

NiVEL®

SMART
MACHINERY

2025





QUALITY



PRODUCTION



ASSEMBLY



TECHNOLOGY

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Nível® is a producer of HV&LV Winding Machines and Core Cutting Lines for transformer industry. The factory is located in Ankara-Turkey with 6500 m².

We design and produce our machines according to customer requests and requirements with high technical standards and with creative engineering. Also we execute mechanical production and programming 100% with our high end machine park and software department.

In this way we can offer to our customers' best quality, price, and delivery time.

With high experience of our administration that's coming from transformer production; we implement new technologies and customer requirements into our designs and software to have best results. And we can apply special and innovative solutions to our customers.



QUALITY MANAGEMENT

Nivel® Group is certified with ISO Certification according to its quality policy. Nivel Group has a Quality Management, A system that is compatible with related standards and processes, continuously and systematically controlled.

The quality management system consists of planning, assurance, control, and continuous development steps. From the offer step till the end of the warranty term to satisfy all the customer expectations, institutional structure and keeping the sustainability; all the steps were traced by the specialists.



TECHNOLOGY

International competition conditions and improving the efficiency enforces technological inventions. Our technology strategy focused on developing our products according to requirements of markets and customer expectations.

With our desire to be a pioneer in our sector, tracing to all the improvements we keep all the technological improvements in.



PROJECT MANAGEMENT

Nivel® Group trace all the projects with a discipline of necessary plans, organizations, supplies from beginning till the end. The importing things are for us to optimum usage of time, quality, pricing and other values.

Definition: Definition of the project, defining finance resources, and defining of the project details.

Application: Project acts are executed by responsible technicians within predicted time and sources.

Monitoring and Control: The collecting of process data, comparison with execution, possible deflections and corrections..

ENVIRONMENTAL AWARENESS

Nivel® Group is aware of its responsibilities against the environment and economy. From foundation obeyed "Environmentally Safe Production Technologies". Also, Nivel® is improving environmental awareness with new R&D studies, projects, and experienced technical personnel. Also, with ISO 9001 certification improves according to environmental safety. In this context in our machine, we use regenerative braking technology to acquire up to 40% energy recycling.





HIGH VOLTAGE WIRE WINDING MACHINES

The RF series wire winding machines are designed for production HV coils of distribution transformers with round, flat and flattened wires, strip insulation, full width insulation and end-fill strip.

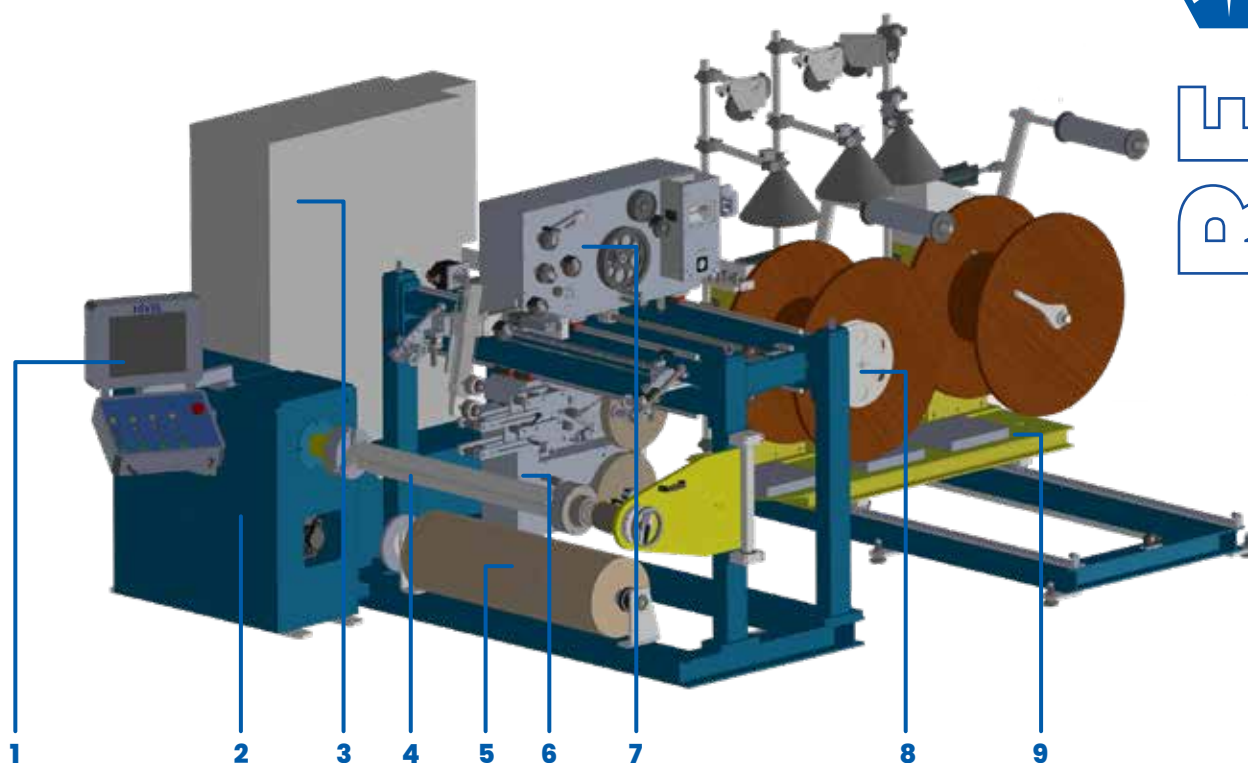
The main control panel with 15" color touch screen allows easy creating winding program. All programmed steps for cooling channel or lead out operations will be automatically stopped at all necessary positions and advises the operator about the next step. Our winding control system allows for easy changes of the software according to the Purchaser's needs and language.

