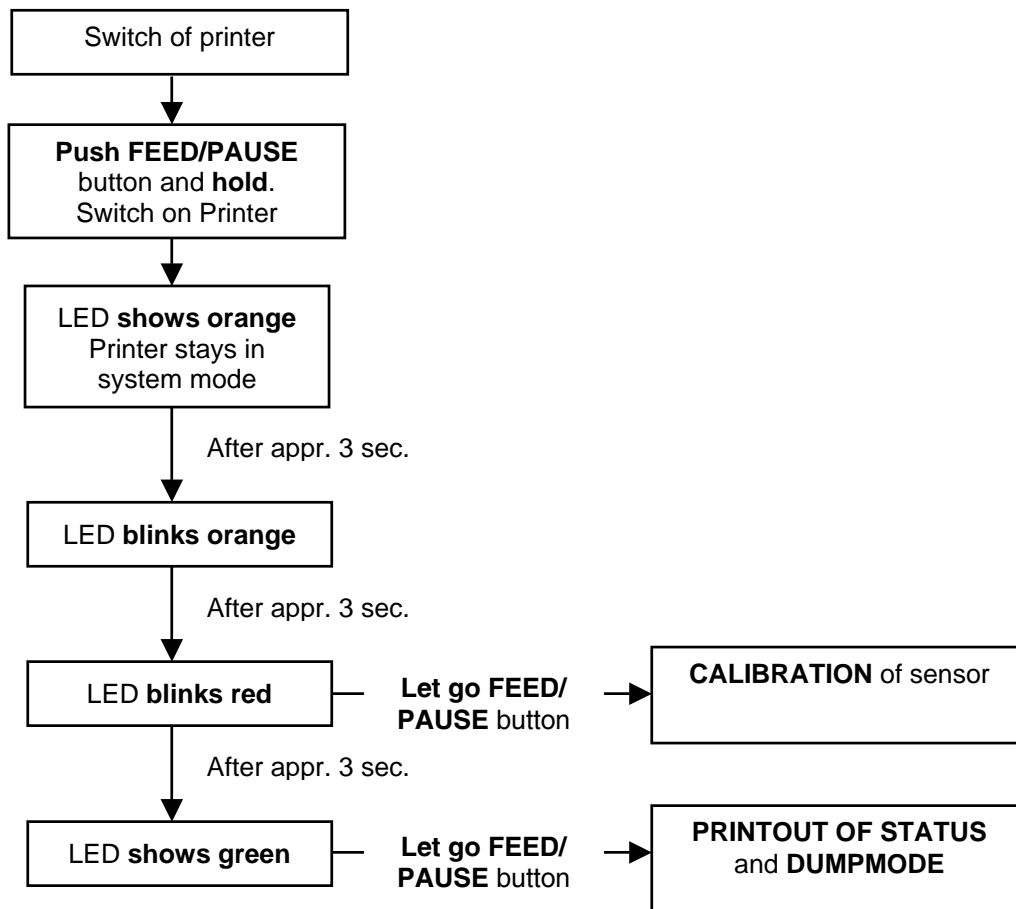↓ After appr. 3 sec.

LED **blinks red** — **Let go FEED/ PAUSE** button → **CALIBRATION** of sensor

↓ After appr. 3 sec.

LED **shows green** — **Let go FEED/ PAUSE** button → **PRINTOUT OF STATUS** and **DUMPMODE**

! If the sensor calibration fails (printer does not stop after approx. 5 sec.), follow the following steps:

⇒ Check reflective sensor adjustment and – if necessary – adjust newly

⇒ Repeat calibration

⇒ Contact HellermannTyton dealer

---

i The sensor calibration can be easily checked by pushing the FEED / PAUSE button. Only one label or heatshrink cut should be transported.

Appendix D   Status printout

The printout of the status shows the current settings of the TT420. Before activating the status printout, insert ribbon and material of at least 80 mm width as described in chapters 4 and 5.

The test printout contains the following information.

| Printout	Description
`PROGRAM VERSION: VX.XX  XXXX`	Firmware version and check sum
`TONE ADJUST: +XX`	Print tone fine adjustment value
`FEED ADJUST: +XX.Xmm`	Print position fine adjustment value
`CUT POSITION ADJUST: +XX.Xmm`	Cut position fine adjustment value
`BACKFEED ADJUST: +XX.Xmm`	Back feed amount fine adjustment value
`PARAMETER: [PC-850][0]`	Character code selection and font "0" selection
`[9600][8][1][NONE][0]`	Baud rate, data length, stop bit length, parity, und transmission control
`[ON][AUTO][FEED][B0]`	Forward feed wait function, Control code, Feed key Function, and Euro code
`X-COORDINTE ADJUST: +XX.Xmm`	X-coordinate fine adjustment value
`SENSOR: TRANSMISSIVE [17]`	Sensor selection and sensitivity
`MEMORY: [192KB][XXXKB]`	memory capacity of the main PC board and optimal memory card (0,1,2,3,4,6,8)
`TTF AREA: [XXXKB][XXXKB]`	true type font storage area, main PC board and optional memory card
`EXT CHAR AREA: [XXXKB][XXXKB]`	Writable character storage area, main PC board and optional memory card
`BASIC AREA: [XXXKB][XXXKB]`	BASIC file storage area, main PC board and optional memory card
`PC SAVE AREA: [XXXKB][XXXKB]`	PC save storage area, main PC board and optional memory card
`INFORMATION: XXXXXXXXXXXXX`	Printed only if some information is stored in the flash ROM
`TOTAL FEED: X.XXKm`	Total feed distance

> ℹ The most important information on the status printout is the chosen sensor mode and its sensitivity.

