

WINDING HEAD FOR SPECIAL YARNS

Project manager:
Authority responsible
for the project:
Project number:

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Initial situation

Special fibres, such as glass fibres, ceramic fibres, carbon fibres, etc., show a special behaviour in respect of drawing, bending, stretching and rubbing so that their processing behaviour partly differs from that of polyester or polyamide fibres.

The winding process necessary to create a spinning bobbin is particularly difficult to control and hardly allows speeds over 250 m/min.

Research target

Fundamental investigations were carried out to study the behaviour of special yarns in the winding process.

The research target was to improve the winding process both by theoretical considerations and practical tests so that the winding-up speed for special yarns and filaments can be increased without impairing the quality. The obtainable weight per bobbin was to be increased with stable bobbin building.

Research result

The rubbing behaviour of glass fibres in dependence on the guide radii on the guide elements, the yarn tension and the type of rubbing were studied on a test stand.

The tube holder and to-and-fro motion device of an existing winding head were modified. Furthermore, a compensating to-and-fro motion device was developed by which higher winding speeds and a reduction in the variations of yarn tensile strength were achieved.

Appropriate winding tests with different materials were performed.

Application and economic advantages

The knowledge gained from the research task is evaluated in co-operation with the companies Barmag-Spinnzwirn and Glasseiden GmbH Oschatz. The subassemblies of tube holder and compensating to-and-fro motion device should be further investigated. They should be revised in design and adapted to various winder concepts.

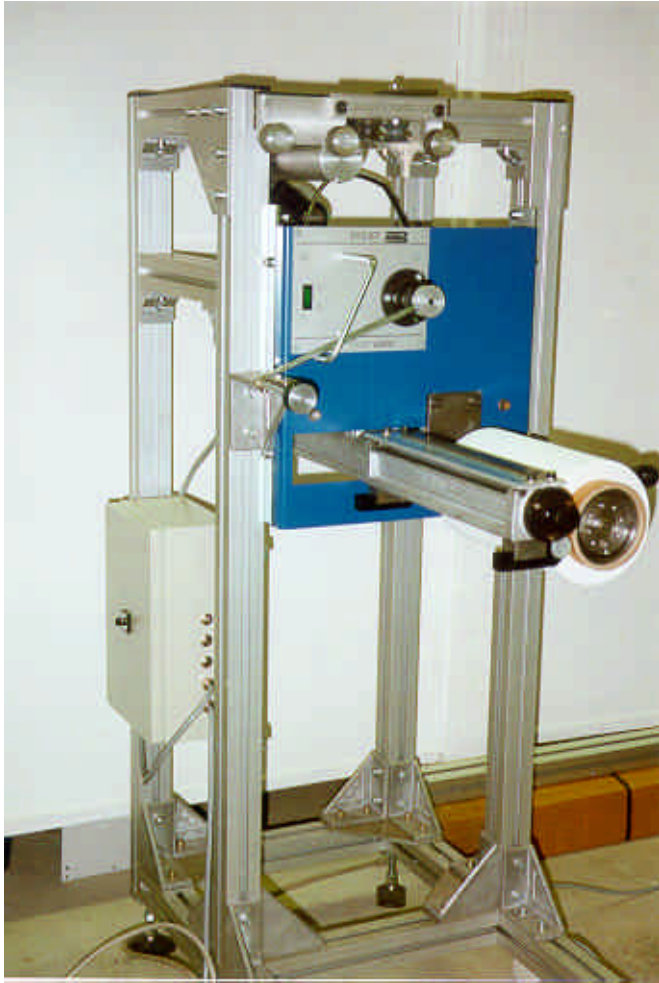


Fig. 1: Winding head

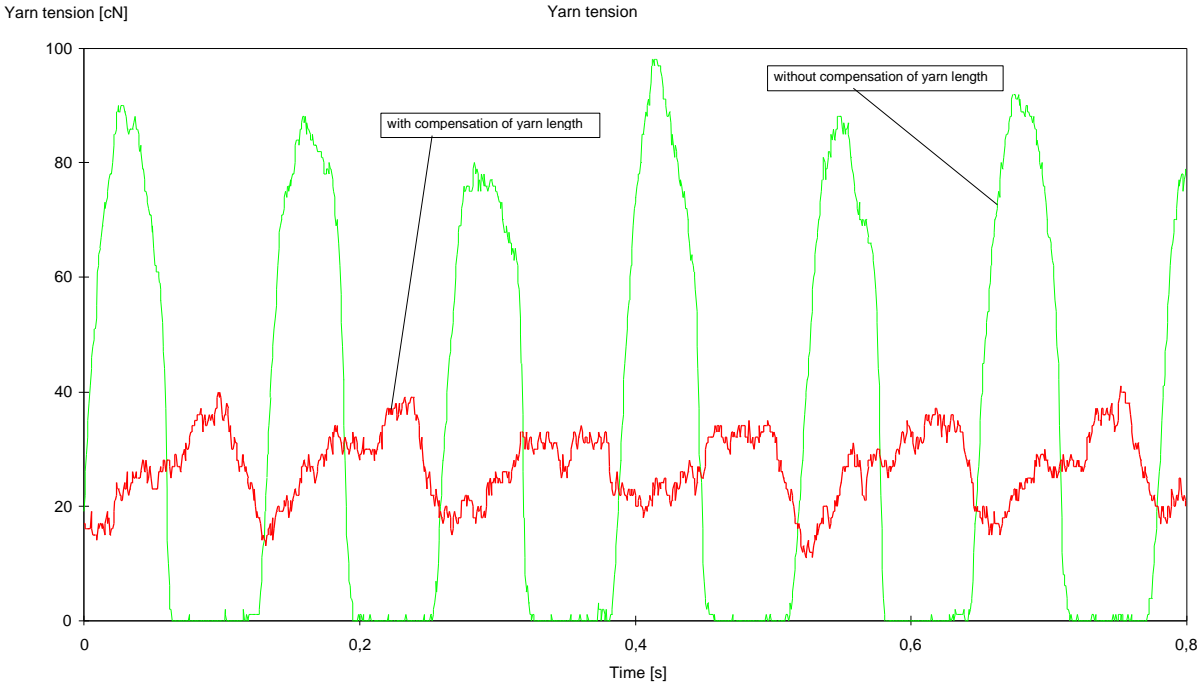


Fig. 2: Thread tension with and without compensating to-and-fro motion device