



COIL – WINDING TECHNOLOGY LINE

MINITRON MEGATRON GIGATRON

**The first high load
positive feeder**

Advanced High Tech Solutions
for Coil and Motor Winding
Process Control



building the future





TOP QUALITY
& PRODUCTIVITY

HIGH FLEXIBILITY

USER-FRIENDLY

MOTOR & COIL WINDING TECHNOLOGY LINE

The Ultimate Innovation in Wire Constant Tension Feeding.

MINITRON - MEGATRON - GIGATRON are one of the latest results from **BTSR INTERNATIONAL**, a worldwide leading company in the design of high tech solutions and innovation development in a wide variety of industrial sectors.

MINITRON - MEGATRON - GIGATRON represents a revolutionary new generation Wire Constant Tension Feeding devices, unique in terms of functionality and performances, capable of adjusting with utmost accuracy the tension of the wire in motor and coil winding processes.

An innovative Solution based on the **BTSR PATENTS** Dual-Drive Feeding System, Tension Profiler Function and Double Loop Control System bringing new and unique measurable benefits in terms of TOP Quality Control and Production Efficiency in coil winding processes.



MINITRON - MEGATRON - GIGATRON

- TOP Quality Standards Goal are ensured by the highest coil winding quality and repeatability, thanks to BTSR 'Double Closed Loop' Technology guaranteeing the most accurate and precise wire tension control.
- TOP Versatility is guaranteed by Fully programmable parameters according to the wire requirements and possibility to dynamically modify the wire control tension according to the operating stage ('Tension Profiler' Function).
- TOP Process Production Efficiency is enhanced by dramatic reduction of wire breakages.
- TOP Productivity is guaranteed by the capability to work at the maximum possible process speed.
- Minimized Labour Costs is possible thanks to the user-friendly programming options and no consumable parts - Easy maintenance.
- Wide application ranges are possible thanks to the wide wire tension and diameter range of MINITRON - MEGATRON - GIGATRON.
- Centralized programming and monitoring is possible thanks to MATRIX TOUCH COIL controller which will allow you to program and control MINITRON - MEGATRON - GIGATRON units and monitoring the whole process production status also in graphical form.



FEATURES

- **Tension profiler function (BTSR patent)**
Possibility to program up to 3 different wire feeding tension values without any interface/ connection to the winding machine or up to 4 different wire feeding tension values during winding cycle, utilizing two digital winding machine output.
- **Double closed control loop system (BTSR patent)**
Featuring simultaneous dual control on both wire feeding tension and Length of Wire Absorption (LWA) for a complete tension feeding control along the whole wire path (from the feeding bobbins to the final coil).
- **Programmable wire 'storage and release capability (BTSR patent)**
Able to manage sudden wire absorption or release during the working process and simultaneously keeping the wire feeding tension at the set value.
- **Full input digital motor torque control (BTSR patent)**
Detect and adjust input feeding tension anomaly, warning and stopping process before wire could be damaged thus avoiding any bad quality production.
- **Pc link web coil software**
For Industry 4.0 - Collect uniform data to monitor the entire production, ensuring an homogeneous data collection also in case of new and old winding machines fleet.

BENEFITS

- **Production process efficiency maximization**
Able to maximize the working ramps, machine speed, thus dramatically reducing at the same time wire breakages, scraps, therefore granting fast Return On Investment (ROI).
- **A wide application range**
MINITRON MEGATRON GIGATRON are single device capable to cover a very wide wire tension and diameter range.
- **Labour costs minimized**
Thanks to the user-friendly programming options and easy and quick machine setup.
- **Maintenance costs minimized**
No consumable mechanical parts due to the feeding technology which guarantee absence of parts frictioning / breaking allowing a very easy maintenance.
- **Advanced graphic display**
Real-time working parameters monitoring, such as: Wire Speed (LWA) – Real time Wire Tension – TI motor Torque Index – QI tension Quality Index and Working phase.
- **A compact solution**
Easy plug & play installation.

