

## Advanced Wire Control Solutions



COIL WINDING TECHNOLOGY LINE

Advanced High-Tech Solutions  
for Coil Winding Process Control





## The Ultimate Innovation in Wire Constant Tension Feeding

CWF is the latest result from BTR INTERNATIONAL, a worldwide leading company in the design of high tech solutions and innovation development in a wide variety of industrial sectors.

CWF represents a revolutionary new generation Wire Constant Tension Feeding device, unique in terms of functionality and performance, capable of adjusting with utmost accuracy the tension of the finest wire range in coil winding processes.

An innovative Solution based on the BTR 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.



### Why 'CWF'

- **'TOP' Quality Standards Goal**  
Ensures the highest coil winding quality and repeatability, thanks to BTR 'Double Closed Loop' Technology guaranteeing the most accurate and precise wire tension control.
- **Top Versatility**  
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).
- **Production Process Efficiency Maximization**  
Able to work at maximum machine speed, thus dramatically reducing wire breakages.
- **Minimizes Labour Costs**  
Thanks to the and user-friendly programming options.
- **A wide application range**  
A single device able to cover a wide wire tension and diameter range.
- **Centralized programming and monitoring**  
MATRIX COIL controller external unit able to program and control CWF units and monitoring the whole process production status also in graphical form.



MATRIX COIL



CWF

# COIL WINDING

## The New Generation Wire Constant Tension Feeding Device

### Feature and Benefits

- **New 'Full Digital' Technology (BTSR Patent)** - featuring simultaneous dual control on both wire feeding tension and wire running speed for a complete feeding control.
- **Tension Profiler Function (BTSR Patent)** - 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, utilizing two digital outputs.
- **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.
- **Performance** - drastic process simplification, simultaneous TOP Quality, Accuracy and Repeatability results.
- **Fully programmable** - easy parameter setting (Tension Profiler, % tolerances, ...) for diversified working conditions.
- **Advanced BTSR Motor Torque Control System (BTSR Patent)** - detects and adjust wire input feeding tensions change, thus avoiding undesired wire stretches.
- **A compact Solution** - easy and plug & play installation.

Advanced Digital Display  
for real-time operational  
information reading

Ergonomic Keys for  
easy operation and  
synchronized  
alarm signaling

Automatic  
compensation  
arm for wire  
'Storage and  
Release'.

