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UNIFORM TENSION LOADING TOOLKIT (UTLT)

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Title:

Uniform Tension Loading Toolkit (UTLT)

Description:

Uneven / wrong loading of material can be the source of many defect in print quality such as media skew. This statement is particularly true in the textile printing business, where the customers are led to print on thin paper or textile with challenging mechanical properties. In addition to that, the wider the print swath is, the more likely printing defects due to loading material are to happen. For all these reasons, 3.2m wide printer such as the Stitch S1000 have an increased risk of having print quality defect due to wrong loading of the media.

One of the defects that commonly affect operators in the printing industry is wrong media path due to uneven tension across the print swath. In fact, it can be challenging applying a uniform tension when attaching a media to a new core. The resulting defects observed is a media that doesn't advance on a straight line, either constantly deviating or swinging from one side to the other.

Up to this day, there is no way for the operator to accurately and systematically have an even tension across the print swath when he is attaching the media to the core. He had to trust his personal instinct and sensation when pulling each media portion that the is attaching. The only way to verify the media tension accuracy was to perform calibrations and checks, after loading the media, **which represents media waste and time**. The idea disclosed here consists in a toolbox integrated to the printer that would provide him a way to load the media with an even tension across the print swath **during media loading**.

For that, we suggest the integration of a new and very simplified "printing system" on the back of the printer (see Figure 1). The **new system** is represented in **red** and is extremely simple: a horizontal bar which vertical position would be variable in order to accommodate for different roll sizes, and a very simple pen with few nozzles and one color. This pen would be there to print directly on the roll when he gets on the spindle.

Backside of the printer

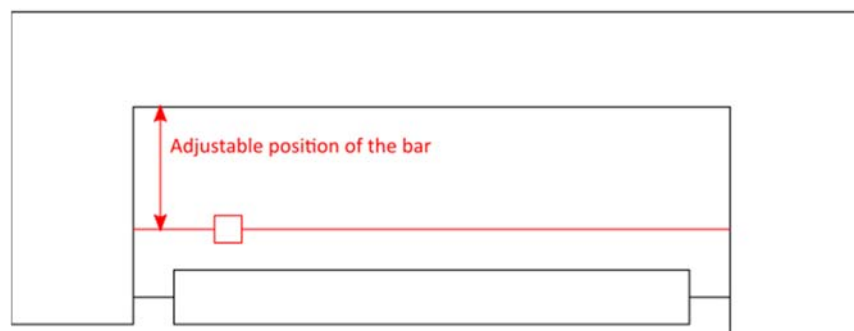


Figure 1

After the new printing system has printed a horizontal line on the roll, the operator would be free to unroll the roll to pass it through the printing pathway and read the frontside of the printer (see Figure 2). When attaching

the new media to the new core, he would have to attach (tape, staples, etc) following the line (in red) that has been printed on the media. That being done, the tension across the print swath would be uniform on the print swath.

Frontside of the printer

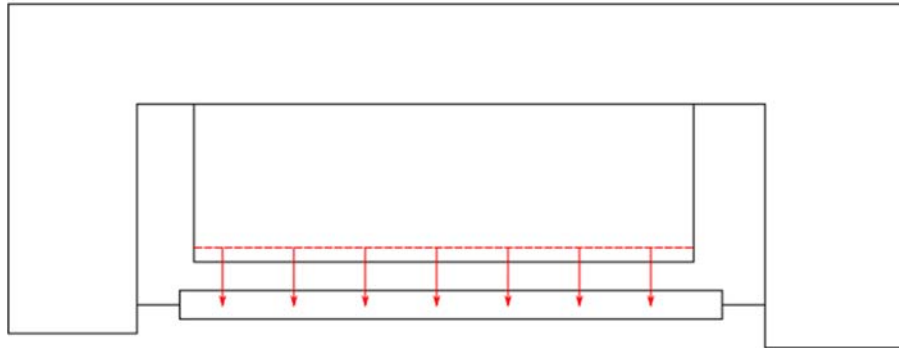


Figure 2

The key innovative point is

- For the first time, an accurate and protocolled way to **ensure a uniform tension during loading.**

This invention is useful as such, but its usage can be extended to many other situations. In fact, to the author knowledge, in Large Format Printing, it is the first time that we suggest a device that can print directly on the roll. The utility of such functionality could go much further than media tension check during loading.

Disclosed by Li Qian, Maxime Rosello, Bruno Da Silva from HP Inc.