

# Line concepts "made in Germany" by Brückner for the finishing of non-iron shirts and blouse fabrics

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For six decades Brückner is worldwide well-known as supplier of modular and well-tuned lines for the finishing of woven and knitted fabric. The family-run company with domicile and production site in Germany guarantees to its customers the highest possible quality standard and is strictly oriented at the customers' needs. With the example of Messrs. Tianjin Tiange Textile Co. Ltd. in China, Brückner presents different line concepts for non-iron finishing.

Since 2000 Tianjin Tiange Textile Co. Ltd. is a private company, emanating from the former Tianjin Fuqiang Spinning and Weaving Factory, which had been founded in 1968.

Tianjin Tiange Textile specialized mainly on first-class yarn-dyed garments, mainly shirt and blouse fabric. Their trading partners are located in more than 50 countries and regions all over the world and the products will be supplied to Japan, Korea, China and the USA as well as to known European shirt producers in the range of Premium products.

Due to the continuous commitment to produce high-quality yarn-dyed garments, Tianjin Tiange Textile has been certified according to ISO 9001 for quality management and quality assurance, received the Oeko-Tex Standard 100 label and the ISO 14001 certificate for environment management.

By the end of 2008 a moist cross-linking line delivered by Brückner was set into operation on which mainly shirt and blouse fabrics made of cellulose can be non-iron finished.

Tianjin Tiange Textile has in front of the cross-linking unit principally a treatment with liquid ammonia on a corresponding machine. This process has the following advantages for the articles:

- ❖ Noble shine on the fabric surface.
- ❖ Very smooth fabric hand.
- ❖ Cellulose fibres swell and get more elastic.
- ❖ Better dry crease recovery angle.
- ❖ Higher resistance to tearing.
- ❖ Absolutely non-iron.
- ❖ Even after many washing cycles almost no wear effects visible.

To achieve an optimum result several stenter passages are executed on the Brückner line after the ammonia treatment, these steps are described more in detail in the following paragraphs:

## Pre-softening

A softener is applied in the padder and dried in the stenter to a pre-defined residual moisture. This increases the hydrophilic characteristics of the fabric to achieve an improved liquor absorption in the following cross-linking process. Simultaneously the fabric width is stabilized.



Figure 1: Fabric for shirts produced by Tianjin Tiange Textile Co. Ltd.

## Moist cross-linking

The cross-linking process must be "precise to the point" and must be made constantly across any batch length. Absolute uniformity in the application of the softener and in the drying are decisive and provide in the line concept delivered by Brückner for anytime reproducible and optimum non-iron finishing results.

### The following points can be high-lighted in the design of the line:

- ❖ A fabric scray allows continuous operation without standstill.
- ❖ Two Brückner POWER-PAD padders allow a high liquor application and good penetration. The padder rollers have been specially constructed and guarantee high squeezing uniformity across a wide pressure range.
- ❖ The subsequent skying passage as dwell area improves the penetration of the cross-linking liquor. A special drive system for the rollers allows even with very tightly woven articles an absolutely crease-free fabric passage.
- ❖ The patented SPLIT-FLOW® air circulation system ensures in Brückner's POWER-FRAME stenter by its countered construction and the special nozzle system a very uniform and gentle drying, as well as exact fabric web temperatures across the complete width and length of the dryer. A particular control system for the thermal oil heating of the line ensures

an absolutely fine and individual graduation of the temperature settings in the zones in order to achieve the required residual moisture of approx. 6% and 35°C roll temperature.

- ❖ For moist cross-linking, the ECON DRY autopilot measuring the final moisture of the fabric via conductivity and controlling the production speed correspondingly, is an absolutely important unit to achieve a reproducible fabric quality.
- ❖ A controlled and continuous process is ensured by Brückner's PERFECT FINISH autopilot. Radiation pyrometers in the thermo zones and at the batcher record the fabric temperature. Depending on the preset temperature profile the line speed is controlled.
- ❖ To ensure an economical, energy-saving process the exhaust air volume is automatically controlled via the moisture control.
- ❖ The moist cross-linking liquor has a very acid pH value of more than 1. To exclude any risk of corrosion all parts in contact with the fabric are made of high-alloy stainless steel.

The described processes running on the Brückner line lead to advantages in the characteristics of use of the finished articles. A very good wet crease recovery and very good dry crease recovery angles as well as extreme resistance to tearing have to be high-lighted. The supplied line ensures Tianjin Tiange Textile's competitive edge in a high-quality market segment for shirt and blouse fabrics. ♦



Figure 2: Brückner moist cross-linking line at Tianjin Tiange Textile Co. Ltd. in China.