



GROUND-BREAKING PATENTED INNOVATION ROBOTAPE - ROBOTIC TAPE APPLICATOR



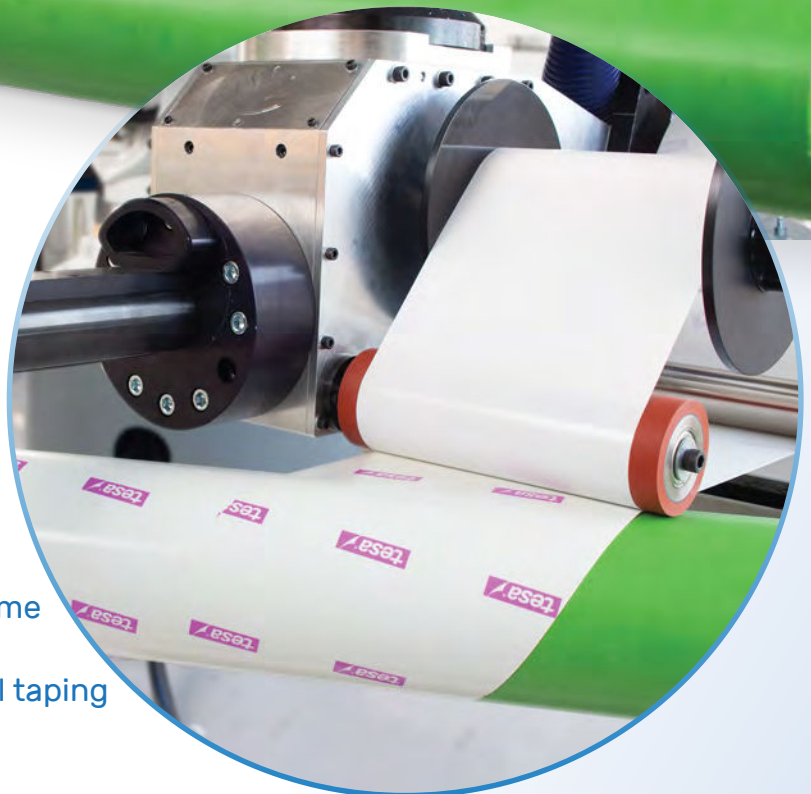
Fully automatic taping process

No more air bubbles and overlaps

Eliminate sleeve damage and cutting

Reduce operator related press downtime

Eliminate tape waste due to spiral taping



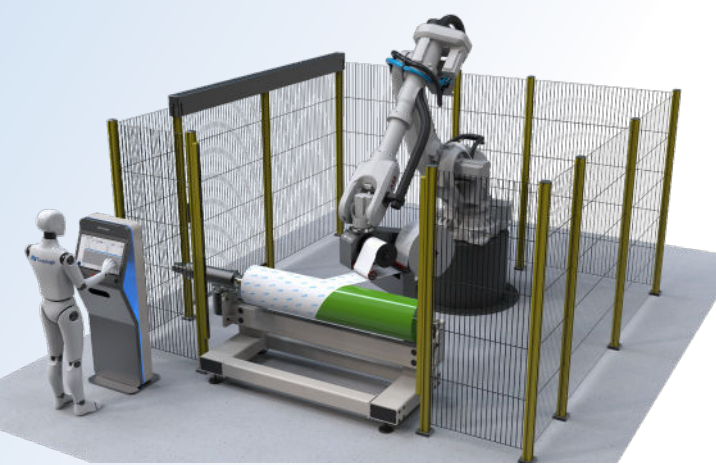
ROBOTAPE – ROBOTIC TAPE APPLICATOR

The RoboTAPE is AV Flexologic’s ground-breaking patented solution for applying tape onto sleeves **fully automatically**.

After 8 years of development, the **cutting-edge technology** of the RoboTAPE is a revolutionary solution for optimizing the prepress workflow and eliminate bottlenecks related to taping mistakes. The spiral taping eliminates any tape waste while the speed of taping is remarkable.

The RoboTAPE is consisted by a Robot that is equipped with a tape roller and a pressure roller. The robot is surrounded by a safety fence to protect the operator. An HMI console is placed outside the cell for creating/importing and selecting the jobs. XML files can be easily imported into the system while the manual job entry is very easy.

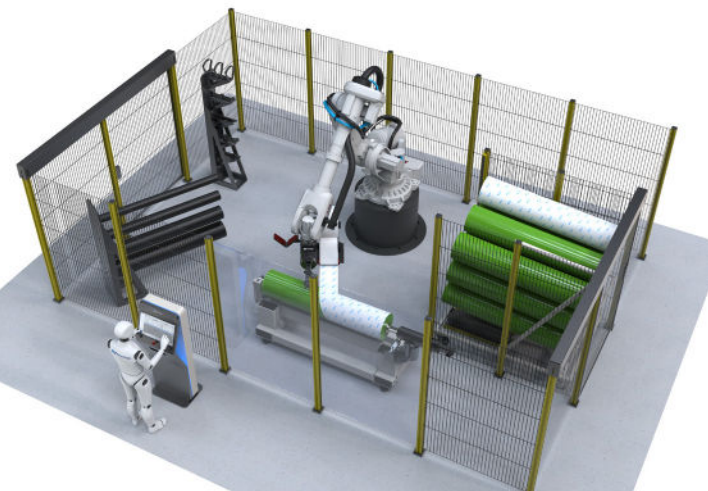
RoboTAPE concepts based on the level of automation



1 RoboTAPE

The RoboTAPE is the basic robotic solution for applying tape fully automatically. The operator loads and unloads the sleeves and the bridges. It includes the robot, a **safety fence** and the **HMI console**.

