

#### INNOVA BLEACHING SYSTEM

by FTR develop<mark>ed in partnership</mark> with BIELLA SH<mark>RUNK PROCESS</mark>

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## **INNOVA BLEACHING SYSTEM**

The innovative impregnation and washing system with Innova® recipe

> Desizing & Bleaching on cellulosic and blend fibers

#### IN ONLY ONE STEP





## **INNOVA® SYSTEM ADVANTAGES**

Excellent performances in terms of:

#### • HYDROPHILITY

Thanks to the fluidifying power of INNOVA® system, it is always possible to achieve a very high hydrophility degree.





DROP TEST: standard PB bleaching

#### DROP TEST: INNOVA® PB bleaching



CAPILLARITY TEST: standard PB bleaching



CAPILLARITY TEST: INNOVA® PB bleaching

#### • STARCH REMOVAL

Perfect elimination of every kind of sizes, particularly starch sizes.



TEGEWA STARCH TEST: standard PB bleaching

WHITE TEST:

standard PB bleaching

WHITENESS DEGREE



WHITE TEST: INNOVA® PB bleaching

TEGEWA STARCH TEST:

INNOVA® PB bleaching

#### • POLYMERIZATION DEGREE (DP)

Due to the high stability of the bleaching bath with INNOVA® system, chemical damage to cellulosic fibers is drastically reduced.

#### CLEANING

INNOVA® recipe allows a deep reduction of extraneous substances which are usually present on cellulosic fibers such as pectins, oils, fats, waxes, sizes, metallic and mineral salts.

#### SAVING:

- Water consumption: from 20 to 40% less
- **Time**: up to 50% less (in case of double desizing/bleaching treatment)
- Energy consumption: up to 30% less (no need for steamer)

# FLUXA PADDING MACHINE THE INNOVATIVE IMPREGNATION SYSTEM

Open-width preparation of cellulose fibres consists of applying several distinct operational steps. The main ones are: **desizing, scouring** and **bleaching**. Normally, these steps are performed at different times using a range of methods, creating a long and costly process.

**INNOVA SYSTEM** is the ideal solution to achieve the best cleaning, scouring and degree of whiteness.

FLUXA + KINETIKA technology, combined with the INNOVA® preparation recipe, makes it possible to perform bleaching treatments **directly on the raw material**.





The INNOVA<sup>®</sup> recipe can chemically desize and bleach with a single-pass cold impregnation and storage system.

The FLUXA Padding Machine was developed to enhance the characteristics of the INNOVA® recipe, which, thanks to its improved fibre impregnation homogeneity, achieves a yield of 100%, guaranteeing better results than with traditional impregnation lines.

A multi-path impregnation tank, made of AISI 316L stainless steel. It has seven AISI 316L stainless steel rollers, each with a diameter of 200 mm.

Inside, two vacuum units to recirculate the bath, which passes through the fabric to ensure improve the impregnation.

FLUXA PADDING MACHINE

The two bars have multiple "fish bone slots"; the system avoids that the fabric, as it slides, is curbed by aspiration.

The two suction bars are located one in front of the fabric side and the other on the reverse side. Having two times immersion/suction in the solution, it gives perfectly homogeneous impregnation.

The fresh solution enters in the system from the bottom of the tank, distributed in whole width. In the meantime the solution bath recirculated from the suction extractor bars enters at the fabric infeed and outfeed points. The two suction bars have one recirculation pump. In each bar there is one high efficiency filter in order to clean the bath before being recycled by the pump.

The tank is designed to reduce the quantity of solution and prevent wasting product and water at each article change.

## **KINETIKA**

### DYNAMIC WASHING (patented)

# CHINE

The washing process is based on the combination of 4 variables: temperature, chemical action, time and kinetic action.

Modern continuous washing systems often provide optimal solutions for an accurate monitoring of the processing temperature and chemical action. In addition, interesting applications have been developed to keep the fabric at predetermined physical conditions for a prolonged time.

The fourth variable, the **kinetic action** (that is the dynamics of relative motion between fabric and washing fluids), despite the major studies and ingenious technical solutions it has been subject to so far, has always been applied to a limited extent, due to the nature of the fabrics themselves, which in most cases do not stand excessive mechanical stress.

Indeed, the open-width washing process implies risk of elongation, crease formation and abrasions, which may in certain cases bring to permanent, irrecoverable defects.

The study of these issues and the requirements of increasingly delicate textiles, have given rise to the **KINETIKA system**, which introduces a **new concept** where kinetics achieves remarkable intensity and effectiveness:



Thanks to powerful recirculation pumps (30 Kw) and a special washing circuit equipped with nozzles of "flat-jet" type, the washing fluids are sprayed in the form of micro-drops (of 50-100 micron diameter) onto the "out of liquor" fabric at a very high pressure (up to ten times more than standard solutions).

Such a high pressure accounts for a high recirculation volume (litres/h), which ensures a liquor exchange in the fabric up to 100 litres per treated metre.

To make this **solution technically reliable** and **efficient**, a fabric protection and handling system has been developed, based on **two special permeable conveyor belts made of synthetic monofilament with invisible joint**.

These create a **washing path along a series of guide rollers**, which includes pipes with nozzles: at the beginning of this path the fabric is pinched between the two belts so as to form a "sandwich".

#### CONVEYOR BELTS PERFORM SEVERAL FUNCTIONS:

- They keep the fabric outstretched to **avoid crease** formation or selvedge rolling
- They **protect** the fabric against a direct impact from the washing jets as they act as a filter to ensure a uniform liquid distribution from the nozzles
- They provide for a **tensionless transport** of the fabric
- They perform a squeezing and hydro-extraction action round the guide rollers

