LINES FOR STABLE FREQUENCIES

Problem-free processing of high-frequency coaxial cables with corrugated sheaths is not possible with a commercially available series machine. For this reason, Metzner developed a groundbreaking method for the fully automatic processing of these cables for the company Rosenberger.

Coaxial cables are used everywhere where high-frequency signals are transmitted or where signals are to be shielded against interference. Coaxial cables with corrugated sheaths, a type of cable with increasing sales potential, is especially used in the area of broadband cellular phone networks (UMTS).

Sophisticated processing

The processing of a coaxial cable with corrugated sheath is sophisticated and can't be done with a series machine alone. For this reason, Metzner developed a new, groundbreaking processing method to guarantee the problem-free processing of coaxial cables with corrugated sheaths for Rosenberger, a worldwide leading company in the broad field of high-frequency technology.

The preconditions

The system must be able to process coaxial cables with corrugated sheaths with an outer diameter of 10 mm to 28 mm. The processing here includes the precise cutting of the outer sheath to the inner conductor, as well as pulling off the stripped part. Also, the system must be capable to apply window stripping on the outer sheath of the coaxial cable. A final cleaning of the cable (brushing) prevents copper chips from depositing.

The implementation

The starting point of the fully automatic process is the material-specific aligning station for aligning the unusually rigid cables, which are unwound from coils having a large

The Facts

Customer profile

Rosenberger is a medium-sized industrial company with 2500 employees. Together with its partner companies throughout the world, Rosenberger is among the technologically leading suppliers in the area of high-frequency coaxial plug connectors, and also plays a key role in other high-tech sectors, such as in telecommunications, automobile electronics or medical electronics.

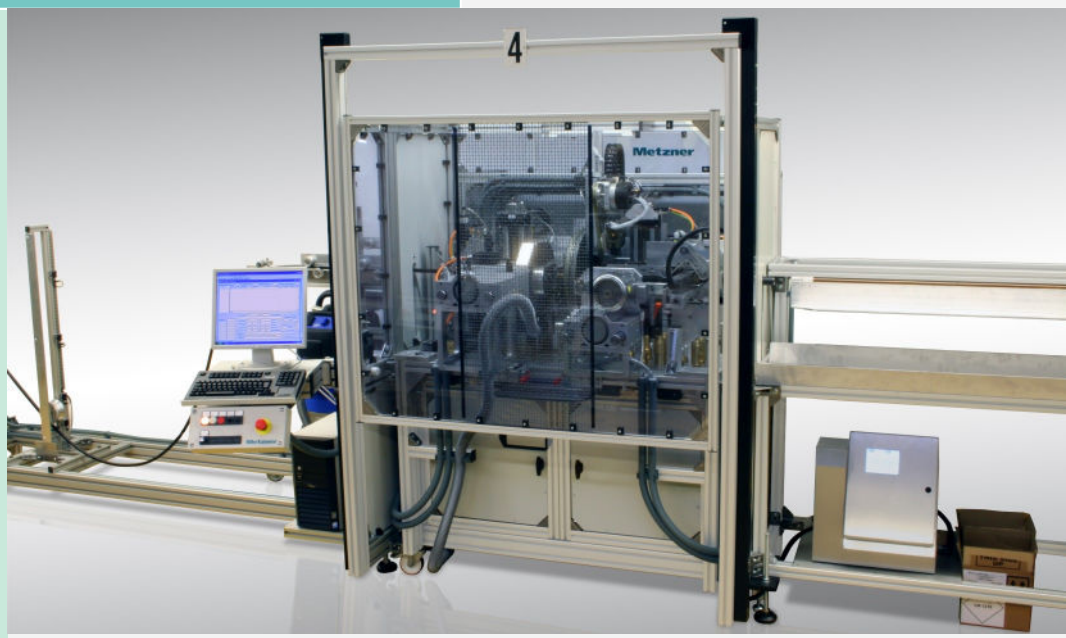
Requirement

In addition to numerous technical specifications, the following main requirements had to be met:

- Processing of coaxial cables with corrugated sheaths having diameters from 10 to 28 mm
- Cutting into the outer sheath to the inner conductor and pulling off the stripped part
- Window stripping of the outer cable
- Cleaning the inner conductor and dielectric to avoid copper chip deposits
- Design, realization and commissioning in less than four months

Benefit

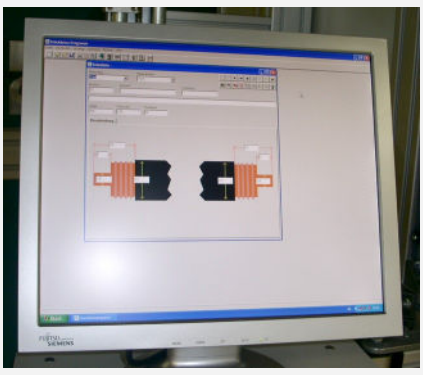
With the fully automatic functionality of the Metzner system, Rosenberger achieves processing results with process-safe quality and precision and can also lower processing costs thanks to the elimination of manual work steps.



diameter. The completely straight alignment of the cables is an important precondition for the following processing steps, as well as for later further processing and the end use.

Numerous attempts before the breakthrough

Metzner uses a newly developed stripping head at the heart of this processing method, which combines a rotary cut with powerful clamping and simultaneous turning of the material. Numerous attempts in the Metzner application lab pointed the way to this breakthrough. This was the only way the highly precise, multi-stage radial cut through the various material layers works in combination with the complete stripping and touchless exposure of the inner conductor. The quality control under the microscope confirms the successful processing without any scratches, pressure or scrape marks.



Precision work

Metzner uses a sawing module for cutting. The saw cut guarantees the required deformation-free separation operation, while the conventional use of knives on the solid inner conductors always leads to deformation. After cutting and stripping, the system cleans and refines the processed cable, and prevents the depositing of copper chips this way. In addition to the high processing quality, the system also ensures especially high precision: the total length (± 0.5%) and the processing position are kept within a precision of ± 0.5% or 0.5 mm.

Everything in one run-through

The customized system is able to take care of all processing steps — longitudinal slitting, sawing off, cutting in with a circumferential cut, stripping, brushing and depositing — in one run-through. In addition, the automatic ink-jet printing is also done during this run-through.

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