The wire flattening device makes round wire flattened, which allows to increase filling factor during winding and get compact winding. The round wire brake provides always constant wire tension over the entire wire range. The dancer system allows winding of oval and rectangular shaped coils at high speed. The height adjustable wire guiding arm allows to guide wire close to winding area. The standard design of this machine is equipped with one strip insulation and two end-fill strips. The strip insulation guiding unit with elevation function allows to get graded layer insulation, which reduces winding materials and costs of transformer.

Two end-fill strip devices allow the winding of end- fill strips on both sides of the coil. Round and flat wire decoilers with motor and moves horizontally, following automatically the wire guide to feed wire straight.



RF



- 1.** Control panel 15" color touch screen
- 2.** Winder with headstock, tailstock and foot pedal
- 3.** Control cabinet
- 4.** Rectangular expandable mandrel for oblong coil
- 5.** Full width insulation decoiler
- 6.** Two strip insulation decoilers with offset function
- 7.** Wire guiding systems
 - a.** Wire clamping
 - b.** Wire guiding arm height and angle adjustable
 - c.** Laser line pointer
 - d.** Dancer for thin round wire (0,4 – 0,8 mm)
 - e.** Dancer for round wire (0,9 – 5,0 mm)
 - f.** Round wire brake – active
 - g.** Round wire flattener – passive/active
 - h.** Flat wire guiding rolls
- 8.** End-fill strip unit
- 9.** Combined decoiler for 3 round wires and 2 flat wires
 - a.** Overhead round wire decoiler
 - b.** Flat wire decoiler with pneumatic brake and dancer



RF 600
Wire Winding Machine



RF 1000
Wire Winding Machine



RF 1200
Wire Winding Machine



RF 1400
Wire Winding Machine

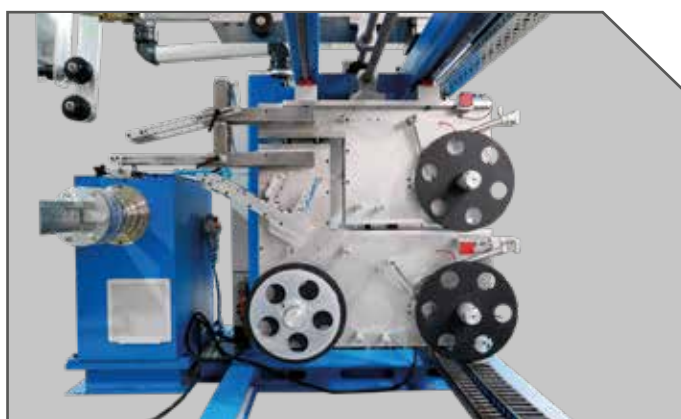
TECHNICAL DATA

MACHINE	RF600	RF1000	RF1200	RF1400
Coil Diameter, mm	700	700 – 1250	700 – 1450	700 – 1450
Coil Width, mm	220 – 660	220 – 1060	220 – 1260	220 – 1460
Max. Coil Weight (including LV coil), kg	500	1000	1200	1500
Winding Speed, rpm	0 – 400	0 – 400	0 – 400	0 – 200
WIRES				
Max. Number of Round Wires	2	3	3	3
Round Wire Diameter Cu, mm	0,60 – 3,00	0,80 – 3,75	0,80 – 3,75	0,80 – 3,75
Round Wire Diameter Al, mm	0,80 – 3,50	1,00 – 4,50	1,00 – 4,50	1,00 – 4,50
Max. Number of Flat Wires	2	4	8	8
Flat Wire Dimensions	//////////////////// Variable, depends on customer needs //////////////////////			
STRIP INSULATION				
Number of Strip Insulations	1	1 – 2	1 – 2	1 – 2
Strip Width, mm	20 – 60	20 – 60*	20 – 60*	20 – 60*
Strip Thickness, mm	0,055 – 0,15	0,055 – 0,15	0,055 – 0,15	0,055 – 0,15
Outer Diameter of Supply Roll, mm	400	400	400	400
END-FILL STRIP				
End-fill Strip Width, mm	10 – 30	10 – 30	10 – 30	10 – 30
End-fill Strip Thickness, mm	0,2 – 1	0,2 – 1	0,2 – 1	0,2 – 1
Outer Diameter of Supply Roll, mm	400	400	400	400
FULL WIDTH INSULATION				
Number of Full Width Insulations	1	1	1	1
Insulation Width, mm	220 – 660	220 – 1060	220 – 1260	220 – 1460
Insulation Thickness, mm	0,1 – 0,25	0,1 – 0,25	0,1 – 0,25	0,1 – 0,25
Outer Diameter of Supply Roll, mm	400	400	400	400



