Environmental pioneer relies on GREENDYE

NIEN HSING buys the first GREENDYE unit from KARL MAYER

Jeans are the evergreens of the clothing industry, but are increasingly criticized for their negative impact on the environment. Manufacturers are looking for efficient as well as green production technologies for the indigo fabric - and they have found them at KARL MAYER.
KARL MAYER ROTAL, the site with the KARL MAYER Group's denim center of excellence, has developed GREENDYE, a technology that offers both: Sustainability and at the same time more economic efficiency than conventional plants.
The innovation was launched in 2019. The first sale followed this year. The premiere machine goes to Taiwan, to the innovative global player NIEN HSING.

A company with a sense of responsibility

The fully integrated denim manufacturer has written the topic of sustainability at the top of its corporate agenda. Already in 2015, a development and innovation center was established to promote ecological finishing processes. In 2017, NIEN HSING's corporate policy committed to reducing its ecological footprint and using clean production technologies for this purpose. In warp preparation, the environmentally conscious denim player aims to improve its eco-balance, especially with KARL MAYER's GREENDYE unit. "We got to know the pilot plant at KARL MAYER ROTAL and studied its operation in detail in terms of output, costs and sustainability. The results convinced us." says Chairman Chen, Chao Kuo.
With GREENDYE, indigo dyeing is two times cleaner and at the same time three times more efficient than with the processes of conventional equipment. The basis for the excellent performance is the use of nitrogen (NOX) technology to control the chemical dyeing process.

Tripling of dyeing efficiency, halving of resource consumption

The nitrogen atmosphere temporarily prevents the necessary oxidation of the indigo dye. In the NOX reactor, the indigo dye has time to create a more solid physical bond into the fiber composite, adhere there and be fixed.

It is also possible to increase the indigo concentration in the dye bath. These effects enable the yarn to absorb three times more dye than in case of conventional processes.
Further advantages result from the design of the dyeing vats. A high-flow, low-speed indigo circulation system and a design that avoids turbulence and surface foaming significantly reduce chemical consumption. A saving of up to 50% of hydrosulphite and caustic soda – the main environmental polluters of the process - and thus a halving of the gray water footprint is possible.
A reduction of 50% is also possible in the final washing water consumption. Thanks to the NOX reactor, the GREENDYE system requires only three dyeing baths instead of nine - like conventional systems - to achieve the same indigo dye shade, with correspondingly lower water consumption. In addition, the washing process is more economical due to the higher fixation of the indigo dye on the fiber.
Fewer dyeing baths also mean shorter dyeing sections. The difference in length is two-thirds and reduces the amount of yarn waste.
The reduction of daily water and chemical consumption as well as waste water and yarn waste optimizes not only the environmental balance but also the production cost in indigo dyeing. In addition, the operating costs are extremely low. Compared to traditional indigo dyeing systems, the GREENDYE system requires less space due to its shorter design,
less maintenance, less time for operation and less spare parts for the same output.

Role model for the sector
From next year, NIEN HSING will benefit from the advantages of the GREENDYE technology. The delivery of the first machine on the market is scheduled for November 2022.
Stefano Agazzi, Chief of Technology and Products at KARL MAYER ROTAL is delighted with the sales success. "With our GREENDYE line, NIEN HSING can set completely new sustainability and efficiency standards in denim production. We hope to see significant impetus for change throughout the industry," says the indigo dyeing specialist. He will continue to support NIEN HSING with his team and the possibilities offered by KARL MAYER ROTAL's denim center of excellence. In Mezzolombardo, samples can be made with the customers' specific materials, staff can be trained, and joint projects can be developed.



The NOX reactor of GREENDYE

About NIEN HSING

NIEN HSING is a global denim player headquartered in Taiwan with additional locations in Mexico, Leshoto and Vietnam. The company was founded in 1988 and has been continuously expanded. Today, it employs almost 9,500 people. /1/ The manufacturer's range of services includes product development and the textile fields of spinning, warp preparation, fabric production, finishing and making-up. The company operates with textile and apparel business units. Sales amount to about 280 million USD. In 2011, the textile segment generated the most revenue, accounting for 52% of sales. Growth here compared to 2020 was around 42%. The apparel business, on the other hand, showed a slight downward trend of around minus 6%. The company's products go mainly to American market.

About KARL MAYER

KARL MAYER is an international group of companies with strong roots in the textile machinery building. The group of companies offers perfect solutions for the fields of warp knitting, flat knitting, technical textiles, warp preparation and digitization.

For the section of warp preparation for weaving, the KARL MAYER Group offers sizing and assembling machines, beaming and direct beaming machines, sectional warpers, warp sampling machines, denim dyeing units and creels. The company is global market leader in its product segments.

To ensure the success of its international customers, KARL MAYER has always been eager to provide its clients with the best economical and technical products and services and to offer innovations which bring fresh impetus to the textile world.

With more than 3,100 employees worldwide, the international organization produces in its main markets, so that KARL MAYER is always close to its customers and their needs. Today, the group of companies has subsidiaries in the USA, in England, India, Italy, Hong Kong, Japan, China, Bangladesh and Switzerland as well as agencies all over the world.

The German family-run enterprise was set up in 1937 and since then financial independence and economic sustainability have always been important aspects of the company’s corporate strategy. As long-standing and reliable partner with many years of professional experience and high quality level in all areas, KARL MAYER supports the competitiveness of its customers and business partners.