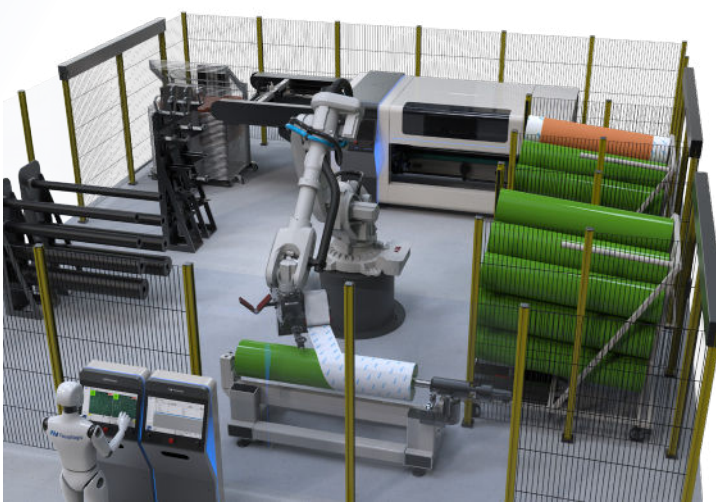
- ✓ Robotic tape application with zero tape waste and air bubbles
- ✓ Elimination of cutting on sleeves
 - Manual sleeve handling
 - Small operator dependency
 - Manual sleeve transfer to the mounting machine



2 RoboTAPE & RoboSLEEVE

The RoboTAPE can be advanced with the RoboSLEEVE function which allows the robot to also **handle safely** the sleeves and load/unload them. It also includes a **Tech Cart**, a **gripper tool station** and an **adapter station**.

- ✓ Robotic tape application with zero tape waste and air bubbles
- ✓ Elimination of cutting on sleeves
- ✓ Fully automatic sleeve handling. No sleeve damage
- ✓ Operator independent
 - Manual sleeve transfer to the mounting machine

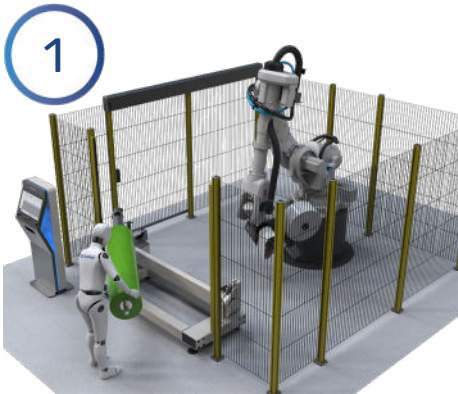


3 RoboCELL

The RoboCELL offers the complete robotization of the pre-press department. It includes the **RoboTAPE**, the **RoboSLEEVE**, the **FAMM 3.0**, and the **RoboPLATE**

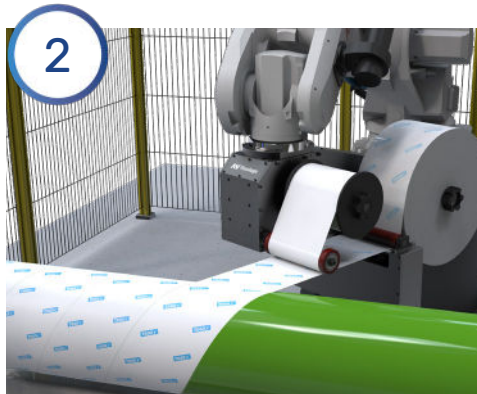
- ✓ Robotic tape application with zero tape waste and air bubbles
- ✓ Elimination of cutting on sleeves
- ✓ Fully automatic sleeve handling. No sleeve damage
- ✓ Operator independent
- ✓ Robotic sleeve transfer to the mounting machine

Robotic tape application in 3 steps



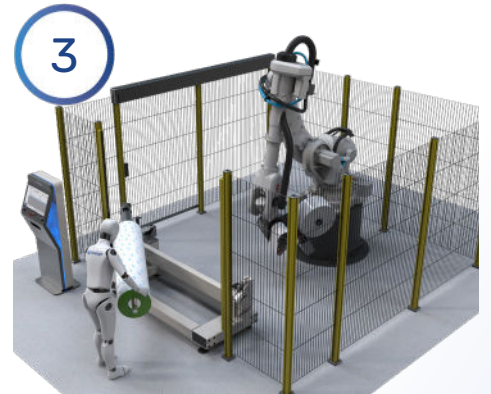
1 Load sleeve on taping station

The operator selects a job from the HMI console and loads the sleeve on the mandrel of the taping station.



2 Spiral tape application

The RoboTAPE applies the tape without any air bubbles and precisely. The spiral application eliminates tape waste.



