



Automated winding of fibre cables

In the glass fibre industry, there is an increasing demand for automated machinery intended for winding fibre-optic cables onto cable drums for storage and transportation. The ideal winding machine evenly winds the cable neither too tight nor too loose. This requires adequate real-time information from a sensor which enables to control the motion components of the machine. The advantages of this machine include less damage-related costs, a consistent cable quantity on each drum, and a clearly better quality due to neat windings.

Point triangulation sensors can scan the cable windings while permanently traversing over them. However, this reduces the possible winding speed and considerably increases the machine complexity.

The innovative solution for the glass fibre industry is the scanCONTROL 2950-100 2D/3D laser line scanner. The laser line projected by the sensor allows for multiple windings to be measured simultaneously. The sensor provides directly calibrated and highly-precise measurement data. The displacement from the scanCONTROL to the drum is also considered in the client software, enabling to determine the exact winding positions in the room at any time. These data are used by the software for movement control in the closed loop.

Advantages

- Calibrated measured values
- High sampling rate
- Independent from external lighting conditions
- Direct output of 2D profiles into the client software

Requirements for the measurement system

- Resolution (x-axis): 80 μ m
- Resolution (z-axis): 12 μ m
- Scan rate: up to 300 profiles/sec
- Line speed: up to 5m/sec

Ambient conditions

- Clean production environment
- Room temperature

System design

- scanCONTROL 2950-100

