

ORDER-SPECIFIC CABLE PROCESSING IN A SINGLE PRODUCTION CYCLE

One of the leading globally active American manufacturers of communication cables includes semi-rigid coaxial cables in its data transfer applications. These were previously processed manually and then bundled in accordance with individual orders. To better satisfy the high quality standards of precise repeatability and tolerances, as well as to increase production efficiency and precision, the company turned to Metzner Maschinenbau GmbH with the task of developing a production line to carry out all the processing stages fully automatically.

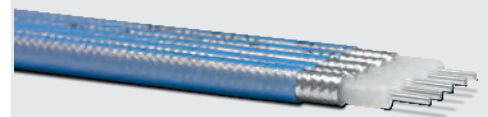
The cable manufacturer placed particular importance on matching processing and subsequent bundling to individual orders. The solution developed by Metzner affords the customer an almost unlimited number of storage locations for the production orders. The production line always processes all the cables from one order before the next batch is sequenced. The cables, which often have different lengths, are automatically tied together with cable ties. Up to 54 cables can be bundled into 17 freely selected positions.

In addition, the company wanted to achieve shorter cycle times, together with improved repeatability when processing its semi-rigid cables.

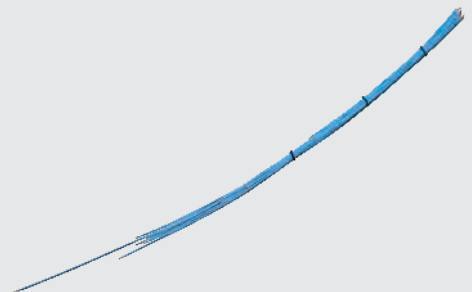
The manufacturing line designed by Metzner's development team automatically performs the following process stages, which were previously mostly carried out by hand:

The cable is unwound by means of a drum dereeler and fed to a straightening station, where residual bends are removed. Then, an ink-jet printer marks both ends with the identity of the plugs that are subsequently to be attached and prints a code in the center which, among other things, includes the length of the cable.

Next, the rotary cutting module makes the cuts which are necessary to remove the insulation and the saw unit cuts the cable to length in the



The processed semi-rigid cables are within the outer cover removal length tolerance range ± 0.2 mm



All cables from an order are bundled automatically

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range 150 - 2,500 mm, whilst maintaining the required tolerance (± 0.7 mm). The result is a clean, straight cut surface.

A further cutting module removes the outer cover and insulation in accordance with the customer's requirements. The length of the outer cover removal is within a tolerance range of ± 0.2 mm. A gripper transports the finish-processed material to a drop door, through which the cable slides into a collecting container. As soon as an order is completed, the cables in the container are automatically bundled and are available for removal. The machine can continue production without interruption, independent of these latter stages.

The machine is equipped with additional splice recognition, which detects any joints between two cable strands within a single cable roll. When such a joint is detected, the machine stops automatically to allow the operator to cut it out manually and re-thread the cable into the machine. An integrated linear accumulator provides a buffer to compensate for variations in processing demands. A further benefit of the fully automated production line is the fact that the operator is able totally to concentrate attention on process supervision and quality control.



The line can bundle up to 54 cables on 17 freely selected positions.

Gerhard Rauch, CEO of Metzner Maschinenbau is delighted that his company was able to gain a repeat order for a large plant from the US-based cable manufacturer. „We are grateful for the trust once again placed in us by the customer. We view this as a confirmation that we are well able to find customer-specific and innovative solutions that add real value.“, says Gerhard Rauch.



The cable processing line

SIGNIFICANT IMPROVEMENTS

- Konstant hohe Produktqualität und Steigerung der Produktivität durch Automation
- Geringere Personalkosten durch automatische Bearbeitung
- Platzeinsparung durch Einsatz einer Fertigungsanlage anstelle mehrerer Handarbeitsplätze
- Integrierte Kabelbeschriftung zur Vorbereitung weiterer Verarbeitungsschritte wie z.B. Steckermontage
- Auftragsbezogene Kabelbearbeitung und -bündelung