

Robotic Wire Weaving Tool



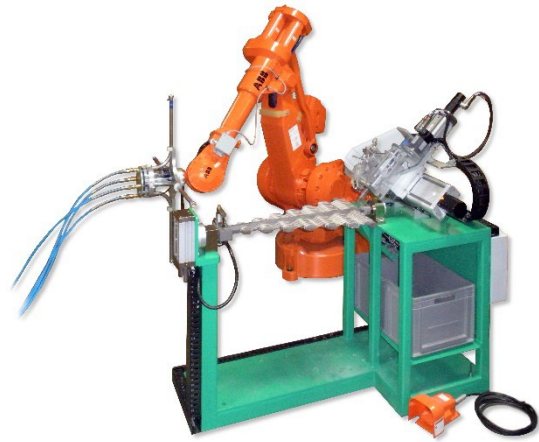
Challenge

An industrial manufacturing client needed an automated system to wrap wires around cast iron metal disks. The existing process required two workers and more than 1.5 days to complete. The client wanted to reduce labor costs, maintain quality, and produce at least five discs per day to account for future growth in production volume.

Solution

The wire weaving tool uses a six-axis robot to weave special alloy wires over a client-provided armature. The robot is fitted with a custom end effector designed to accommodate up to four different wire types drawn from bulk supplies installed outside of the machine enclosure.

The operator manually loads an armature into the rotator assembly on the tool, and then exits the enclosure to activate a cycle start command at the user interface. The weaving process is entirely automated, such that individual wire types are selected, installed, twist-spliced, and then precisely trimmed at each stage of the installation process. Progress is tracked within the software, with the client armature auto-rotated during the process.



Simple on-screen commands enable the operator to interrupt the robot at any time during the process, and then quickly resume automated weaving from the last logic move in the program. A chain-link metal guard with light-curtain entry point guards moving machinery, and a floor-scanning laser prevents machine moves while the operator occupies the enclosure. Within the enclosure, a foot-operated safety switch must be activated to release the pneumatic clamp holding the current armature in the tool.

Result

The automated tool weaves and splices four wire types over the armature in **less than 15 minutes**, and requires only one person to operate, **cutting the client's labor costs in half**.

About DWFritz Automation

Established in 1973, DWFritz Automation provides world-class build-to-print manufacturing capabilities to clients, in addition to designing, building, and supporting engineered-to-order automation systems and high-speed, non-contact metrology products.