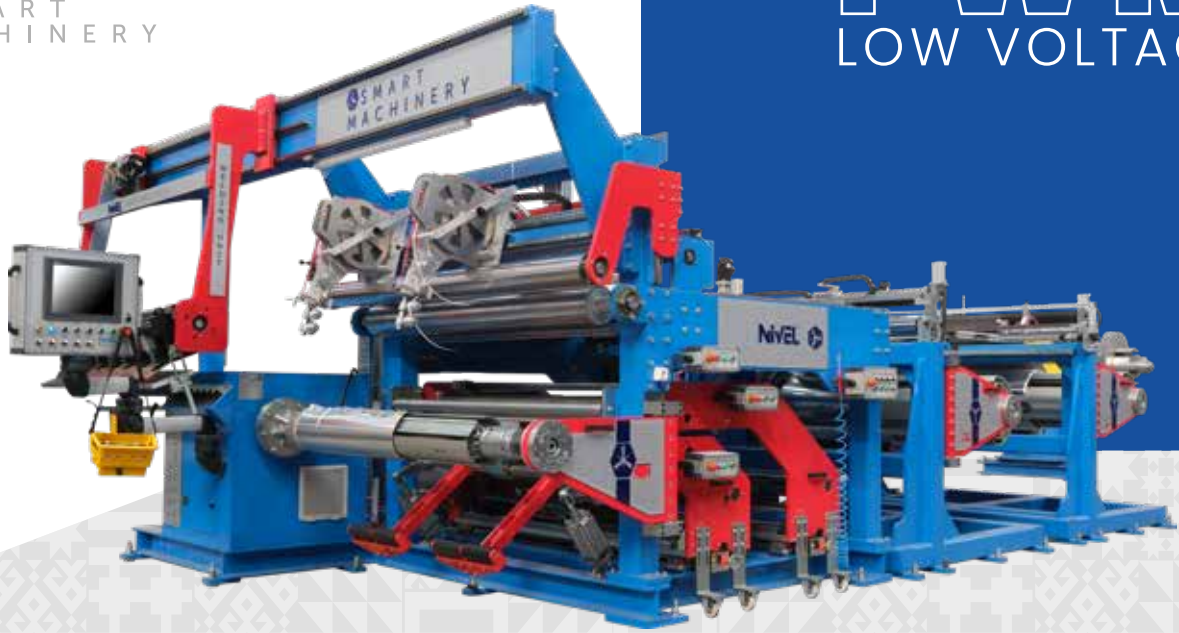
ROUND WIRE FLATTENER – ACTIVE

The round wire flattener – active consists of two servomotor-driven wheels, therefore flattening process is active and round wire is not elongate and doesn't change its cross section.



END-FILL STRIP AUTOMATIC INSERTING AND CUTTING

The end-fill strip will be inserted and cut automatically during winding to ensure the optimal insulation thickness on both sides of the coil.



LOW VOLTAGE FOIL WINDING MACHINES

The FWM series foil winding machines are designed for production LV coils of distribution, power and cast resin transformers with one or two copper or aluminum foils.

The main control panel with 15" color touch screen allows easy creating winding program. All programmed steps for cooling channel or lead out operations will be automatically stopped at all necessary positions and advises the operator about the next step. Our winding control system allows for easy changes of the software according to the Purchaser's needs and language.

The machine can be equipped with one or two foil decoilers. Each decoiler is equipped with drive, hydraulic expandable mandrel, swiveling tailstock, pressing rolls and brake. Its own regulated brake system allows to wind coils under constant foil tension regardless of foil's different thickness or coil's size.

Edge alignment ensures precise conductor positioning on the coil during winding process.

The standard design of machine is equipped with two insulation decoilers and three end-fill strips on each side.

Each insulation decoiler can be pulled out of the machine to easy load supply coil. The mandrels are pneumatically expandable to allow quick and easy loading.

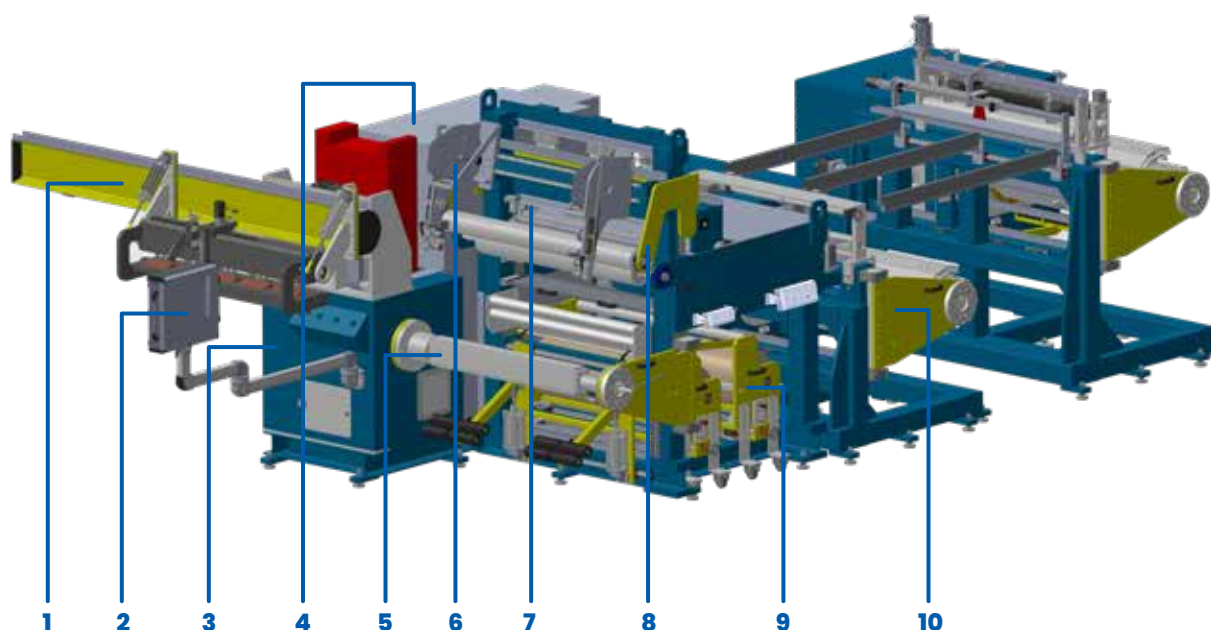
Paper alignment ensures manual paper positioning on the insulation decoiler after loading supply coil.

Three end-fill strips ensure to get required thickness on both sides of coil.

Winder is equipped with main drive, faceplate, counter bending roller.



