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Carpet Sampling Made Simple ….

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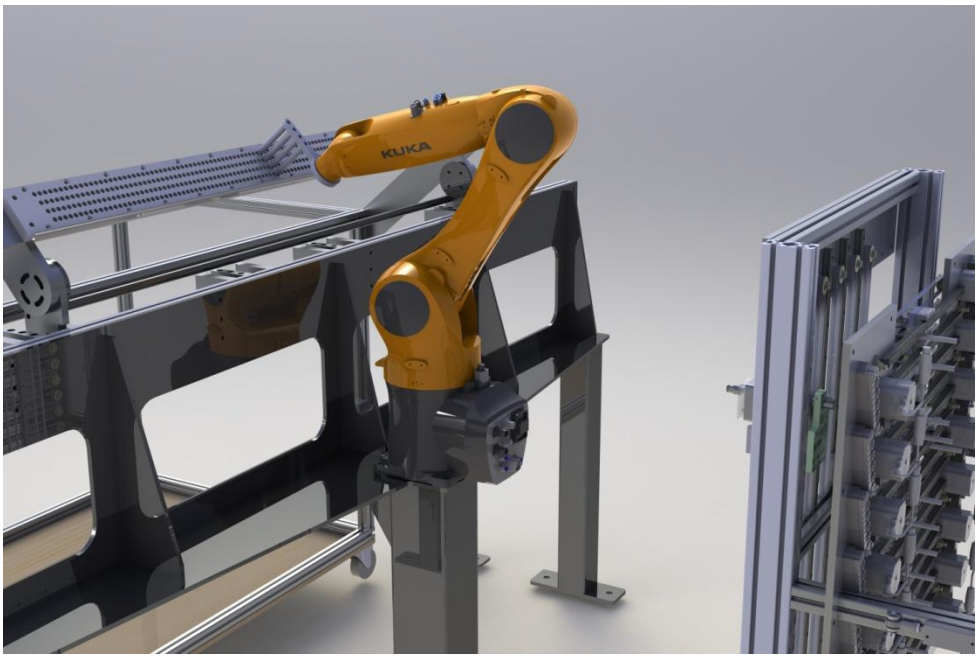
ROBOT BLOW IN CREEL



Modra's Sample Creel Loading Robot - Installed in USA December 2014

Overview

This is an automated sample creel loading system. It uses a pattern file which including thread up, pile height information and product construction. 4 yarns at a time are blown into the standard creels, from a creel of 16 possible packages. The yarn is metered in length at all positions, meaning the pattern, desired sample size and overhead are used to calculate a variable length yarn at each position. This has benefits in loading speed and minimizing yarn waste.
The yarn is loaded and a "tail" of yarn is left on the front of the creel to facilitate splicing to the sample tufting machine.

After an initial alignment to a particular mobile creel, setup involves
- Moving the creel into position, and the creel being locked in place
- fitting from 4 to 16 packages
- loading the pattern
- running

(Approx 10 minutes setup time)
The machine reports on "no yarn" conditions (empty package, or broken yarn)
The machine is guarded to the required standards.

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1. Robot
The machine includes a 6 axis robot. The robot is aligned to the "face" orientation and outer hole locations of each half of the creel blow in face. This means that the robot has an alignment specific to each creel. The robot can move quickly between positions.

2. Yarn Cutting
Yarn cutting is carried out between each location. This uses a proven cutting technique developed for our sample machines. Ceramic cutters on the Kibby machine cut at up to 5 times per second, and can last for months. Adapting these to the sample creel robotic system gives a reliable long lasting cutting solution.

3. Yarn Selection
The yarn selector is the heart of the system. It allows the selection of any of the 16 creel locations to any of the 4 yarn feed positions. It is controlled by 20 motors. This gives accurate and fast re-configuration to the arrangement dictated by the yarn thread up.

4. Yarn Feeding
Yarn feeding is by a 2 stage venturi system, with the cutter between the 2 stages. The yarn drive is by servo motor and a 4 of 16 creel selector feed system.

5. Creel
A 16 position creel is required, it is anticipated that the customer supplies this creel. It is suggested a 16x2 creel be used to speed up package change over.

6. Software
Software is included to read an .otf file of the sample required (open tuft conversion from NedGraphics) and generate the thread up and yarn lengths from the sample length.
The software will also generate a creel layout from the thread up.

Robots offer speed and flexibility in machine design. Modra Technology is utilizing robots in several new developments.

A robotic creel loading system has been developed for loading yarn into mobile creels. This machine analyses thread up information from the pattern, selects yarn from one of up to 16 packages and dispenses yarn at a measured length into the mobile creel. The mobile creel is then used to run samples on narrow width tufting machines.

Watch the VIDEO of the sample creel robot in action

Please contact us to discuss further how robots can help you by e-mailing directly to sales@modra.com.au or via one of our international AGENTS.