

P1 rapier weaving machine with Open Reed Weave (ORW) technology for multiaxial weaving

Multiaxial weaving allows integrating new or additional functions in fabrics. These can be additional reinforcing or also strip conductors for sensor technology etc. Very differing materials such as polyamide, polyester, glass, carbon, metal etc. can be used for threads in the basic fabric as well as for multiaxial threads.



DORNIER P1 rapier weaving machine for multiaxial weaving



Multiaxial fabric with two additional thread systems

Multiaxial weaving with DORNIER's ORW technology

The ORW technology allows using 3rd and 4th thread systems in the fabric in addition to the usual classic 2 thread system ($0^\circ/90^\circ$).

The path/contour angle of these additional thread systems are defined pattern-controlled. These can be used for reinforcement purposes and/or integration of additional functions.

The system is based on the DORNIER rapier weaving machine and is modular in design, i.e. the machines retain their full performance spectrum in normal weaving machine operation and their complete application spectrum.

Technology

A repeat reed, open to the top, is used for multiaxial weaving. Angled dent tips cover the gaps of the ground warp ends. The threads of the pattern warp can dip into the reed between these gaps. The filling thread binds these additional pattern threads after these have dipped into the weaving shed. These then move out of the weaving shed again and, in accordance with a lifting plan, dip into a new reed gap during the following weaving cycle. This allows weaving in additional threads in the fabric in a slanting direction.

Two linear motors that can be shifted up to 200 mm sideways create this displacement path. The sideways displacement as well as the filling density define the contour angle of the pattern threads.

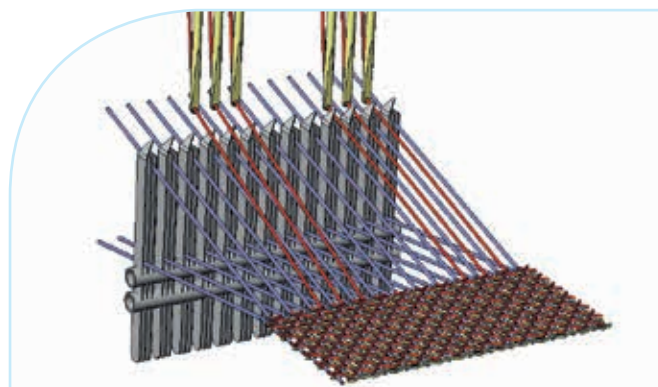
The number of binding points is controlled via the shaft movement. The pattern threads can be controlled freely within certain limits using a lifting plan and the fabric structures created can be reproduced.



Linear motors for sideways displacement of the additional thread systems

The DORNIER rapier weaving machines for multiaxial weaving stands for:

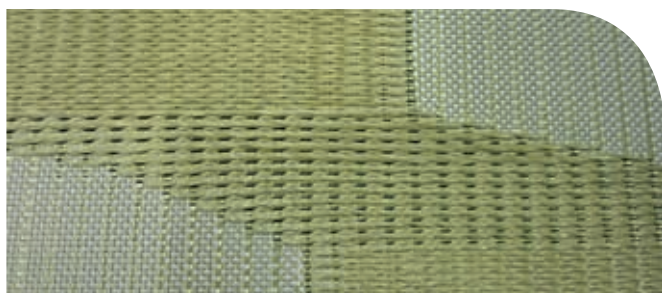
- High functional reliability
- Machine construction and process engineering "Made in Germany"
- Flexibility
- Ergonomics



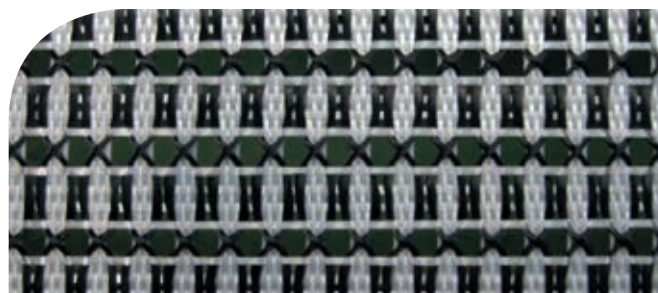
Basic principle of multiaxial weaving

Fields of application

The DORNIER ORW technology contributes to the development of new, innovative products. Product applications range from partial reinforcement to weaving in functions in connection with strip conductors and on up to functional textiles in the footwear sector. This opens up developing new functionality within fabrics.



Fabric with partial reinforcement



Fabric with cross lenos function

For more information please contact us

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