FWM



- 1.** TIG welding
- 2.** Control panel with 15" color touch screen
- 3.** Winder with headstock, tailstock and foot pedal
- 4.** Control cabinet
- 5.** Rectangular expandable mandrel for oblong coil
- 6.** End-fill strip unit
- 7.** Disc cutting knife
- 8.** Counter bending roll
- 9.** Insulation de-coiler – V3 (motorized brake and rewinding)
 - a.** Trolley on sliding guiding rails
 - b.** Motorized brake
 - c.** Rewinding
 - d.** Diameter measuring device
 - e.** Pneumatic expandable mandrel with quick clamping
 - f.** Automatic insulation feeding
 - g.** Automatic insulation length cutting
 - h.** Manual edge adjustment
 - i.** Width cutting of insulation
- 10.** Foil de-coiler
 - a.** Ultrasonic diameter measuring sensor
 - b.** Pressing arm with rolls at de-coiler
 - c.** Deburring units
 - d.** Edge alignment system
 - e.** Foil feeding rolls



HIGH VOLTAGE FOIL WINDING MACHINES

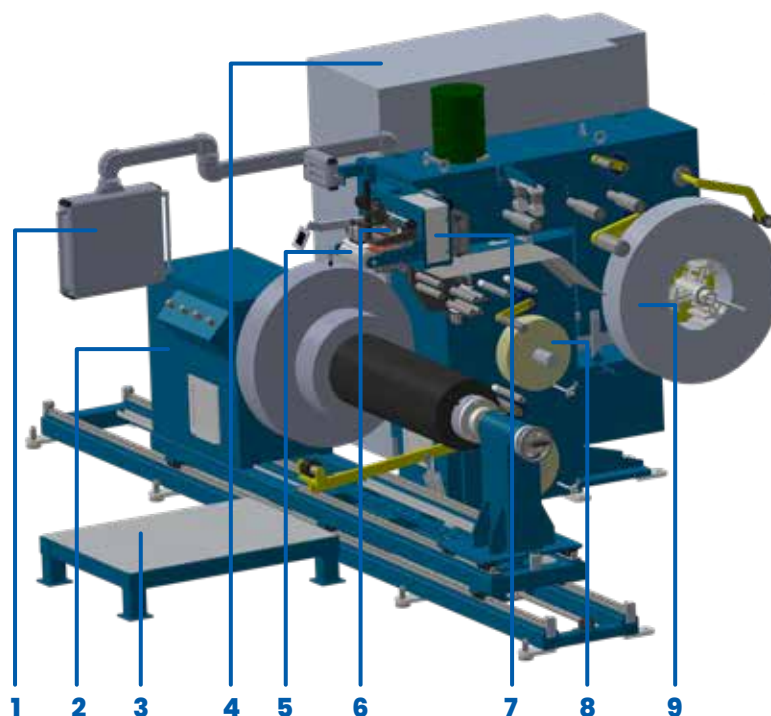
The FWM-HV series foil winding machines are designed for production HV coils of cast resin transformers with one or two copper or aluminum foils, up to two insulations and with TIG Welding. The main control panel with 15" color touch screen allows easy creating winding program. All programmed steps for cutting foil, insulation inserting or lead out welding operations will be automatically stopped at all necessary positions and advises the operator about the next step. Our winding control system allows for easy changes of the software according to the Purchaser's needs and language.

The FWM-HV-TIG consists of: The ground base is welded rigid construction. The winder with winding drive and tailstock is mounted on rails on ground base, so they are sideways movable for disc winding. A tailstock has own rails and is movable for varying coil lengths. A laser line pointer shows the left-side reference edge for an easy alignment of the conductor foil by the operator. A cleaning unit cleans dust from the foil. Clamping units for foil and two insulations keep end of foil and insulations after cutting close to winding area. The side of the machine is covered by a laser scanner, which will sound a warning signal and then it will cause an emergency stop if anybody enters into dangerous area.

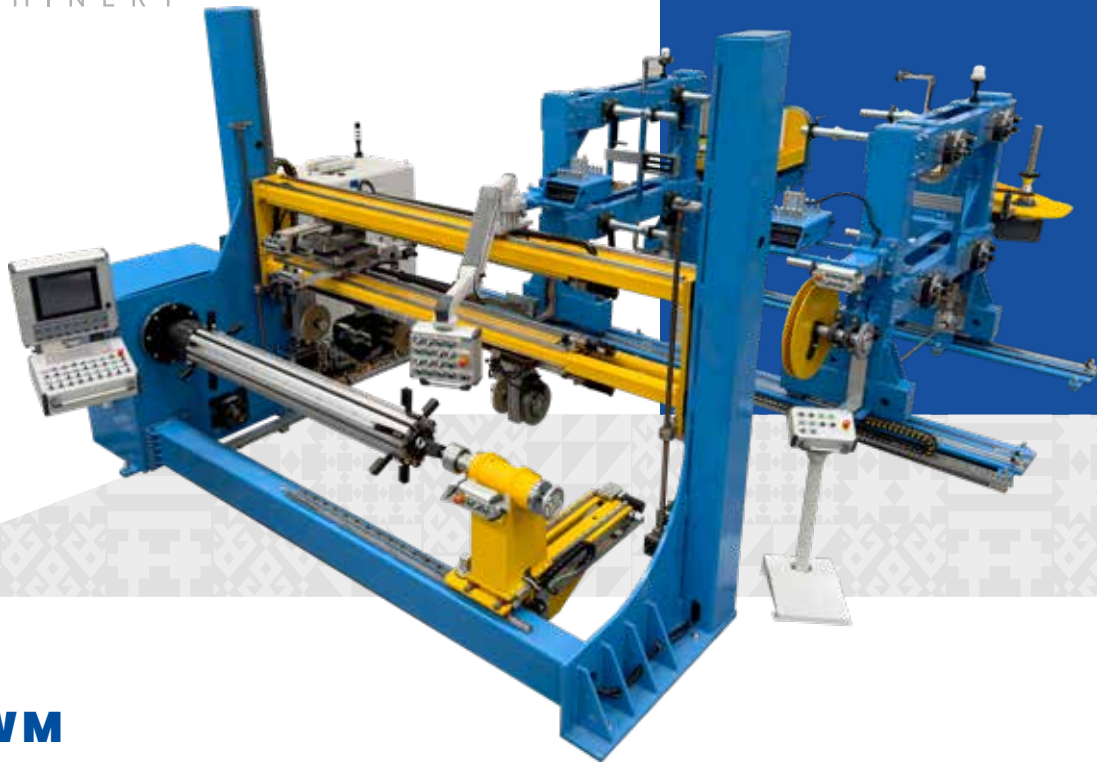
The FWM HV is equipped with one conductor foil decoiler and with two insulation decoilers. Each decoiler has a pneumatic expandable mandrel and it can be easily loaded and unloaded from the side.