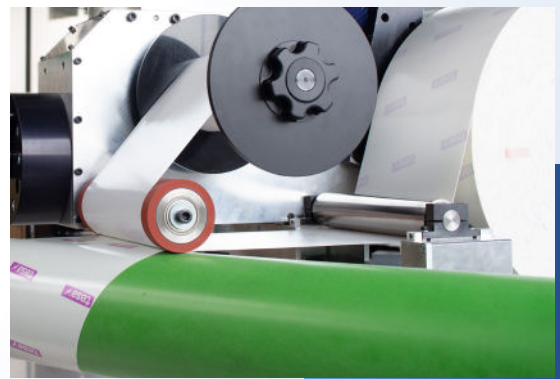
3 Unload taped sleeve

The tape application is completed in less than a minute. Then, the operator removes the sleeve and repeats the process.



Unique technology

The RoboTAPE is equipped with a tape roller of **250 meters** and a second roller that winds the back foil. The pressure roller touches the sleeve only at the beginning and the end of the process. During the taping process it stretches the tape which is applied without any air inclusions.



Elimination of bottlenecks



- Reduce operator dependency
- Reduce operator related press downtime



- Eliminate tape waste
- Save time and costs

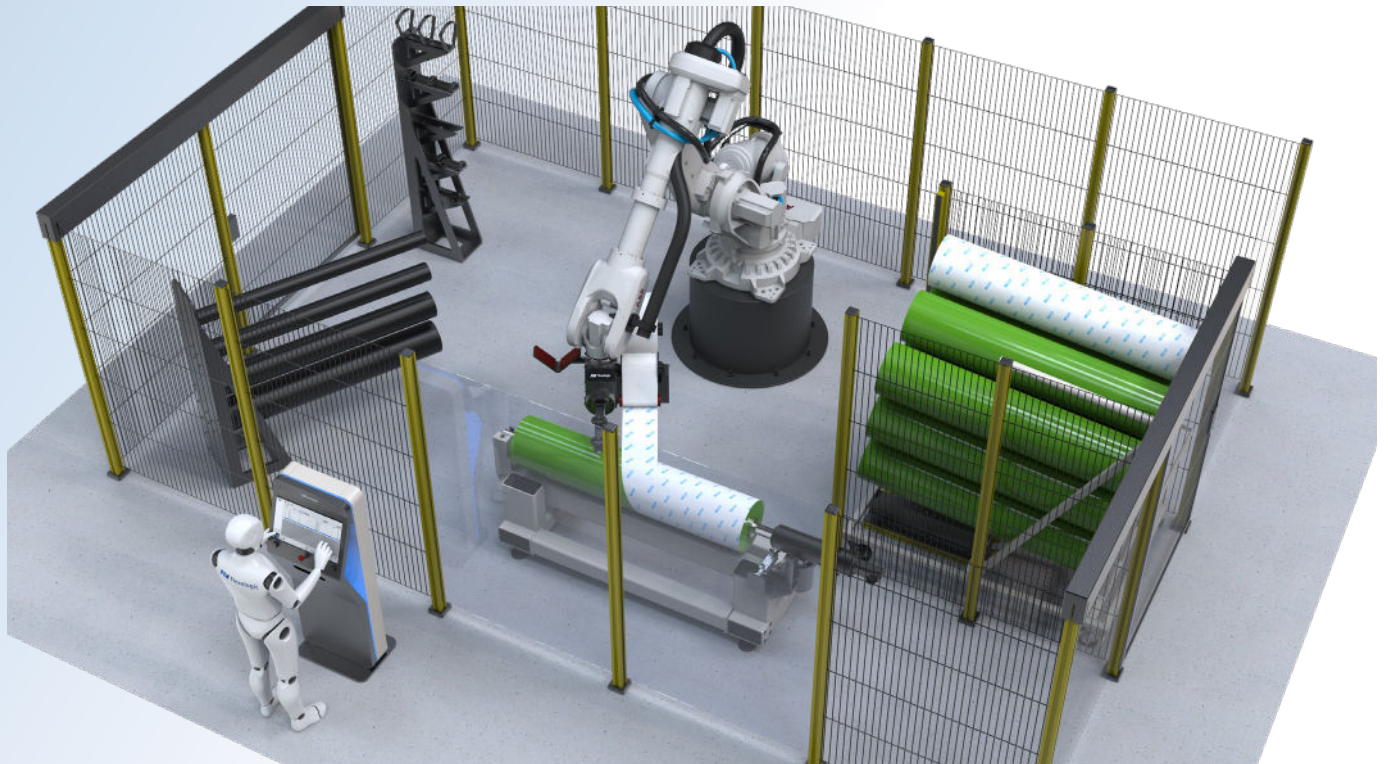


- Eliminate air bubbles
- No more re-taping



- Eliminate sleeve damage
- No more cutting on sleeves

RoboTAPE & RoboSLEEVE

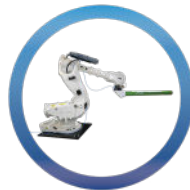


The RoboTAPE can be advanced with the RoboSLEEVE function which allows the robot not only to apply the tape but also **handle safely** the sleeves and load/unload them. The combination of the RoboTAPE and RoboSLEEVE allows a **fully automatic** taping process with multiple benefits.

