



YARN FEEDING CONTROL LINE

Total Digital Solutions for  
Yarn Constant Tension Feeding



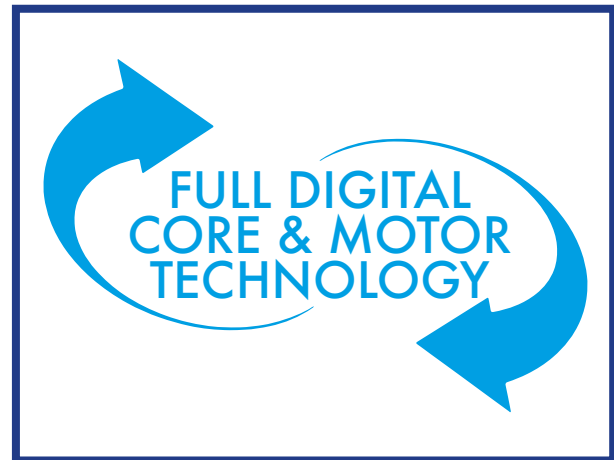
*building the future*



EXCELLENCE

TOP PERFORMANCES

MEASURABLE BENEFITS



### **'FULL DIGITAL CONTROL' TECHNOLOGY FOR CONSTANT TENSION FEEDING**

The recent textile market evolution is characterized by the use of more and more sophisticated raw materials whose costs push organizations to adopt control systems able to guarantee a high product quality by minimizing the yarn used in the textile process.

BTSR Yarn Feeding Line represents an advanced package of unique solutions on the market, in terms of functionality and performance, capable of controlling and adjusting with utmost accuracy the tension of yarn fed in the course of production processes.

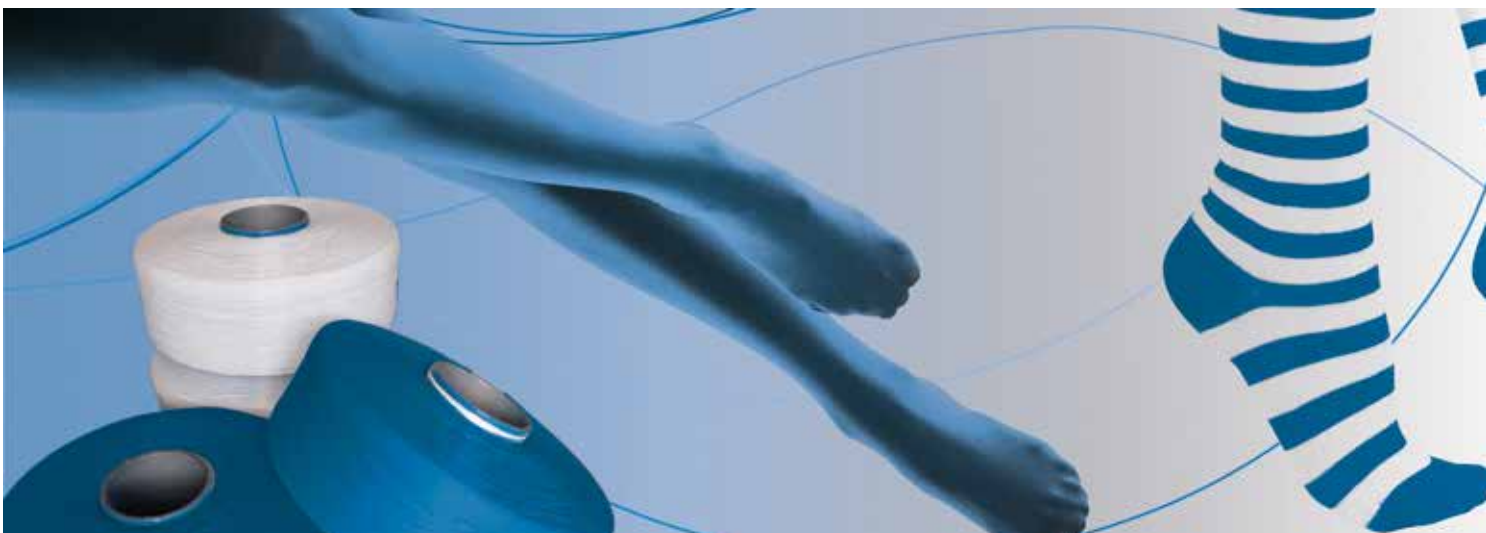
BTSR Constant Tension Feeders represent the best guarantee for your quality and production efficiency goals.