FWM



- 1.** Control panel with 15" color touch screen
- 2.** Winder with ground base, motor-driven sliding base, headstock, sliding tailstock, foot pedal, laser line pointer
- 3.** Platform
- 4.** Control Cabinet
- 5.** Length measuring and clamping unit
- 6.** TIG welding
- 7.** Cleaning brushes
- 8.** Insulation de-coiler
 - a.** Pneumatically expandable mandrel
 - b.** Clamping unit for insulation
 - c.** Diameter measuring device
 - d.** Dancer
 - e.** Motorized brake
- 9.** Foil de-coiler
 - a.** Mandrel
 - b.** Ultrasonic diameter measuring sensor
 - c.** Pressing arm with rolls at de-coiler
 - d.** Dancer
 - e.** Deburring units
 - f.** Edge alignment system



TTWM

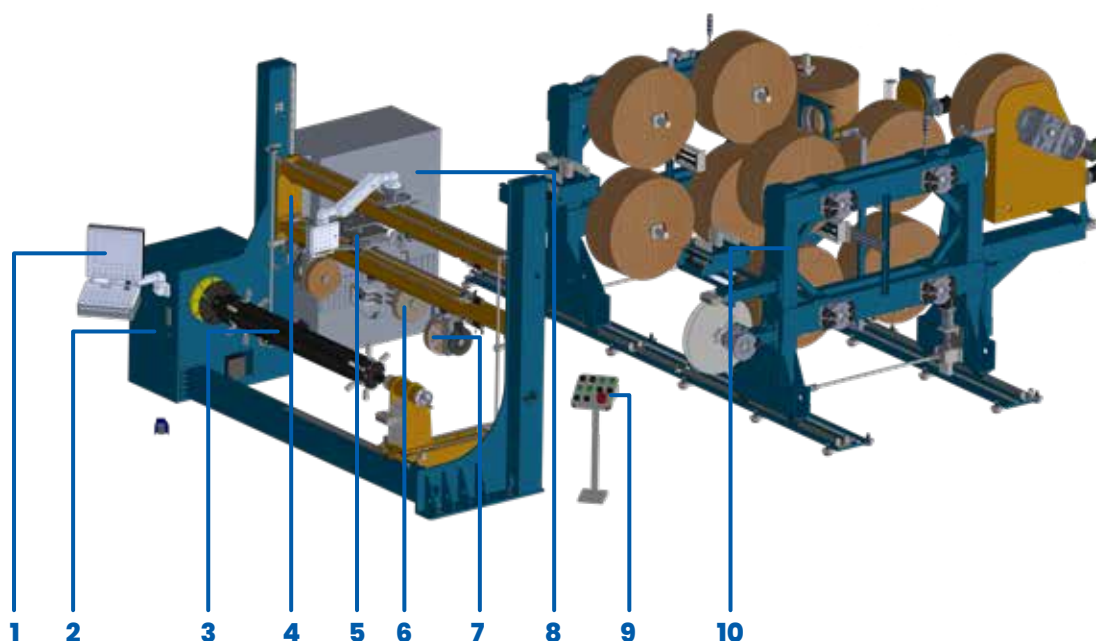
The winding machine TTWM2000-Fa2F8-sle2b1 is designed for production of coils train and traction transformers, as well distribution and medium power transformers. Two wire guiding systems ensure to wind two windings in one coil of train and traction transformers. One wire guiding arm is used during winding coil of distribution transformers. 2 wire guiding systems, 2 end-fill strip units and strip insulation guiding system are fixed on height-adjustable frame, which can be fixed at highest position during disc winding or other coils of medium power transformers.

The winding machine consists of: a) 2 wire guiding systems; b) 1 strip insulation guiding system with possibility of use it as a third end-fill strip between 2 windings; c) 2 end-fill strips; d) 1 tightening belt; e) 2 separate framed combined decoilers for round, flat and CTC wires, each of them for 5 drums (4 decoilers with pneumatic disc brake and 1 decoiler with 90° swivelable, dancer, motorized brake and rewinding functions).

The machine can be customized at request (E.g.: pressing device can be integrated).