Advantages of adding the RoboSLEEVE



Fully automatic tape application of a **8-color** job in **10 minutes**. 5 times faster than traditional taping



Robotic sleeve handling **eliminates sleeve damage** from dropping sleeves

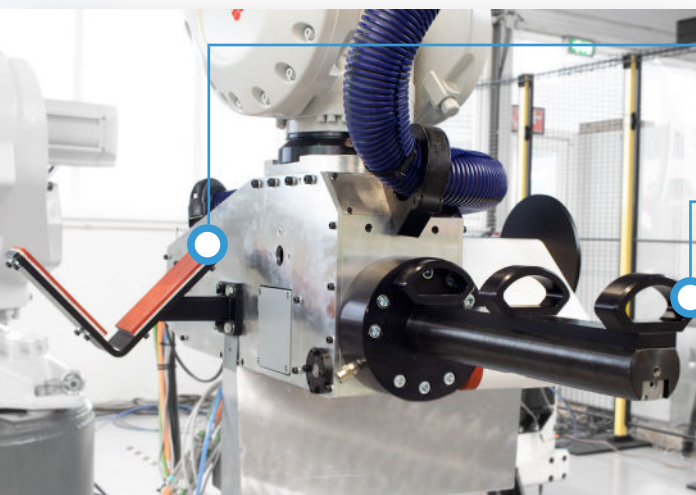


ROI in 12 months. The bigger the reduction of press downtime, the faster the ROI



Operator independent taping process. The operator is free to perform other tasks

Additional features



Push and pull unit

The push and pull unit helps in placing the adapter/sleeve on the taping station without damaging the sleeve.

Gripper tool

The gripper tool is an addition to the RoboTAPE which is used to grab the appropriate tool from the tool station based on the **inner diameter** of the bridge. The gripper tool is compatible with all stork sizes from 240 to 1240. In addition, the robot can handle an adapter/sleeve up to **50 kg**.

Fully automatic taping application process



Gripper tool station

1

Pick-up gripper tool

The gripper tool is grabbing the extension from the gripper tool station and heads towards the adapter station. This station is customized based on the different specifications of the sleeves and bridges.

By entering the specifications of the job or importing the XML files, the robot understands which tool is needed for the adapter and the sleeve. If the operator places the wrong sleeves in the cell, the robot will not proceed with the tape application.

Load adapter on taping station

The adapter station is customized based on the number of the adapters provided. The gripper tool gets into the adapter and grabs it gently.

Then, the robot transfers the adapter and loads it on the taping station mandrel. The mandrel opens/closes and locks automatically. The push and pull unit helps to push the bridge safely onto the mandrel.



2



Adapter station



Tech Cart

3

Load sleeve from the Tech Cart

The Tech Cart contains all the sleeves required for the selected job. Additional Tech Carts can be added on the cell for taping sleeves for more than one job.

The Tech Cart provides safe and easy sleeve transfer and it is locked on the docking station so that it remains stable throughout the process.

The gripper tool performs a tool change to grab a tool for a smaller inner diameter and following the same process, it picks-up and loads the sleeve on the adapter

4

Spiral tape application

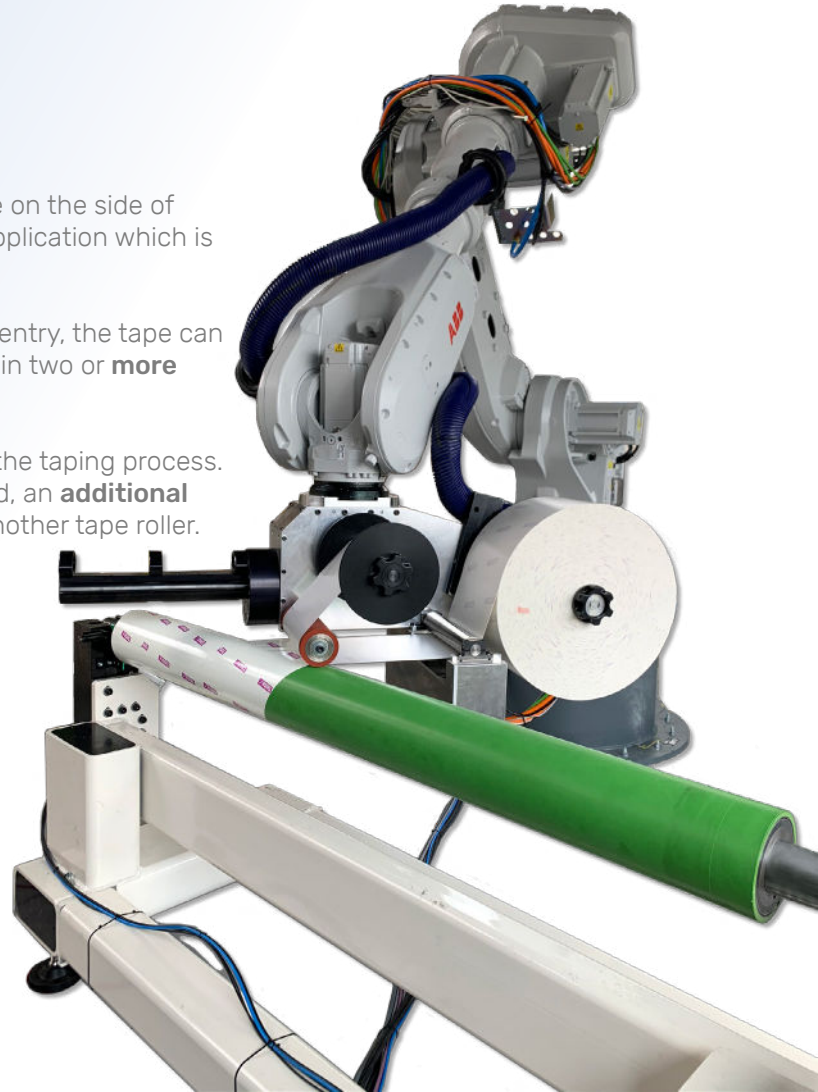
The RoboTAPE attaches the first piece of tape on the side of the sleeve and continues with a spiral tape application which is completed in **30 seconds**.