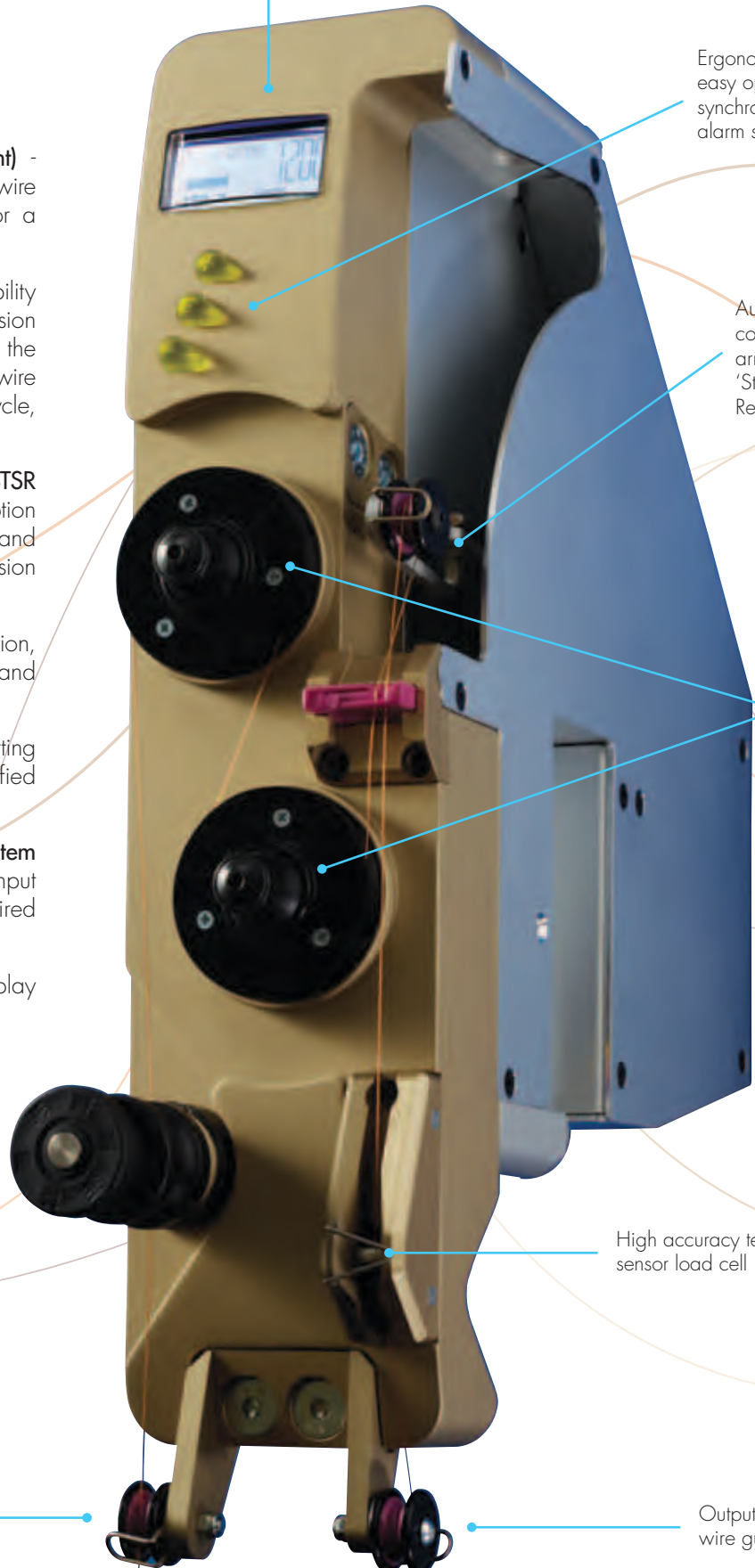
Dual Drive  
feeding  
system

High accuracy tension  
sensor load cell

Output rolling  
wire guide

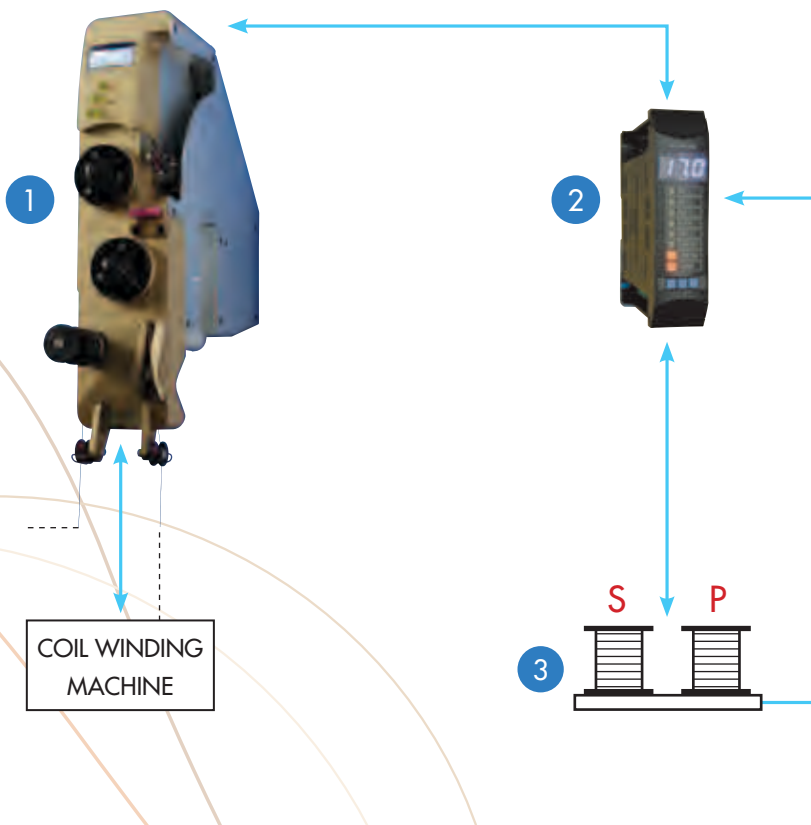
Input rolling  
wire guide

Wire Pretensioner  
Cleaner



# 'DOUBLE CLOSED CONTROL LOOP' Solution (BTSR Patent)

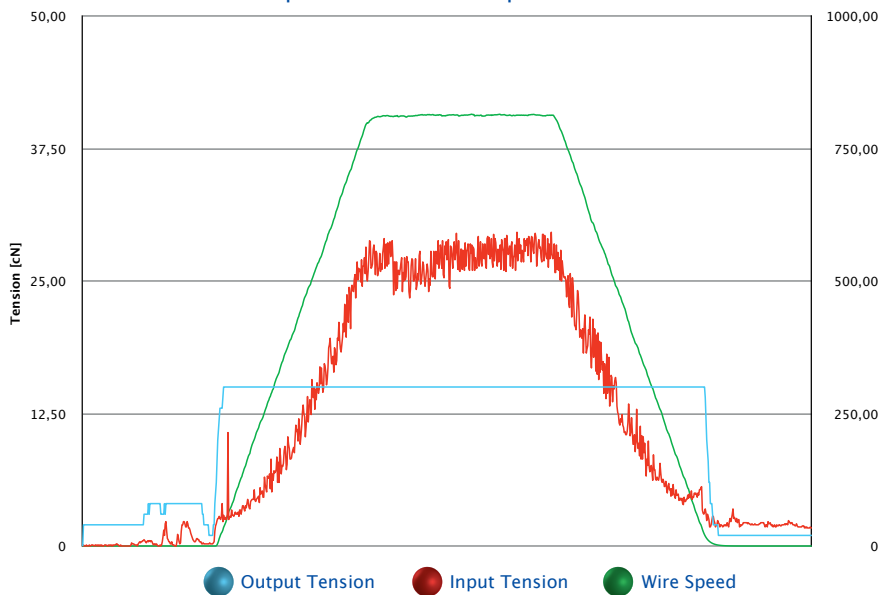
## Get the complete Wire Feeding Tension Control



## HOW IT WORKS

- 1 CWF Device**
  - Controls and self-adjusts the wire feeding tension value on the production machine (Single Closed Loop).
- 2 SM-DIN COIL DUO-LOOP Management Unit**
  - Manages and controls all units.
  - Adjusts CWF SetPoint tension value, by comparing a reference sample (or prefixed parameters value) [S] with a production sample [P].
  - Prevents any impedance/resistance variation of the produced coil (Double Closed Loop).
- 3 COIL TESTING PROBE**
  - Allows a repeatable comparison test between the reference sample (or prefixed parameters) [S] with the production sample [P].
  - Guarantees a certified quality production.

Input Tension vs Output Tension



## 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 colour) and/or wire speed variations (GREEN colour) during the working process.

## Technical Features

- Programmable tension range 5 g ÷ 2000 g (cN)
- Wire tension setup resolution 1 g
- Feeding speed range 0,1 ÷ 25 m/s - 6 ÷ 1500 mt/min
- Wire diameter 0,02 ÷ 0,6 mm - 52 ÷ 23 AWG
- LFA function: exact wire consumption measuring (Length Wire Absorption) with resolution of 0,1 mm.
- Programming - CWF 2000 Editor / CANBUS / User Interface 485
- Easy installation with flat cable
- Ergonomic and small dimensions (325x251x70 mm)
- Power supply voltage 24VDC ± 10% - 24 VAC ± 20%
- Special universal fixing support for easy and quick installation





TOP QUALITY  
& PRODUCTIVITY

HIGH FLEXIBILITY

USER-FRIENDLY