### **PATENTS IN 'INNOVATION, OUR CHALLENGE'**

#### **BTSR® Patented Solutions**

BTSR Feeding Solutions are provided with unique advanced functions, covered by international Patents in order to protect BTSR Intellectual Property:

- Self-learning LFA Function
- Automatic Regulation of Stitches "Cammes"
- Reverse Function for Constant Tension Recovery
- Constant LFA Pre-Tension Function
- Automatic Identification Function
- AUTO OFFSET Function for automatic calibration of the feeder tension sensor





## Ultimate processor technology and advanced materials All-in-One

**Main Applications:** Sock/Hosiery, Seamless, Flat Knitting Machines, Looms (Cotton, Raschel, Label and ribbon production,...).

The result of B TSR +30 years in developing Constant Tension Feeding Technology and following the worldwide success of the ULTRAFEEDER leadership in the market.

ULTRAFEEDER2 represents a further and drastic step ahead by overcoming technology state-of-art both in terms of inner processor technology and advanced materials utilized.



## FEATURES AND BENEFITS

- **New Processor** - x 10 Faster Response Time for utmost acceleration dynamics control, better tension feeding control and unique performances during the feeding of yarns having high absorption discontinuity
- **Improved motor torque** - allowing enhanced performances in feeding yarns with high selections dynamics
- **New high resolution load cell sensor** - for x2 accuracy improvement
- **Clockwise / Anti-clockwise rotation** – symmetrical yarn thread up for left and right yarn feeding
- **INC-DEC Function** - possibility to INCrease or DECcrease gradually the yarn tension with a resolution of 0,1 gr for Unlimited Graduation Compression
- **Advanced Materials** - built up with the most advanced materials (aluminium, magnesium, carbon fiber) bringing unique features in terms of lightness, strength and size
- **New design and ergonomics** - upper positioned display, optimized space around the wheel, led keys buttons, graphic display, a product fully designed for user-friendly operations
- **LFA self-learning function** (with MATRIX CONTROLLER, optional): yarn consumption self-learning and control (BTSR® patent).
- **TARGET function** - set production target in meters with the relative automatic machine stop
- **ALL YARNS FEEDING** - able to feed any type of yarn - thin bare and covered elastomers, nylon, cotton and technical fibers for traditional and technical articles (e.g. medical socks, body, etc.)



## Breakthrough Technology in Storage Feeding

**Main Applications:** Sock/Hosiery, Seamless and Knitting Machines.

UNIFEEDER2 represents a breakthrough solution drastically overcoming the state-of-art of storage feeding technology, destined to supply an epochal change in textile market technological offer.

A new concept multi-patented system able to guarantee a total combined yarn feeding and storage control, thus representing the first 'positive storage' feeder Concept introduced on the market.



## FEATURE AND BENEFITS

- **Unique 'Revolving Drum' Technology** (BTSR® Patent) - thanks to an advanced algorithm, it allows a revolutionary UNTWISTING concept. UNIFEEDER2 drum is able to run at the same yarn knitting speed required by the machine and grants 'Zero Twisting' yarn into the knitting process
- **In-built Yarn Constant Tension Feeding system** (BTSR® Patent) - composed by a floating magnetic ring driven by a high resolution load cell, it allows a real-time yarn feeding tension compensation with only 100 microseconds reaction time even during sudden machine speed variations or stitch selections
- **In-built Optical Ring** - it allows precise Yarn Storage and Length of Yarn Consumption (LFA) measurements and a perfect Stitch Cams Compensation (Auto LFA Function, BTSR® patent). Unique benefits in terms of constant garment size, no yarn misplating (Vanisè), no need to adjust output yarn brakes
- **Input Motor torque Control System** - it detects and compensates input yarn tears thus monitoring yarn input anomalies and breakages (Input Yarn Tension Peaks, Input Yarn breakage, Input Yarn knots)
- **Quality Index** (BTSR® Patent) - 'QI' Quality Index value allows to automatically monitoring and controlling the real quality of the knitting process and preventing any risk to production out of the desired quality range
- **Graphic Display and Led Keys** - Real time graphic display of main yarn feeding information (Yarn Speed (LFA) – Yarn Tension – Quality Histogram - Quality Index (QI), ...)
- **Minimized size and weight** - for simple and cost-saving installation configurations (i.e. single ring, ..)

## The Universal Bare Spandex Feeding Solution

**Main Applications:** Seamless and Knitting machines.

ROLLING FEEDER is the B TSR solution specifically designed and developed for Bare Elastomers Feeding Control, devised to impact seamless and knitting sectors habits and trends.