Based on the information provided in the job entry, the tape can be applied on the **full length** of the sleeve or in two or **more pieces**.

The hardness of the tape does not influence the taping process. If tapes with different hardnesses are required, an **additional tape tool** can be added, which will contain another tape roller.



- max. tape gap of 0.5mm
- tape tension up to 50N
- Tape width of 230 mm
- max. tape roll length of 250m



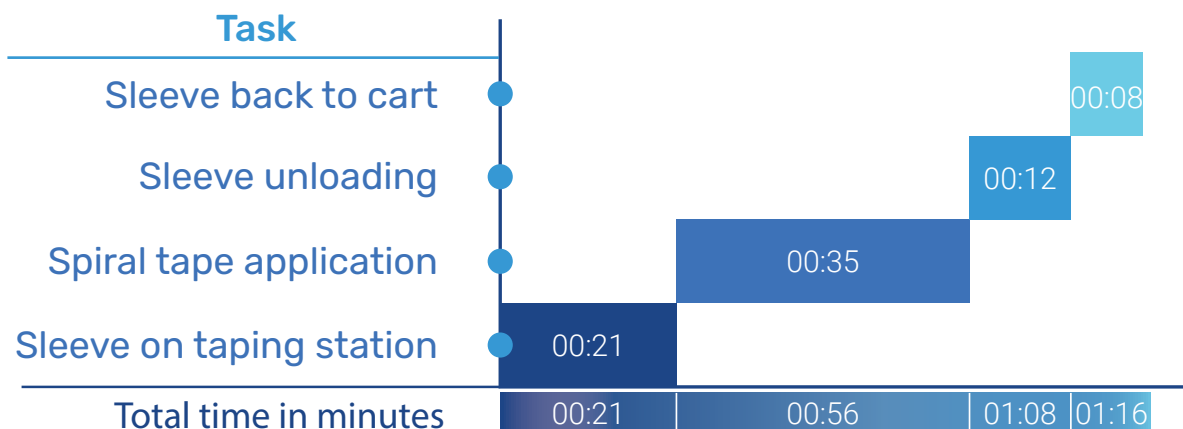
5

Place sleeve back to the Tech Cart

The Robot unloads the sleeve and places it back to the Tech Cart. Then, it picks up the second sleeve and follows the same process. During the taping process, the operator can mount/demount plates or complete other preparatory tasks.



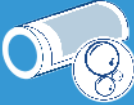





RoboTAPE-RoboSLEEVE taping time

The RoboTAPE applies the tape in 35 seconds including the initial cut, while the RoboSLEEVE handles the sleeves in **record time**. Before starting taping, the robot places an adapter on the taping station. After that, each sleeve is taped and loaded back to the Tech Cart in approximately 1 minute. Therefore, the sleeves for an **8-color job are taped in 10 minutes**.



