



www.coilwindingmachines.eu

Tel: +44(0)1684 273164 Fax: +44(0)1684 273171 Email: enquiry@ingridwest.co.uk by Ingrid West Machinery Ltd

A Revolution in Wire tension technology for the COIL WINDING industry



Advanced High-Tech Solutions
for Coil Winding Process Control

We aim to be much more than a machinery supplier. Our team has a vast range of winding experience and is able to offer help and advice on all aspects of coil winding, from tooling design to machine choice and set-up.

~ Coil winding solutions you can rely on ~





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CWF Coil Winding Technology



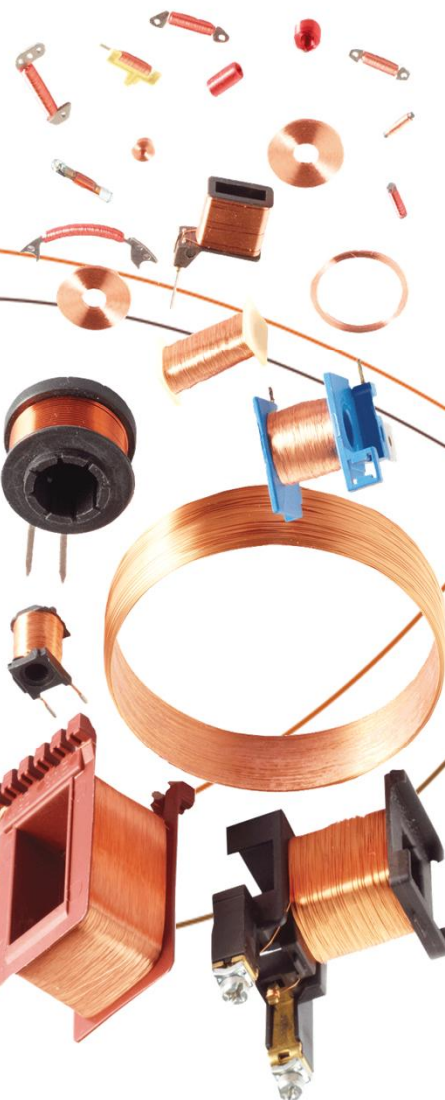
MAIN FEATURES

Assured Quality

Productivity

High Flexibility

User Friendly

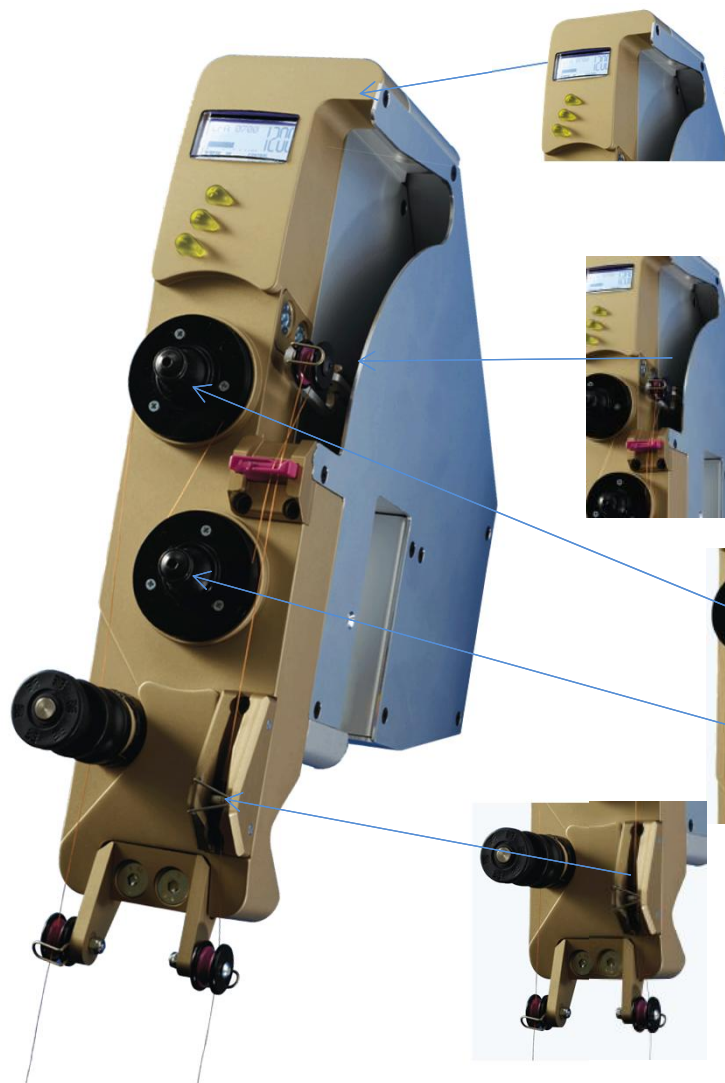




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CWF2000 The new generation wire constant feeding device



Advanced Digital Display
With ergonomic Keys for easy operation



Automatic compensating arm

Wire 'Storage and Release' capability able to manage sudden wire absorption or release during the working process and simultaneously keeping the wire feeding tension at the set value (Patent).