TTWM



- 1.** Control panel 15" color touch screen and industrial IP64 keyboard/trackball
- 2.** Winder:
 - a.** Ground base
 - b.** Headstock with winding drive
 - c.** Faceplate with 4 x M16 T-slots
 - d.** Sliding tailstock with local control panel
 - e.** Foot pedal
 - f.** Sockets 220 V
 - g.** Compressed air connection
- 3.** Round expandable mandrel
- 4.** Height adjustable frame with control panel
- 5.** Two wire guiding systems:
 - a.** Wire collector and guiding rolls
 - b.** Pneumatic wire clamping
 - c.** Coiling duct holder
 - d.** Wire guiding arm and rolls swiveable $\pm 30^\circ$
- 6.** Strip insulation guiding system
- 7.** End-fill strip unit with pneumatic brake
- 8.** Control cabinet with LOTO devices (Lock Out Tag Out)
- 9.** Portable control panel with foot pedal for operator assistance
- 10.** Combined decoiler for 5 flat/CTC wires:
 - a.** Baseplate on sliding guiding rails
 - b.** 4 x flat/CTC wires decoilers with pneumatic disc brakes
 - c.** 1 x flat wire decoiler 90° swivelable, dancer, motorized brake and rewinding functions
 - d.** Wire collector with pneumatic pre-brake
 - e.** Tightening belt
 - f.** Local control panel at front of decoiler
 - g.** Local control panel at back of decoiler



INSTRUMENT TRANSFORMER WINDING MACHINES

The ITWM series instrument transformer winding machines are designed for automatic production simultaneously up to 9 medium voltage coils of instrument transformers, with one enameled wire per coil and full width insulation feeding system with automatic layer insulation inserting and cutting. The main control panel with 15" color touch screen allows easy creating winding program.

The program will control whole automatic winding process like as wire and insulation tension control during winding, insulation inserting and cutting it at calculated length according to circumference of each layer's diameter, width adjustment of wire guiding arms and cutting knives, coils' splitting and edge cutting, adjusting height of frame considering increasing coil's diameter to keep wire and insulation feeding close to surface of coil.

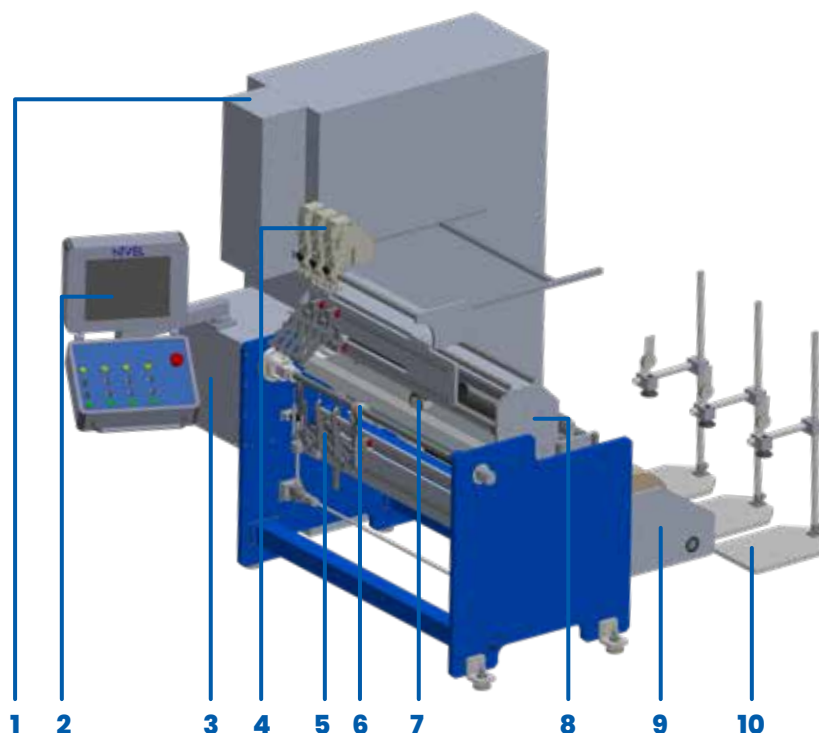
Our winding control system allows for easy changes of the software according to the Purchaser's needs and language.

The electronic wire tensioner ensures accurate and precise round wire tension. There is Advanced Digital Display for real-time operational information reading, such as: Wire Speed (LWA)–Wire Tension–Motor Torque–Working phase.

The faceplate with 45° swiveling mechanism allows easy unloading ready coils, as well as assembling coils' adapters and spacers according to requested quantity of coils. The tailstock with pneumatic locking of mandrel controls and ensures safety functioning.