A unique solution on the market, thanks to its capability to combine in a single device the flexibility and user-friendly use of B TSR Constant Tension Feeding Technology with the product Top quality resulting from bare elastomeric yarns feeding at constant LFA/speed (B TSR® Patent).



### FEATURE AND BENEFITS

- **Self-Adaptive Technology** (B TSR® patent) - run at constant tension yarn feeding (during 'start/stop' phases or strong yarn pattern selections) and automatically shift at constant LFA/speed feeding (during garment production)
- **'MASTER-SLAVE' Working System** (B TSR® patent) - possibility to select a group of units as Masters and a group as Slaves thus reproducing exactly the same MASTER behaviour and guaranteeing the absolute stitch matching
- **Based on Derulè Reeling-off System** - it eliminates yarn 'twisting effect' (flat yarns) and guarantees the capability to feed elastomeric yarns at constant speed/LFA.
- **LFA Function** - exact yarn consumption measuring (Length of Yarn Absorption, 0,1 mm resolution)
- **INC/DEC Function** - possibility to INCreasing or DECcreasing gradually the yarn tension / yarn LFA with a resolution of 0.1 gr. (0.1 m/min)
- **Graphic Display** - real time reading of all necessary working data (yarn LFA, tension,...)
- **Production TOP Quality Standards** - Top Stitch Matching and Yarn Plating Faults prevention in vanisè process.
- **Automatic 'Stretch Ratio' Control** - combined with ULTRAFEEDER devices (Masters), ROLLING FEEDER (slaves) are able to work at a constant programmable 'stretch ratio'
- **Retrofittable** - on any machine brand for factory production quality upgrade



## Constant Tension Yarn Feeding Control in Winding Processes

**Main Applications:** Yarn Preparing Processes (Winding, Doubling, Copsing, Twisting, Texturing, Interlacing), Weaving Preparation (Creels, Warping,...)

WINDING FEEDER is the B TSR universal Yarn Control Feeding Solution able to satisfy the most demanding yarn preparation operators applicative needs.

Thanks WINDING FEEDER Full Digital Technology, the yarn feeding tension is kept constant during the whole winding process even in case of yarn package tension changes due to environmental conditions such as humidity, temperature, etc. or when the yarn packages are gradually emptying during the normal working process.



## FEATURES AND BENEFITS

- **A Compact Solution** - for every easy retrofitting and installation in machine available space
- **Constant output yarn tension guaranteed** - in every working condition (in case of machine speed changes or when the yarn packages gradually get empty)
- **TOP Quality Guaranteed** - Yarn tension spikes elimination on yarn packages and Excellent package density
- **Fully programmable** - easy programming capability of main working parameters as yarn feeding tension values, INC-DEC values, % tolerances,... bringing High Versatility
- **All Yarns feeding capability** - bare and covered elastomers, glass and carbon fibres, technical fibres, very thick yarns, ...
- **Production Money Saving** - Yarn waste reduction, after warping process (all packages run out at same time)
- **Meter Counter** - for a perfect yarn package measurement (0,1 mm resolution)
- **Graphic Display** - for easy real time working parameters monitoring
- **TARGET Function (with MATRIX On-board Terminal)** - possibility to set a production target in meters with the relative automatic machine stop
- **Tension Profiler Function (with MATRIX On-board Terminal):** yarn tension increment - decrement automatic function possibility during the working process phases

## HIGH TECH SOLUTIONS

## IN YARN FEEDING CONTROL



### **PROGRAMMABLE, SPACE SAVING, OEM INTEGRABLE**

Characterized by a design and ergonomics projected into the future, BTSR Yarn Feeding Solutions offer outstanding technical and operational performances, aimed at feeding with utmost precision any type of yarn with programmable tension ranges, depending on the reference application process.

BTSR has developed dedicated solutions for any kind of textile process, from yarn preparation to textile fabrics manufacturing (yarn treatment/preparation processes, hosiery and socks machines, large diameter and flat knitting machines, several types of looms - cotton, Raschel, label and ribbon production -, ...).

When destined to the OEM market, BTSR feeders are suited to being easily integrated into textile machines (e.g. automatic regulation of stitches cammes adjustment,...).

