

Quality monitoring for meeting tough requirements



Wire processors face tougher and tougher requirements for the manufacturing, testing and assessment of crimped connections, especially from the automotive industry. That is why Komax continues developing and refining its products on an ongoing basis. Customers benefit because they can satisfy new requirements with ease, for instance the VW crimp quality standard.

Mirko Bulinsky Product Manager

Quality monitoring, compliance with standards and the archiving of quality data are not new concepts in the wire processing industry. Over the course of their development, Komax fully automatic crimping machines have seen many milestones that document our efforts to improve quality constantly:

- › Integrated crimp height measurement
- › Integrated insulation-crimp height measurement
- › Integrated pull-off force measurement
- › Material verification with barcode scanner
- › Automatic subsequent production of defective articles
- › Seal position monitoring
- › Material change detection
- › Mandatory crimp height measurement after a certain number of crimps
- › Crimp force analyzer (CFA)
- › Mandatory teaching and verification in response to a demand from the machine
- › Cutting of projecting strand
- › Recording of quality and statistical feedback data

The new crimp force analyzer: CFA+

A big news item in recent times was the introduction of the CFA+, an advance on the CFA crimp force analyzer. With the help of the CFA+, users can prevent a host of setup errors such as loading an incorrect wire. The system itself recognizes if the user would accept a contact with crimped insulation as a CFA teaching contact, for example. In addition, the quality data for the crimp process is expressed in meaningful terms such as «5% lack of copper allowed» or «two missing strand wires». The standards such as the VW crimp quality standard often express the required quality in this manner. Another plus is improved monitoring of the crimp process for small-gage wires. And yet another plus: With the help of the CFA+, the user can reduce the good-called-bad rate thanks to improved statistical functions.

Integration of micrograph creation

One trend that is definitely emerging is that the micrograph lab is getting closer and closer to the cutting room. Many manufacturers now offer mobile labs that allow you to create a micrograph in a matter of minutes and then to assess it. This regular assessment of crimping is also a quality requirements contained in an increasing number of standards. That is why there is a new feature in TopWin, the Komax software for fully automatic crimping machines, to support the production and handling of micrographs. It can be described as follows:

- › Whenever a new terminal/cable combination is loaded, TopWin requests that a micrograph be produced.
- › If material change monitoring is installed, this request is also issued with every change of the crimp roller wire.
- › The machine automatically produces a test sample, for which the user can enter an ID number.
- › This ID number is reported in the feedback data for the control center so the article, job and batch can be traced.

Assessment of stripping quality

During stripping, damaged or cut-off strand is often not accepted. For instance, one standard has the following requirement: The individual strand wires are not allowed to be scratched or otherwise damaged during stripping. To evaluate this, TopWin makes available a new function «assessment of stripping quality».

- > At the user's request, the machine produces an article only with cable but without parts in sample operating mode.
- > Just behind the specified stripping, the machine strips again to allow the underlying copper conductor to be examined.

With the help of this sample cable, the user can adjust and test the stripping process perfectly.

Further innovations to increase quality

- > Cutting of pulled strands. What is new here is that this process parameter can now be set not only for each cable but also for each terminal.
- > To minimize the influence of the insulation crimp in the pull-off force measurement, a cut is made in the insulation just after the terminal. As a result, no force is transferred to the insulation due to the crimping.