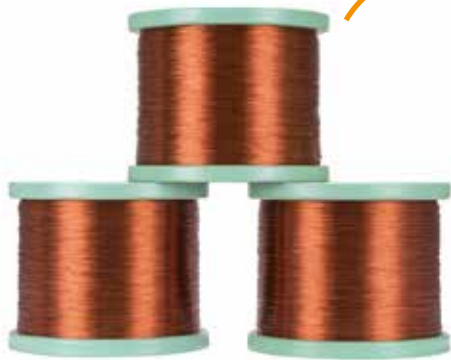
THE FIRST HIGH LOAD POSITIVE FEEDER



DESCRIPTION	MINITRON	MEGATRON	GIGATRON
Display tension range	0 grams – 5.000 g (cN)	0 grams – 10.000 g (cN)	0 grams – 20.000 g (cN)
Programmable tension range	50 g ÷ 4.000 g (cN)	100 g ÷ 9.000 g (cN)	200 g ÷ 18.000 g (cN)
Programmable Tension resolution	10 grams	10 grams	10 grams
Wire diameter range	From. 0,08 Up to 1.038 mm 40 up to 18 AWG	From. 0,08 Up to 1,5 mm 40 up to 14,5 AWG	From. 0,12 Up to 2,25 mm 36,5 up to 11,2 AWG
Feeding speed range	0 ÷ 12,5 m/s 0 ÷ 750 mt/min	0 ÷ 12,5 m/s 0 ÷ 750 mt/min.	0 ÷ 12,5 m/s 0 ÷ 750 mt/min.
LWA resolution (meter)	1 mm	1 mm	1 mm
AUTO- LWA and alarm range setting	Tension LWA ± 1 % upto ± 25 % Meter LWA $\pm 0,1$ mt up to 20 mt.	Tension LWA ± 1 % upto ± 25 % Meter LWA $\pm 0,1$ mt up to 20 mt.	Tension LWA ± 1 % upto ± 25 % Meter LWA $\pm 0,1$ mt up to 10 mt.
OEM machine computer interface Through SMDIN WEB COIL	Standard: RS485, Canbus Optional: Profinet, Ethernet IP, Ethercat Other on demand	Standard: RS485, Canbus Optional: Profinet, Ethernet IP, Ethercat Other on demand	Standard: RS485, Canbus Optional: Profinet, Ethernet IP, Ethercat Other on demand
Power supply voltage	48VDC $\pm 10\%$	48VDC $\pm 10\%$	48VDC $\pm 10\%$
Overall Dimensions (mm)	600 L x 126 W x 170 h	600 L x 126 W x 170 h	600 L x 126 W x 170 h
Minimum Air Pressure	4 bar	4 bar	4 bar
Weight	10,2 Kg	11,8 Kg	14,3 Kg

TOTAL QUALITY CONTROL - FROM WIRE COIL TO FINAL COILED PRODUCT

FIRST CLOSED LOOP MOTOR TORQUE



SECOND CLOSED LOOP LWA



DOUBLE CLOSED CONTROL LOOP (BTSR Patent)

MOTOR TORQUE (BTSR Patent)

1st closed loop

Total Input Controls

Operated by the motor control force (Torque). Detects and adjust any input wire tension variation caused by:

- Input tension variation (full/empty feeding bobbin)
- Input wire entanglement

LWA Length of Wire Absorbed (BTSR Patent)

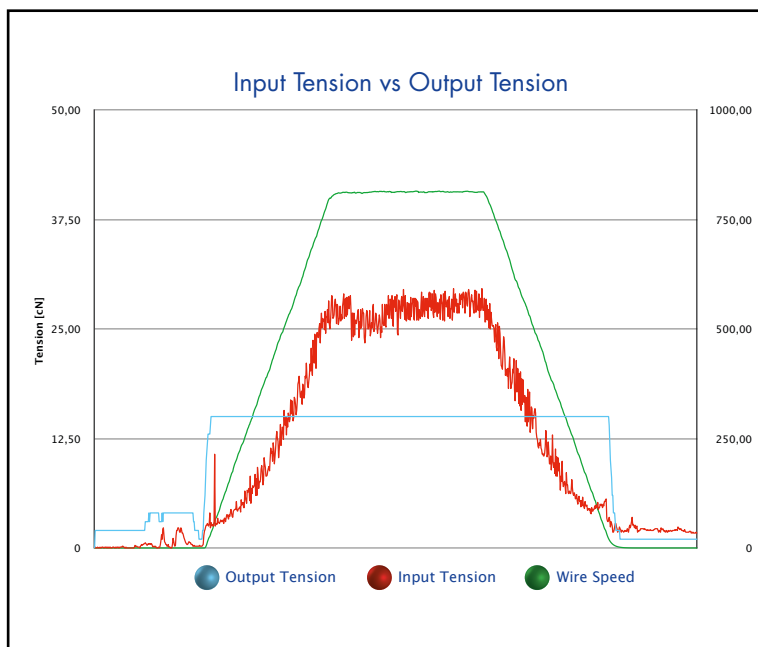
2nd closed loop

Total Output Controls

Operated by means of multiple motor controls, Speed/Wire consumption.