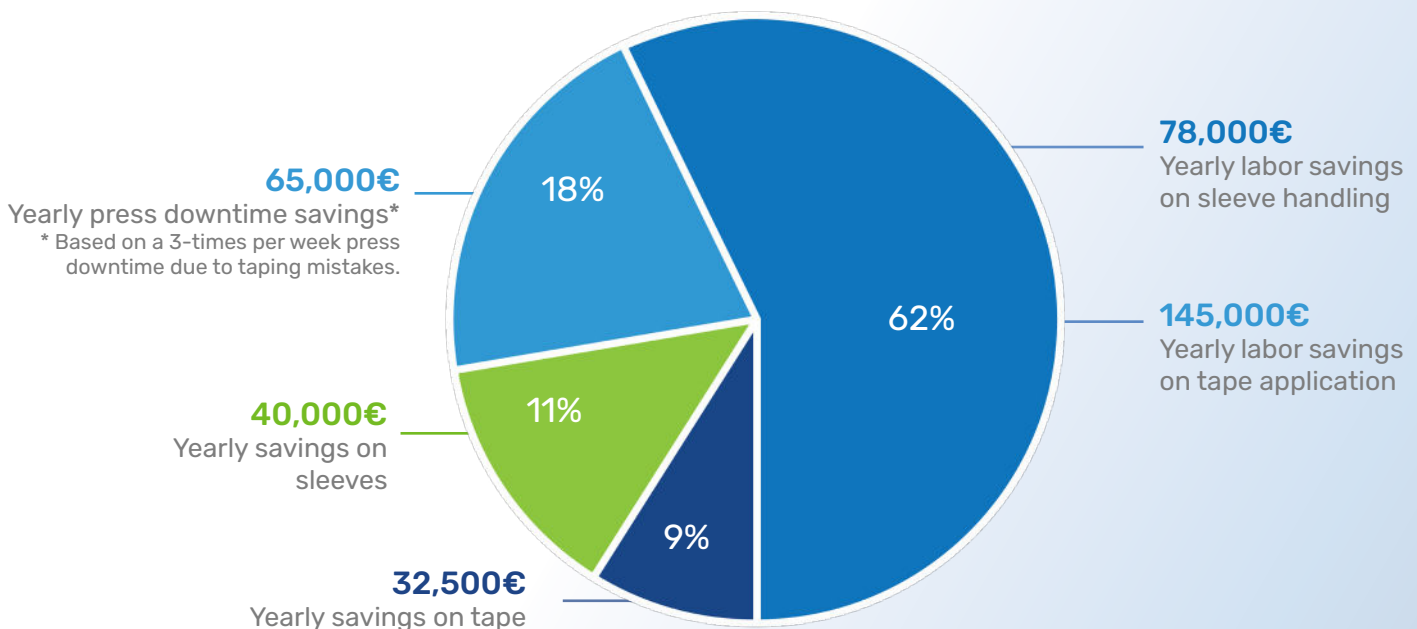
Typical business case

Every printer can benefit from investing in the RoboTAPE with the RoboSLEEVE. Below is presented a typical business case which encounters the savings on press downtime due to taping mistakes and the savings on tape, sleeves and labor costs.

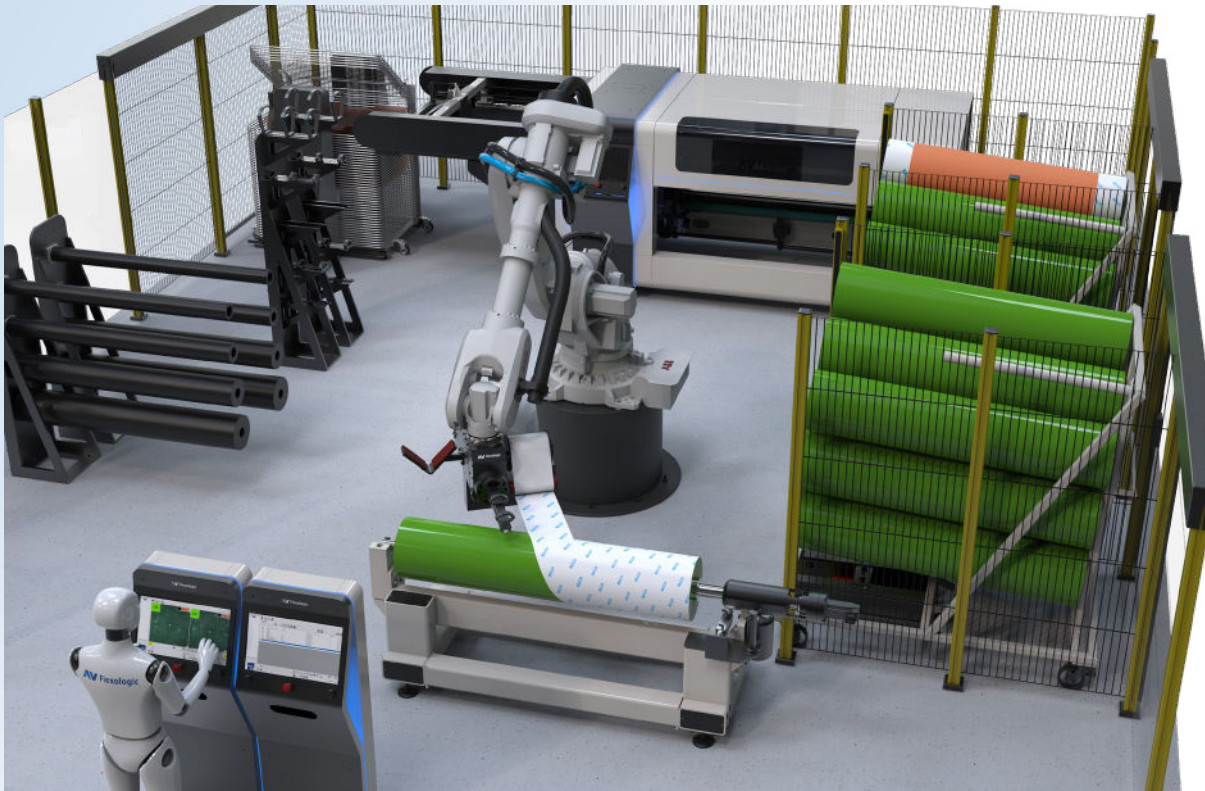
BOTTLENECK	MANUAL TAPING	ROBOTIC TAPING	ANNUAL SAVINGS
TAPE WASTE	15% TAPE WASTE 	0% TAPE WASTE 	SAVINGS ON TAPE 32,500€
PRESS DOWNTIME DUE TO TAPING MISTAKES	TAPING MISTAKES 	NO TAPING MISTAKES 	PRESS DOWNTIME SAVINGS 65,000€
LABOR COSTS & OPERATOR DEPENDENCY	OPERATORS 5 min/sleeve 	ROBOTAPE 30 sec/sleeve 	LABOR SAVINGS 225,000€
DAMAGED SLEEVES DUE TO MISHANDLING	SLEEVE DAMAGE 	NO SLEEVE DAMAGE 	SAVINGS ON SLEEVES 40,000€
TOTAL SAVINGS			362,500€

Annual savings

The estimated **ROI is 12 months**. After this period, any printer and converter will have great savings per year just by automating the taping process.