Motor Driven and suitable to self adjust accordingly to the set Tension Profile



Dual Drive Feeding System

control and maintain a constant winding feeding (input) tension during the entire process.

Motor torque control System

CONSTANT WIRE TENSION CONTROL



Tension Sensor – precision load cell

Fully programmable

easy parameter setting(Tension Profiler, % tolerances, ...) for diversified working conditions.

High Tech Digital Technology

Featuring simultaneous dual control on both wire feeding tension and wire running speed for a complete feeding control.

Tension Profiler Function

possibility to program up to 2 different wire feeding tension values without any interface/connection to the coil winding machine or up to 4 different wire feeding tension values during winding cycle, utilising two digital outputs.



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DOUBLE CLOSED CONTROL LOOP (patent) -

Ability to program and maintain the output wire tension feeding at the set value, not influenced by the machine speed or input wire tension variations



MOTOR TORQUE (Patent)

Total Input Controls Operated by the motor control Force (Torque) detects and adjust any input wire tension variation caused by:

- Input balloon tension variation (full/empty supply spool)
- Input wire entanglement
- Input wire friction/tension abnormal variation

LWA Length of Wire Absorbed (Patent)

Total Output Controls

Operated by means of multiple motor controls, Speed/Wire consumption detects and controls wire length variation caused by:

- Any dimensional variation of the take up coil forms
- Incorrect wire dimensions
- Bad adjustment of the take up coil winding machine mandrels
- Accumulation of dirt inside the wire guides tubes
- Damage of the wire guides
- Mechanical variation or friction on the contact points after the feeder
- Coil Winding Machine mechanical part gradual deterioration
- Temperature difference between cold and warm winding machine

HOW IT WORKS

When working in LWA mode, the LWA function monitors and self-adjust any wire tension variation occurring in all wire passages **after** the Feeder.

- Exact wire consumption measuring (Length Wire Absorption) with resolution of 0,1 mm each and every cycle.
- Compare this reading to master coil or programmed wire length.
- TENSION and LWA values are correlated when T increase --> LWA decreases & when T decrease --> LWA increases.
- Adjusts feeder tension to give same wire length in the coil; progressively each cycle.

BENEFITS

- Reduce or zero out tolerance band on wire length hence coil resistance.
- Consistent production across multi spindle machines.
- An alarm can be raised to tell operator they using incorrect wire (or any of the above causes), as LWA will be drastically wrong.



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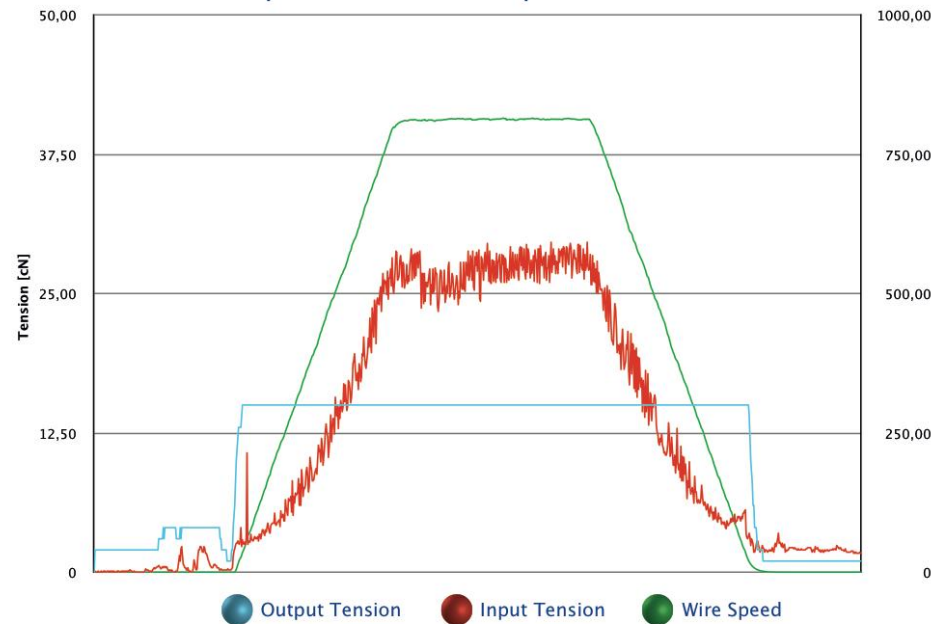


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OUTPUT WIRE CONSTANT TENSION VALUE GUARANTEED

Input Tension vs Output Tension



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



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KEEP THE WHOLE PROCESS UNDER CONTROL