Detects and monitor:

- Any dimensional variation of coil formers.
- A wrong wire dimension (diameter/AWG).
- Accumulation of dirtiness inside the wire guide
- Damage of the wire guide.
- Any mechanical variation or friction on the contact points after the tension feeder device (Minitron - Megatron - Gigatron).
- Wire passing through the wire guides with different angles and frictions (wrong thread-up).



CONSTANT TENSION VALUE GUARANTEED

Output Wire Tension (LIGHT BLUE color) is kept constant at the set value, despite of input wire feeding tension variations (RED color) and/or wire speed variations (GREEN color) during the working process.

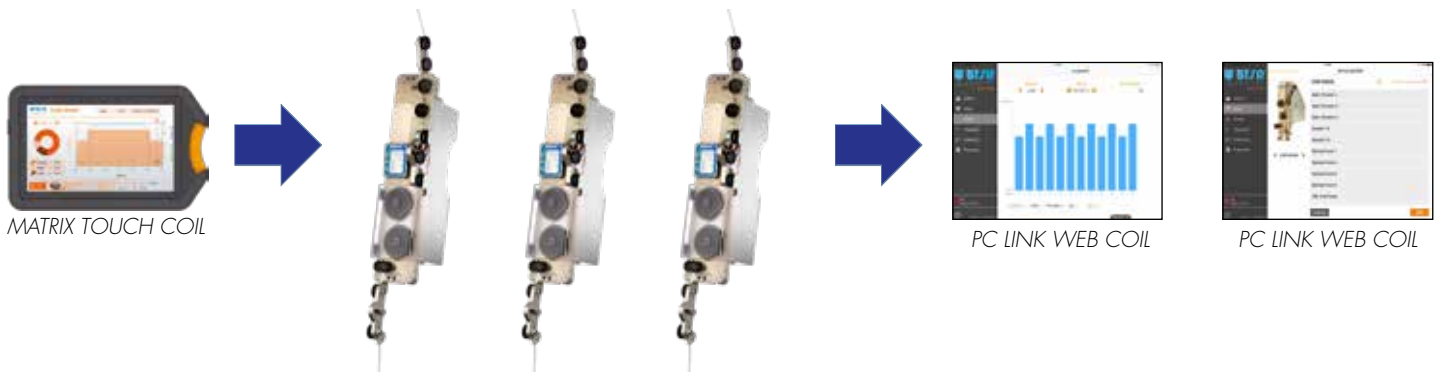
PC LINK STUDIO & PC LINK WEB COIL (B TSR PATENT)

PC LINK STUDIO - Suitable to update Minitron Megatron & Gigatron software. Allow deep quality analysis of the coil process and machine development.

PC LINK WEB COIL - Suitable to monitor the whole department. Minitron Megatron & Gigatron can be installed on any type and model of new or old coil winding machines. Minitron Megatron & Gigatron + PC LINK SOFTWARE allow monitoring and programming the whole coil winding machines park (which can be not necessarily homogenous).

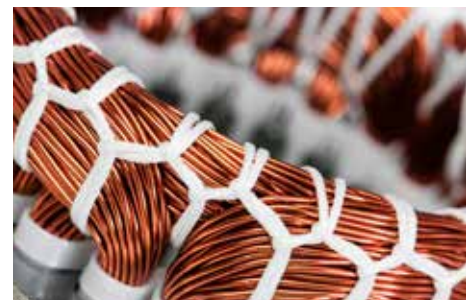
It is an unique INDUSTRY 4.0 remote programming monitoring & evaluation tool. This smart WIRE Feeding Control has been created to ease the programming of Minitron Megatron & Gigatron by means of a very intuitive interface, thus allowing on site monitoring, quality check, production monitoring and forecast analysis.

PC LINK WEB COIL is fully compatible with IOS and Android devices as it is based on web technology.



MATRIX TOUCH COIL TERMINAL

Centralized programming and monitoring is possible thanks to **MATRIX TOUCH COIL** controller which will allow you to program and control MINITRON - MEGATRON - GIGATRON units and monitoring the whole process production status also in graphical form.





building the future

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