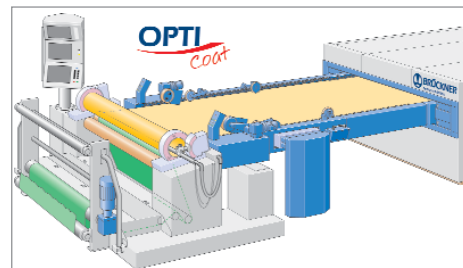


Brückner: Innovative coating technologies

BRÜCKNER developed now together with Stork Prints an innovative technology for the direct coating of elastic knitted fabrics. BRÜCKNER is a well-known as supplier of modular lines for the finishing of woven and knitted fabrics, has invested specifically in growing market of Technical Textiles. The resulting successes will be presented at the upcoming Techtex in Frankfurt, hall 3.0, stand F29. Stork Prints one of the leading companies in the textile and graphical industry, will offer complete system solutions beginning with printing forms, engraving lacquers and systems for punching to a broad range of coating and rotary screen printing machines at Techtex at hall 3.0, stand D25.



The 3D presentation of the entry of a Brückner stenter with integrated Stork Prints rotary printing screen.

The market of functional textiles for sports and outdoor has grown considerably in the last years. The so-called multi-functional garments are characterized among other things by the following features: water-tight, windproof, breathable, thermoregulating, dirt-repellent, flame-resistant, UV resistant, warming in cold weather, antimicrobial, etc.

Functional textiles established themselves mainly in the field of woven fabrics since these are characterized by a high dimensional stability and can therefore be easily coated with membranes. Knitted fabric, however, is very elastic, almost not dimensionally stable and direct coating is therefore only possible with difficulties.

A coating of knitted fabric can be made up to now only via indirect transfer coating. In this process the substance to be applied on the fabric is first applied on a dimensionally stable carrier material (for example transfer paper). The elastic fabric is then laid in this wet substance and dried. In the exit of the line both substrates are separated in a so-called separation unit. This process has, however some important disadvantages for the user:

- ❖ Not all chemical substances can be applied with this process.
- ❖ The application of the coating on the carrier material is an additional working step.
- ❖ Elastic fabric can be laid into the coating only with great efforts.
- ❖ The transfer coating process requires in total more energy.
- ❖ The production speed is limited and the process reliability is reduced by the fixation and removal of the carrier material.

For these reasons designers and textile finishers have been demanding a suitable solution allowing to coat knitted fabric directly. The dramatically increasing demand for elastic functional textiles enforced this request additionally.

BRÜCKNER developed together with Stork Prints this technology for the direct coating of elastic knitted fabric and applied for a patent. This solution is based on the following characteristics:

- ❖ Integration of a rotary printing screen in the entry zone of the stenter.

- ❖ centering of the fabric in front of the introduction to the coating unit.
- ❖ Extremely short fabric path between the coating unit and the pin-on point at the stenter.
- ❖ Tension-controlled fabric transport of the elastic fabric through the complete process.
- ❖ Selective width and length heat-setting of the fabric with a stenter with optionally available fabric support belt.
- ❖ Flexible foam processor by Stork Prints, which can be used also for paste processing.

This new positioning of the application unit in the stenter entry opens completely new possibilities for the coating and functionalising of elastic knitted fabric. The rotary printing screen allows to apply pastes as well as stable and instable foams in a direct coating process.

Compared to the classical coating with knife-over-air or knife-over-cylinder the coating by means of rotary screen has the following advantages:

- ❖ No fabric distortion and no damage of the fabric surface (for example abrasion) during the coating process.
- ❖ The application quantity and the application position can be set exactly for all screen types this allows to apply certain functional features systematically on certain positions of the fabric.
- ❖ It is possible to realize plain coating and dot coating, the fabric hand can be influenced selectively.

- ❖ Besides "invisible" functions such as hydrophobic finishing, uncoloured fashion effects can be realized with the direct coating process.

In addition, Stork Prints' closed knife system allows the application of instable wet foams. This technology is able to replace in many cases the classical padder application with full bath impregnation and offers new possibilities to reduce the consumption of energy and chemical products in textile finishing processes. Depending on the use, the application of instable foams in the drying process allows to more than halve the entry moisture in the stenter (figure), the fabric speed can be doubled depending on the use of chemical products and the condensation time and the amount of residual liquor can be considerably reduced. It is of course possible to remove the rotary screen within shortest time from the entry stand so that the stenter can be used for classical textile finishing as well as for coating.

BRÜCKNER and of Stork Prints, not only to offer innovative technical solutions but in addition, experienced coating specialists with the required process engineering know-how. In addition, laboratory units allow to make comprehensive coating tests. Due to the narrow cooperation with leading chemical companies we have access to a broad range of applications and recipes.

For the classical textile finishing the line is provided with a padder. Coatings can be made with the new OPTI-COAT coating unit which is integrated in the stenter entry. In the exit area a combined crushing/laminating calender is used which allows also the laminating of elastic membranes.

As another new development BRÜCKNER offers its customers also a universal coating unit for three-dimensional woven fabric which is completely integrated in the entry stand of the stenter. In front of the rotary screen is a knife-over-air unit which can be sunk via pushbutton. Also in this case the distance between the coating unit and the pin-on point at the stenter is very low. The arrangement of both application units allows also wet-in-wet coatings. ♦