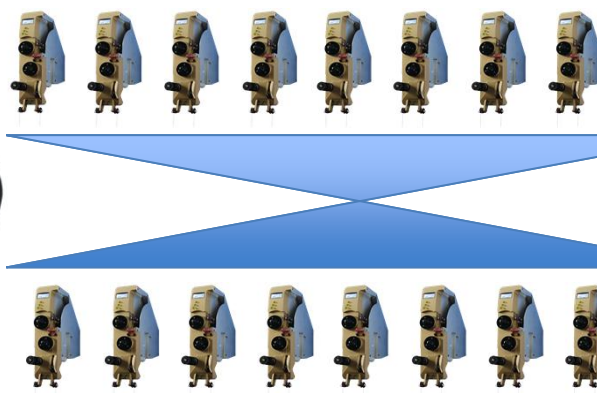


COIL WINDING TECHNOLOGY LINE

Advanced High-Tech Solutions
for Coil Winding Process Control

PC LINK SOFTWARE

"SMART" MATRIX



MATRIX external terminal allows the user to store, upload, visualise and control all parameters in graphical form; wire tension, speed and wire consumption etc...of up to 100 CWF tensioners at once!



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PC-LINK Software Solutions — available soon



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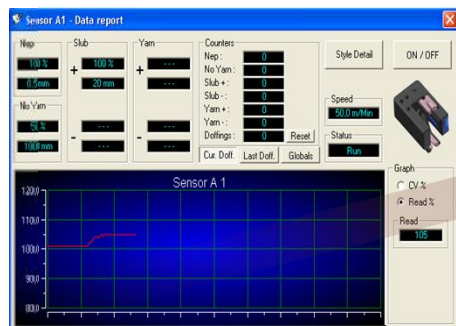
GENERAL FEATURES

- ❑ PC-based (Windows environment)
- ❑ User-friendly graphical interface
- ❑ Synoptic views
- ❑ Statistical functions

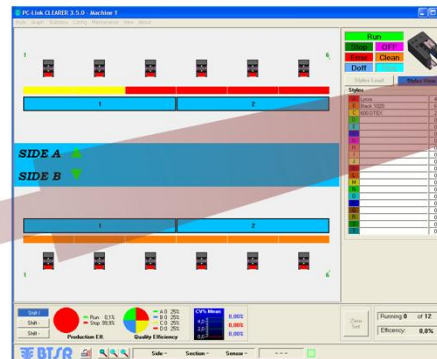
MAIN BENEFITS

- ❑ From “Micro to Macro” -Real Time Monitoring
(each device on each machine at each factory)
- ❑ Powerful Data Collection System
- ❑ Quality Advanced Graphic Parameters Analysis
- ❑ Quick and easy device programming
- ❑ Very high operational flexibility

Single Position Graphic Display



Single Machine Graphic Display



Factory Graphic Display





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TECHNICAL FEATURES

- **Programmable** tension range ; two version available -
CWF/H2- 5~1500g(cN) Wire diameters 0.06~0.5mm (42~24 AWG) resolution +/- 1g
CWF/L- 0.5~200g(cN) Wire diameters 0.015~0.13mm (54~36 AWG) resolution +/- 0.1g
- **Wire speed** range 0.1 - 25 m/s Feeding rate
- **LWA function**: exact wire consumption measuring (Length Wire Absorption)
with resolution of 0,1 mm

Easy setup and communication -Three different operating modes

- **Standalone profiler** - tension and back tension values set via the tension unit keypad. Self selected according to the wire speed change over limits set. Can store up to 4 different wire profiles in the tensioner or hundreds by using the matrix coil unit.
- **Analogue** – simple, scalable tensioner range via analogue input from winding machine.
- **Digital** – up to 4 different tension and back tension values selectable via 2 line digital signal from winding machine.
- **Ergonomic** and **small** dimensions (325x251x70 mm)
- **Power supply** voltage 24VDC \pm 10% - 24 VAC \pm 20% 
- Special **universal fixing** support for quick and easy installation.





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BENEFITS

Impressive Versatility

Fully programmable parameters according to the wire and application requirements and possibility to dynamically modify tension according to the manufacturing process stage ('Tension Profiler' Function).

A wide application range

A single device able to cover a wide wire tension and diameter range.

Production Process Efficiency Maximisation

Able to work at maximum machine speed, thus dramatically reducing wire breakage

Minimises Labour Costs

Minimised machine operator time, thanks to advanced and user-friendly programming options.

Centralised

programming and monitoring Matrix controller external unit able to program and control CWF units at a glance and monitoring the whole process production status also in graphical form.

Performance

drastic process simplification, simultaneous TOP Quality, Accuracy and Repeatability results.

Fully programmable

easy parameter setting (Tension Profiler, % tolerances, ...) for diversified working conditions.

A compact Solution

easy plug & play installation.

Contact **Ingrid West Machinery** to find out more!



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