RoboCELL



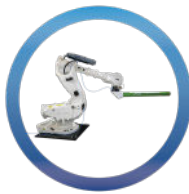
The RoboCELL offers the complete robotization of the prepress department. It provides robotic sleeve handling (**RoboSLEEVE**), robotic tape application (**RoboTAPE**), fully automatic mounting (**FAMM 3.0**) and fully automatic plate loading (**RoboPLATE**).

The RoboCELL covers the need for **fast, accurate and cost effective** tape application and mounting. With the RoboCELL, a printer can **triple its capacity** and reduce costs since the operator is no longer involved in the taping and mounting process.

RoboCELL upgrade advantages



The mounting and taping process is completed in 1/3 of the traditional process time because they happen **simultaneously**



Robotic sleeve handling **eliminates sleeve damage** from dropping sleeves



Operator independent prepress workflow. Further reduction of labor costs

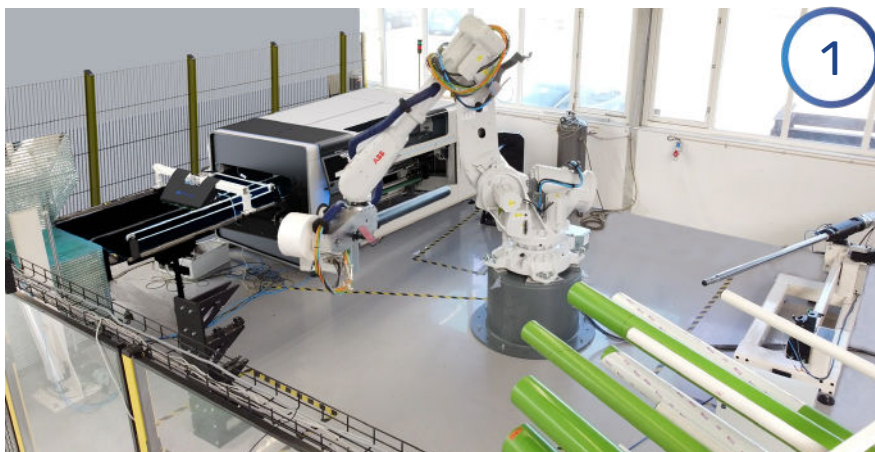


While the FAMM is mounting the plates onto the sleeve, the RoboTAPE is taping the next sleeve that will be loaded on the FAMM.

As a reference, a **10-color job** with 4 plates mounted on each sleeve is completed in less than **25 minutes without any operator interaction**.

With the traditional workflow, for the same job, only the mounting would take more than 1,5 hours and another operator would be needed for the tape application.

RoboCELL workflow



1

Robotic tape application

The workflow starts with the operator placing the Tech Cart and the plate loader in the cell. After selecting a job, he is free to perform other tasks.

The robot starts with grabbing a gripper tool and placing the adapter on the taping station. Then, the taping process is the same as the **RoboTAPE**.



2

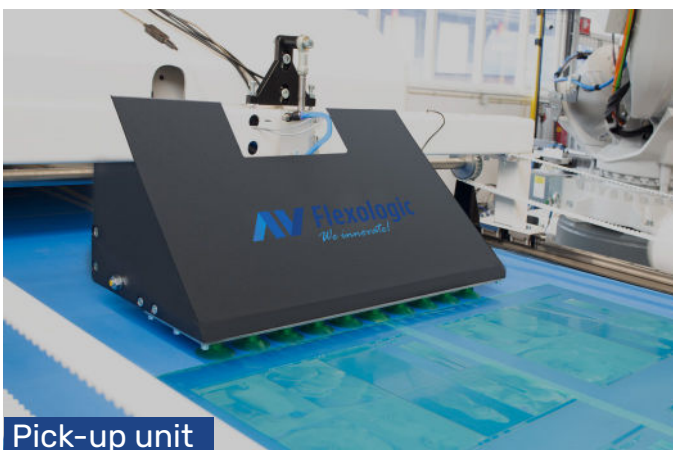
Sleeve is loaded on the FMM 3.0

When the first sleeve is taped, the robot transfers it and loads it on the FMM 3.0. Then, the robot continues with taping the second sleeve.