TTWM



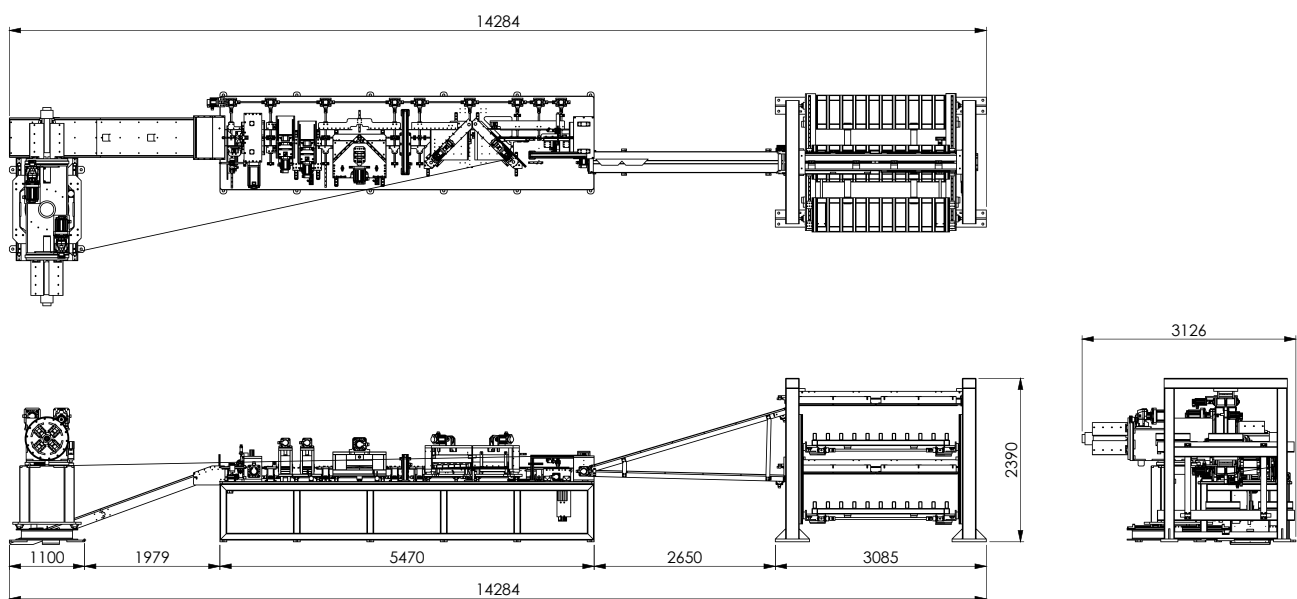
- 1.** Control cabinet
- 2.** Control panel with 15" color touch screen
- 3.** Winder:
 - a.** Headstock
 - b.** Faceplate with 45° swiveling mechanism
 - c.** Tailstock
 - d.** Foot pedal
- 4.** Wire guiding system:
 - a.** Automatic distance adjustment
 - b.** Wire guiding arms
 - c.** Electronic wire tensioners
- 5.** Cutting system:
 - a.** Automatic distance adjustment
 - b.** Cutting knives for coils' splitting
 - c.** Coils' edge cutting knives
- 6.** Winding shaft with set of adapter and spacers Insulation feeding system
 - a.** Automatic insulation inserting
 - b.** Automatic insulation cutting
- 7.** Insulation feeding system
 - a.** Automatic insulation inserting
 - b.** Automatic insulation cutting
- 8.** Height adjustable frame
- 9.** Full width insulation de-coiler
- 10.** Overhead round wire decoilers



CORE CUTTING LINES

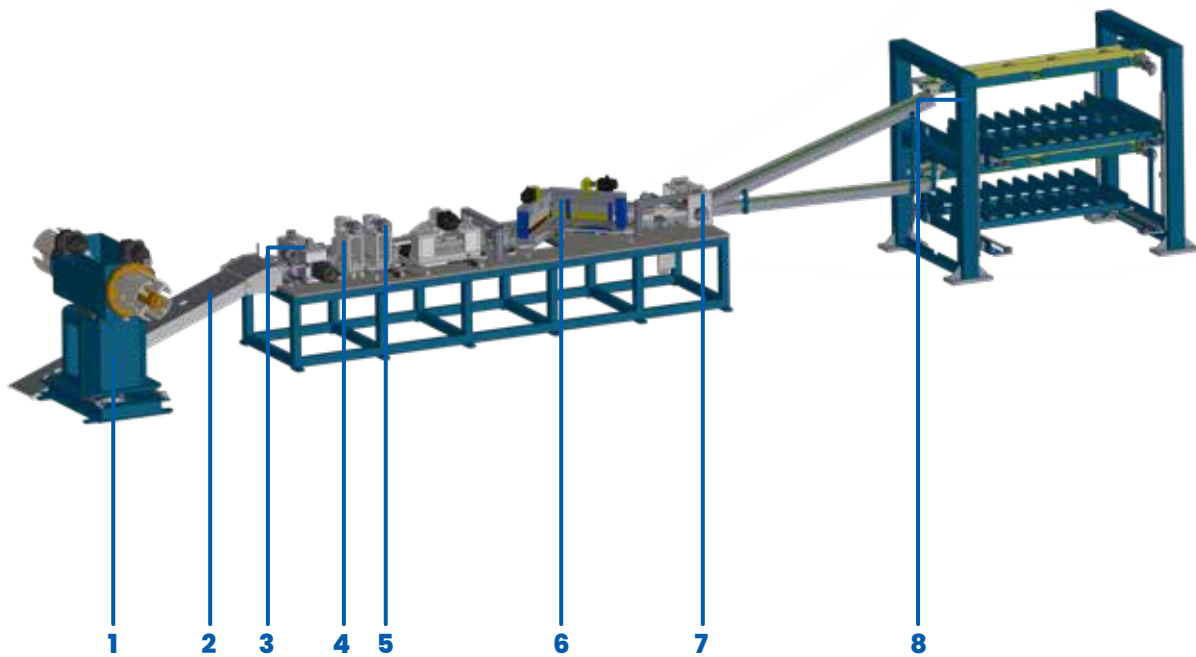
The core cutting lines–CCL are designed for automatic production of lamination sheets of transformer cores with V-notching, hole punching and shearing systems, two head decoiler. The CCL can be equipped with different type of stacking systems according to customer's needs.

The program will control whole automatic cutting process like as edge alignment, controlling lamination feeding speed considering decreasing diameter of coil on decoiler, precise calculating V-notching, hole punching and shearing.