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Appendix E   External winder TT420 Caddy (recommended option)

For material with a core of more than 38.1 mm (1.5 inch) and an external diameter of 127 mm (5 inch) we recommend the use of the external winder

1. Put the guides on the lower side of the printer in the holes (3) of the external winder (1).

1	External winder (Caddy)
2	Material holder for 3 inch cores
3	Guides
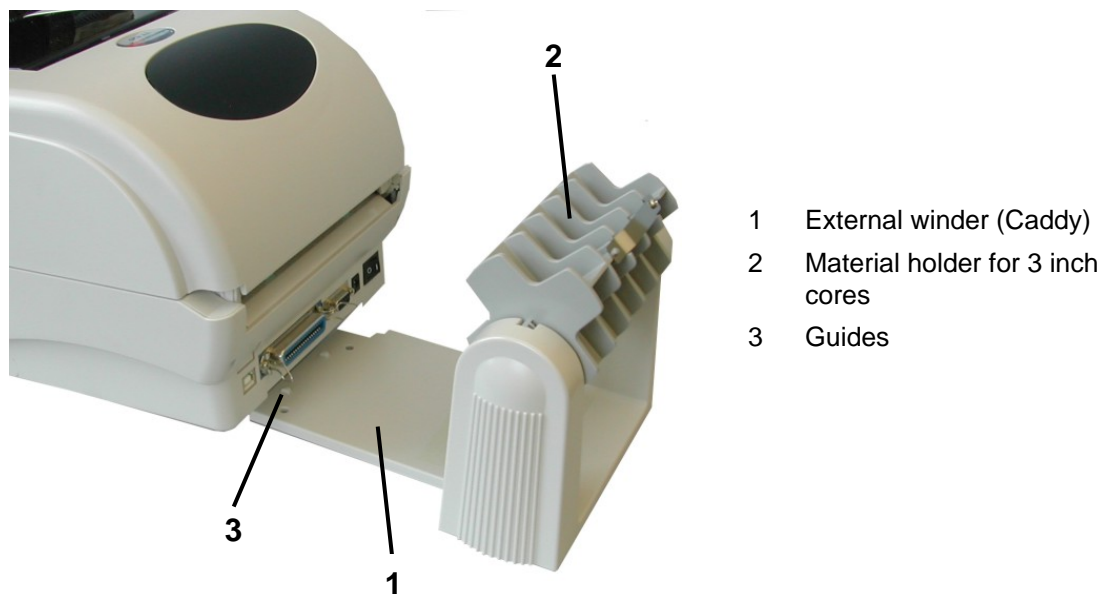
Image 18 TT420 Caddy

2. Remove green label spindle (Image 2, pos 8) from the interior of the printer.
3. Feed material between the rear material guides into the printer.
4. Centre rear material guide (Image 3, pos 6).
5. Continue with material loading as described in chapter 5.

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Image 19 TT420 with Caddy and large material roll

Appendix F   Ribbon recommendation

A thermal transfer printer can only deliver appropriate results if the right combination of material and ribbon is chosen. Crucial factors are label material, surface condition, type of ribbon (resin/wax mix), application criteria (resistance to smearing, scratching and chemicals), Printer speed and temperature.

The following table contains notes on adjustment of ribbons that are available via HellermannTyton dealers:

Ribbon	Material	Printer speed [mm/s]	Printer heat
TTDTHOUT	ShrinkTrak white and yellow	50	+3
	Helatag 799, 796, 823, 824, 829, 950, 320	100	+3
	Helatag 100, 860, 880, 890, 891, 892, 940, 896	100	+7
	TIPTAGVA	50	+3
TT932DOUT	Helatag 100, 932, 896	100	+1
TTRW	ShrinkTrak black	50	+3
TT822OUT8	ShrinkTrak black	50	+3

i If the printer pre-sets and the recommended ribbons are used, no manual settings are necessary.

Appendix G   Error messages

Problem	Cause	Solution
LED not illuminated	No power supply	Check power supply
	Power supply unit faulty	Change power supply unit
LED blinks green	The printer stays in PAUSE mode	Push FEED / PAUSE button, to return to ONLINE mode
LED shows red	The top cover is not closed.	Close top cover and press FEED / PAUSE button
	No ribbon inserted	Insert ribbon page 13)
LED blinks red	The material is empty	Insert new material
	The label sensor does not detect the material	Check sensor adjustment (page 18) and calibration (page 41)
	Paper jam	Remove material leftovers. check print head, print roller and sensor for dirt (page 36ff). Push FEED / PAUSE button
Print shows smears or blanks	The top cover is not closed properly	Open and close top cover again
	Print head dirty	Clean print head (page 36)
	Temperature too high	Reduce temperature via driver settings
	Unfavourable combination of material and ribbon	Use different ribbon. See recommendations (page 44)
	Print roller worn	Change print roller (page 39)
Print shows blanks and appears very bright	Temperature too low	Enlarge temperature via driver settings
	Unfavourable combination of material and ribbon	Use different ribbon. See recommendations (page 44)
	Print roller worn	Change print roller (page 39)
Printer prints only on every second label	Dimensions in software too large	Change dimension in software, e.g. label definition in TagPrint PRO.
Print shows vertical white lines	Print head dirty	Clean print head (page 36)
	Print head faulty (failure of individual heating points)	Change print head (page 37)
Printer does not transport the inserted ribbon	Thermal direct print is chosen via software	Change to thermal transfer printing in software
Printer prints sequence of characters instead of label format	Printer is still in Dump mode after status printout	End Dump mode by switching off and on the printer

Table 2 Troubleshooting