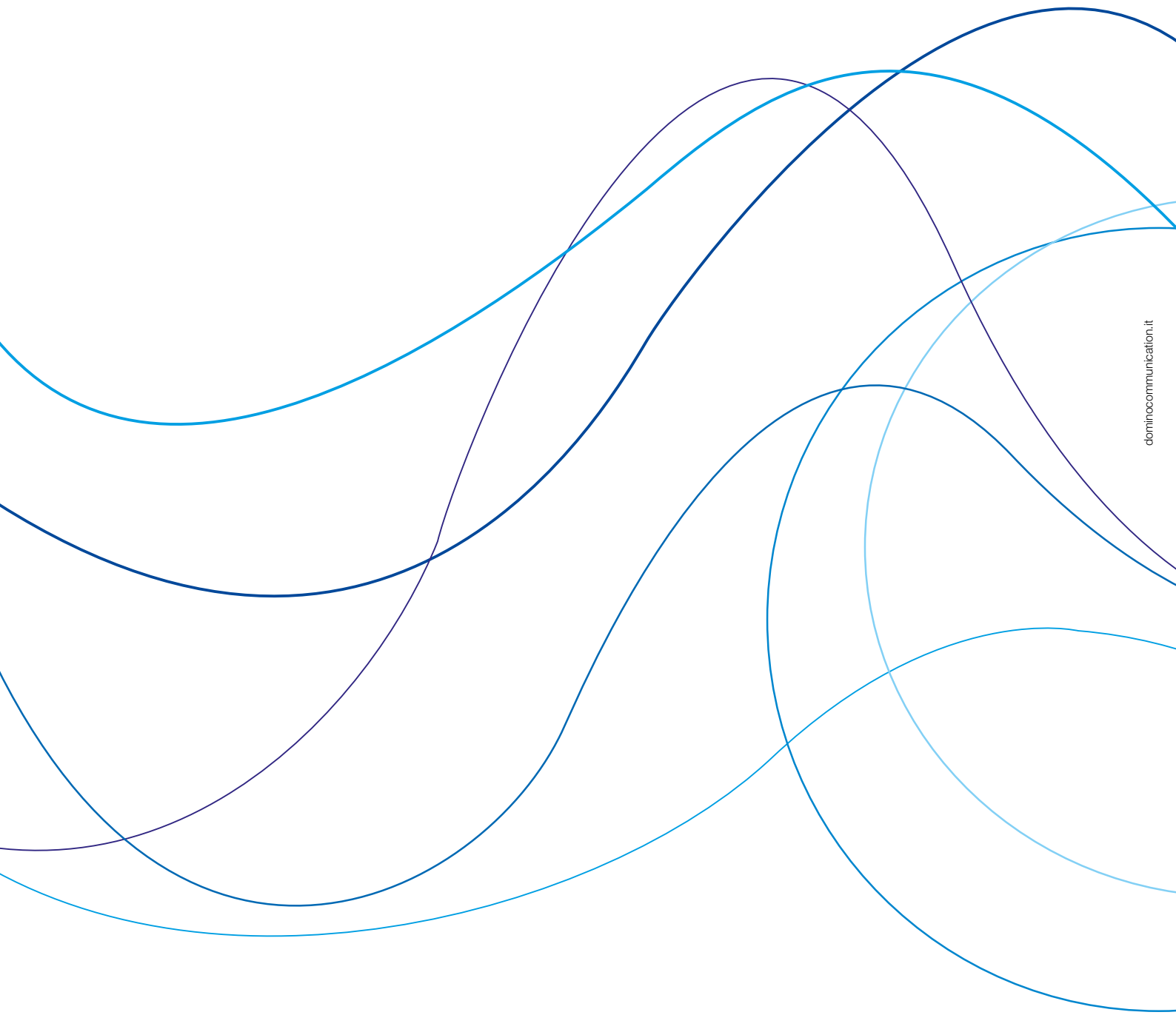
### **TOUCH SCREEN PRODUCTION PROGRAMMING AND MONITORING**

MATRIX TOUCH on-board Terminal is the latest BTSR Technology allowing advanced BTSR feeders programming and monitoring in the production line. Coming with Touch-screen and with Multi-language technologies for user-friendly operations, MATRIX TOUCH is provided with Wifi and Ethernet interface. Machine operator can easily download and upload identification data as well as program yarn operating tensions and measure the amount of yarn fed on the single positions.

MATRIX TOUCH allows the possibility to 'auto-learn' ('Self-learning' Function) and then control the programmed yarn consumption during the production process of a sample article.

- Compatible with BTSR APP EasyFeeder and PC-LINK Web Industry 4.0 tools
- Automatic Numbering Procedure and Feeding Devices Centralized Programming
- 'Articles Database' Creation And Storage
- Target Function
- Auto-LFA Function





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