

MODIFICATION OF THE WEFT LAYING PRINCIPLE

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Authority responsible
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Project number: 429/94

Initial situation

The production of textile fabrics by warp knitting according to the principle of piercing is a highly productive method. Sheets of yarns, fibre webs and base structures of all types of materials are fed and bonded by means of an additional thread. This stitch-bonding technique allows to make a large range of textile products. Owing to their sturdy design, MALIMO stitch-bonding machines are highly suitable for the production of industrial textiles. A very important factor is the consolidation of the textile fabric with reinforcement threads (weft threads) incorporated in a direction transverse to the processing direction. This can be achieved by a large variety of possibilities.

Research target

It was the aim of the research project to modify the weft laying principles for various stitch-bonding machine to enable the development of new fabric structures. As a result, solutions for the creation of parallel weft thread layers with low loads on the yarn had to be found. Special investigations were carried out in respect of such critical factors as different yarn materials, technological parameters, the driving concept, the optimal point of time for the transfer of the sheet of yarn, the construction and testing of experimental machines. The task was to find solutions that could be applied to production within a short period of time.

Research result

Some principles of weft thread laying, both useful and possible, were compiled which are either being implemented or not yet existing. Investigations were carried out in respect of the modification of the weft thread laying principles on MALIMO stitch-bonding machines. It was possible to utilize one basic principle, namely slow racking at filling hook chain speed, for three different machine types.

Application and economic advantages

Within the duration of the project, several experimental machines were developed to which Cetex Chemnitzer Textilmaschinenentwicklung gGmbH made an important contribution. Solutions were prepared for two MALIMO stitch-bonding machines and for a test stand for diagonal weft laying. The results obtained in the processing of glass on a MALIMO stitch-bonding machine, type Malimo P2, are promising. The MALIMO stitch-bonding machine, type Maliwatt P4, was exhibited at the ITMA 95 textile machine fair in Milan and met with great interest among expert visitors. Other results obtained in other research tasks of our institution were also used in the development of this machine.

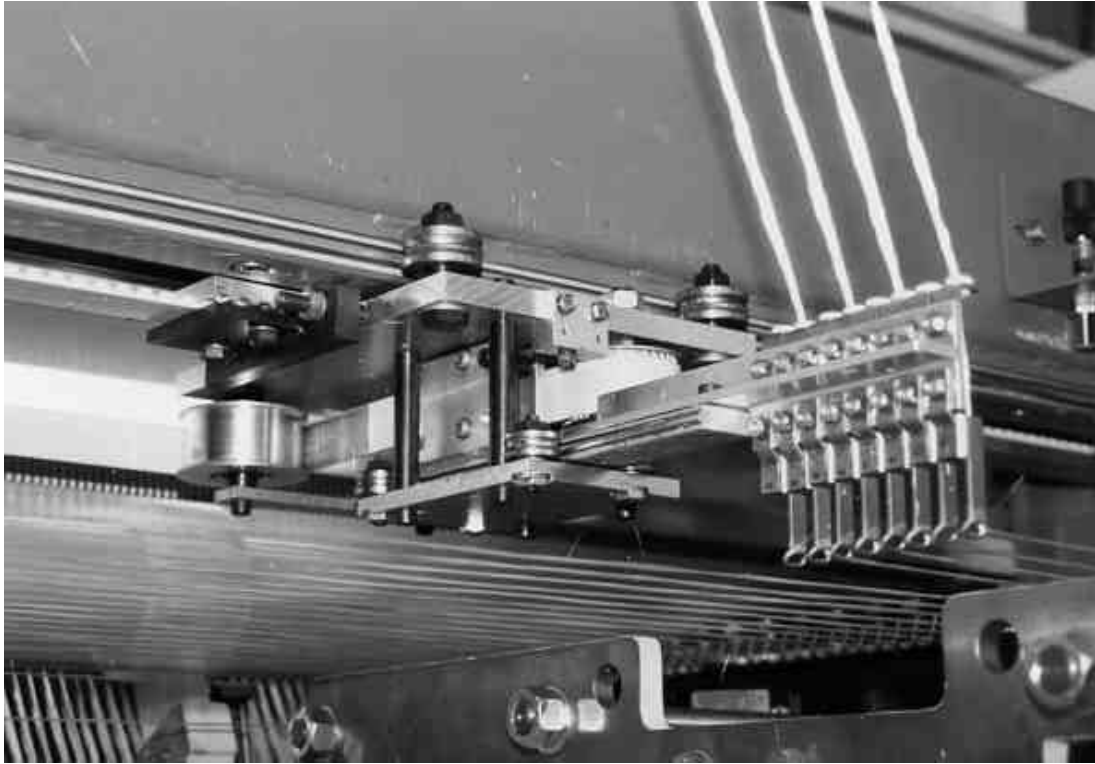


Fig.: Weft layer - stitch-bonding machine MALIMO Maliwatt P4