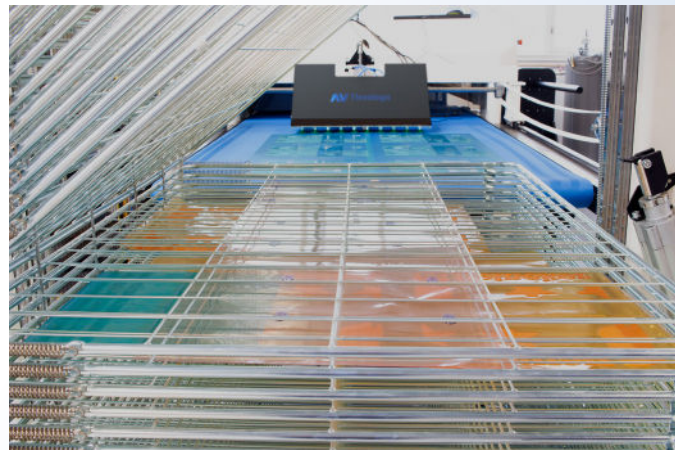
3

Fully automatic plate loading

The FMM 3.0 is connected with a plate trolley with 50 plates capacity. On the conveyor belt of the FMM 3.0 a pick-up unit is added, which picks-up the plates from the trolley and places them on the conveyor belt.



Pick-up unit



4

Fully automatic mounting

The FMM 3.0 mounts fully automatically the plates loaded on the conveyor belt with an incredible speed of **29 seconds** per plate. The plate positioning accuracy is the highest possible, **2 microns**. After mounting, the FMM 3.0 performs a quality check and stores that data in a pdf.

Then, the **mandrel unlocks automatically** and the robot can unload the sleeve and place it back on the Tech Cart.



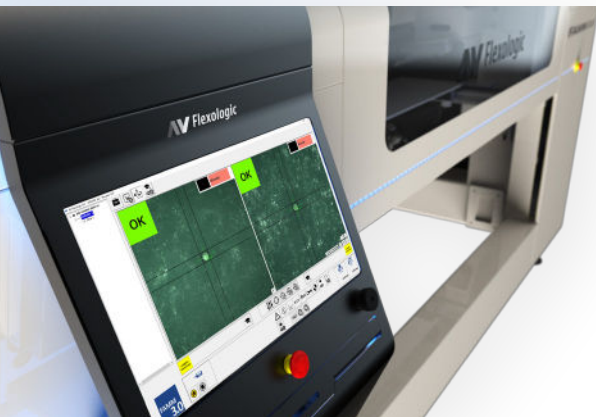
FMM 3.0

NEXT GENERATION FULLY AUTOMATIC FLEXO PLATE MOUNTER FAMM 3.0



The FAMM 3.0 is the next generation fully automatic mounter that continues to change the dynamics in mounting departments, a change that first started in 2005 with the ground-breaking technology of the original FAMM.

This machine has been developed for our customers who demand the **highest standards in quality** and an **increase** in their **capacity with fast changeovers**. The patented FAMM 3.0 is the ideal solution for **short and frequent job runs**. This machine has been completely redesigned during the past 2 years and it is equipped with an updated software which allows more synchronous movements.



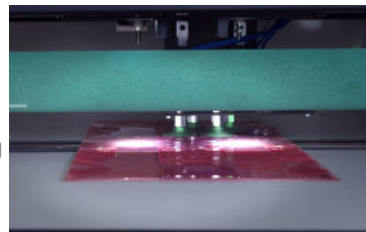
- ✓ Fully automatic positioning & mounting
- ✓ Unmatched positioning accuracy of **2 microns**
- ✓ **29 seconds** mounting speed/plate
- ✓ High speed robotic manipulator & linear motors
- ✓ **Quality check and reporting** after mounting

FAMM 3.0 Upgraded Features



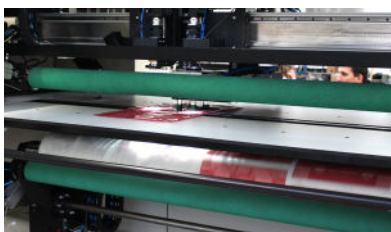
Linear motors (patent pending)

The Ultra HD cameras **move automatically** into position using the state of the art linear motors.



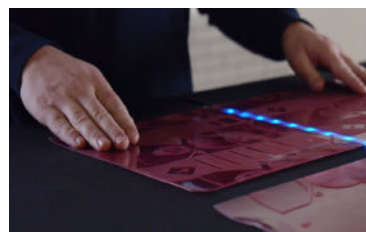
Pick-up unit

The completely re-designed pick-up unit transfers the plate from the conveyor belt to the mounting position.



Second pressure roller

The top pressure roller mounts half of the plate, then the second pressure roller mounts the rest of the plate, making **synchronous movements** for faster mounting



Conveyor back-light

The new split conveyor belt is able to identify the plate from the bottom and to read **QR codes**. The conveyor back light and laser line allows plates to be aligned easier.

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- Software updates
- 15% Discount on spare parts
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By sending your email, a ticket is automatically created in our system and we will support you in a short time

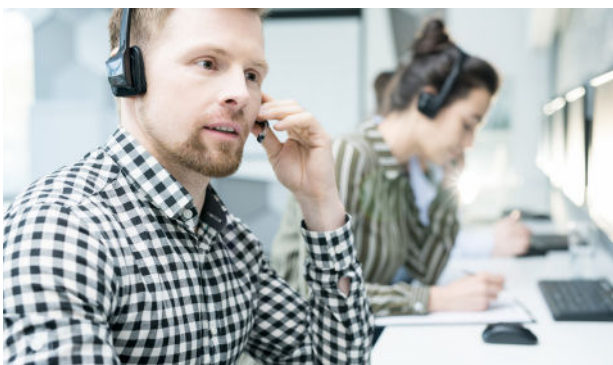


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