

TECHNICAL DATA SHEET SK1TJM

Special complex for manufacturing 3D-preforms from carbon, aramid and glass fibers made by TAJIMA

► DESCRIPTION

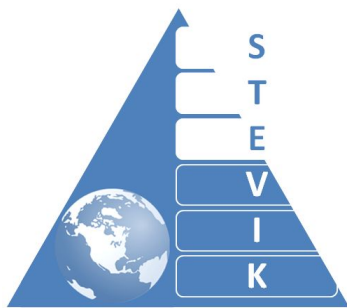
The main component of polymer composite materials is reinforced filler. Traditional ways of making preforms do not allow creating complex geometrical items. Nowadays a new way of making 3D-preforms – 3D braiding was developed due to demand for complex geometrical items mainly made by RTM methods.

Bundled fibres, i.e. roving, is positioned in front of a sewing head and fixed, (laid) with needle and thread onto a base material which is held in the frame of the machine. As this basic medium moves, the fibre strand (e.g. glass-, carbon-, aramid-, or natural fibres) is laid in x- and y- directions. The resulting non-rigid component made in this way is called a preform.

Compared to conventional textile technologies the advantage of this process is, that the roving can be laid in any direction, i.e. at any angle between 0 and 359 degrees. By repeatedly laying one fibre strand on top of the other, the building up of the preform takes place during which, special areas of reinforcement may also be realised within the preform, as it is being laid.

The new TSCM laying machine offers many advantages for a broad spectrum of different users. Higher speed, more precise laying techniques, flexibility for further application possibilities and maximum running smoothness are only some points, which set the TSCM machine apart from previous machines.





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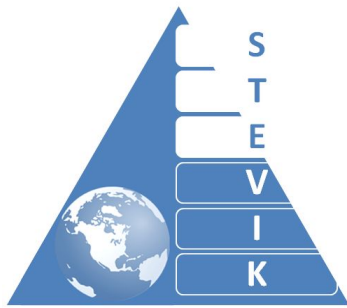
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► TECHNICAL DATA

- Maximum laying speed: 1,000 stitches / minute
- 6,5" colour LCD display, where the laying process can be followed in real-time.
- Data transfer via disc drive, USB memory stick or LAN
- M-shaft movement during production can be switched off and on manually.
- Selectable M-shaft speed
- Manual movement of the M-shaft possible (also within the design)
- Optional double bobbin device.
- Adjustable laying arm position – for example at thread breakage
- Six different kind of zig-zag stitches (for fixing of laying fibres)
- Stitch-width 0,1 mm – 12,7 mm
- Stabilised thread feed <PAT>
- Upper and under - thread guard
- Free-standing cylinder with adjustable positioning (for the adoption of further tools)
- Energy saving function (sleeping mode)
- Low energy consumption (1,5 KW at full load)
- Control mechanism at power failure.



Additionally, existing automated options such as the automatic frame change system (AFC) and the automatic greasing device have been redesigned to render them more robust.



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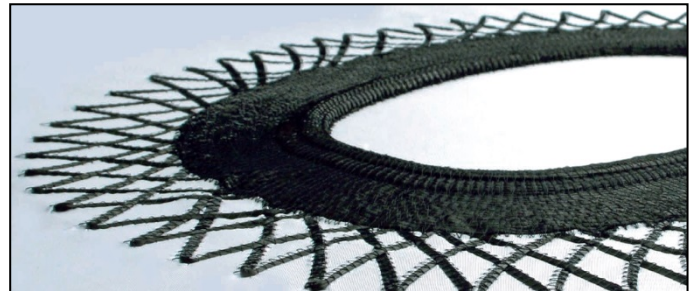
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► GENERAL ADVANTAGES OF THE LAYING PROCEDURE:

- Calculation results concerning power flow and tension can be effectively transposed into the textile structure.
- Structures can highlight different local fibre orientations and fibre piles.
- The machine can be equipped with up to 12 heads. (i.e. 12 pieces can be produced simultaneously).
- Preforms can be produced with almost no waste and minimal postprocessing.
- A thickness of up to 12 mm can be realised on pieces made on the TSCM.
- Parts can be reproduced to a precision of +/- 0,3 mm.



Parts are programmed with a special software. In many cases, it is also possible to import and convert vector files for transferring to the machine.



► NOTE

Please contact us for more detailed information as well as for system development according to your technical specification.

Standard warranty period: 12 months.