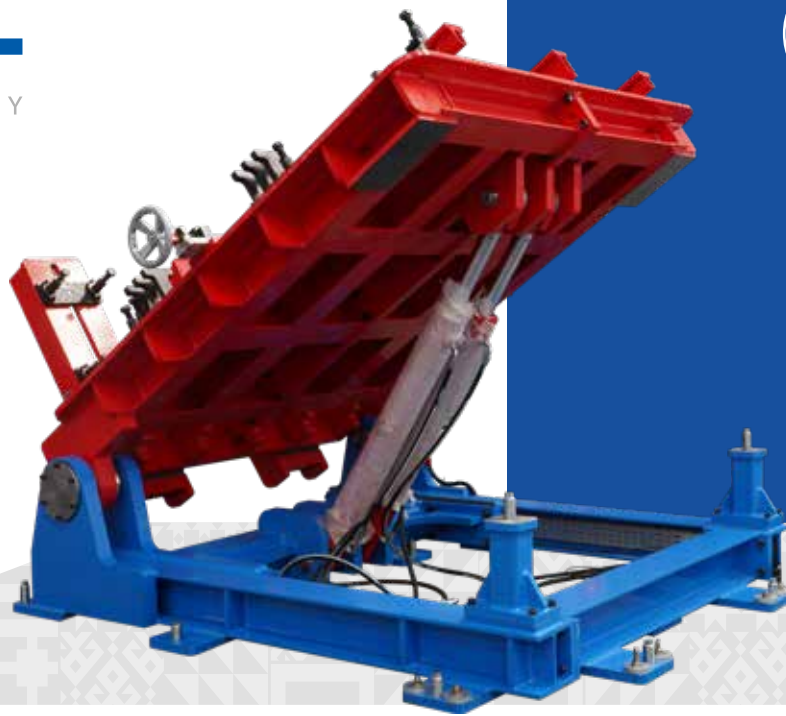


Tool



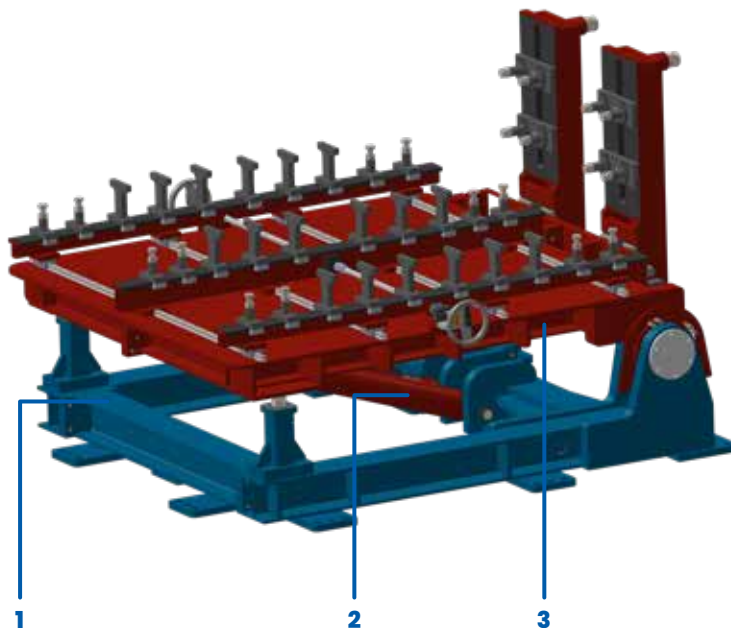
1. Two head decoiler with transverse moveable base
2. Ramp for pre-alignment
3. Feeding system with edge alignment and length measuring rolls
4. V-notching system
5. Hole punching system: 1st is static, 2nd is moveable
6. Shearing system: 1st 45°, 2nd 135°
7. Extraction belt and braking rolls
8. Automatic Lamination Stacking System – ALSS





CORE STACKING TABLE

The core stacking tables are designed for 5-30 ton transformer's core stacking with hydraulic upending. It has a rigid structure, and it is easy to operate.

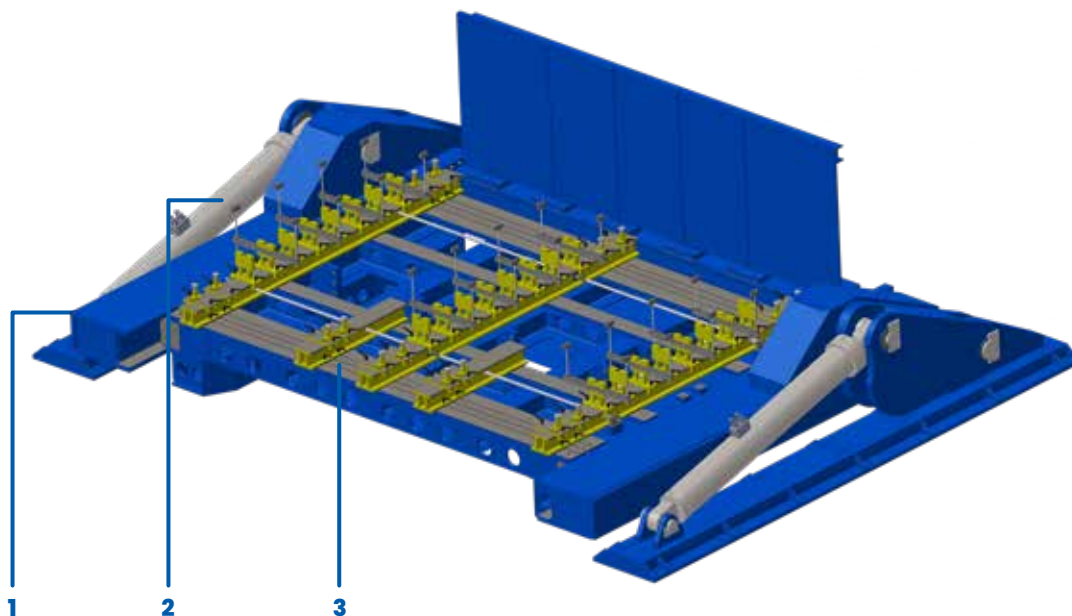


1. Ground base
2. Hydraulic upending unit
3. Stacking pallet:
 - a. Pallet frame
 - b. Leg support bars
 - c. Yoke support bars
4. Switch cabinet with control panel 10" color touch screen
5. Remote control



CORE STACKING TABLE

The core stacking tables are designed for 80-100 ton transformer's core stacking with hydraulic upending. It has a rigid structure, and it is easy to operate.

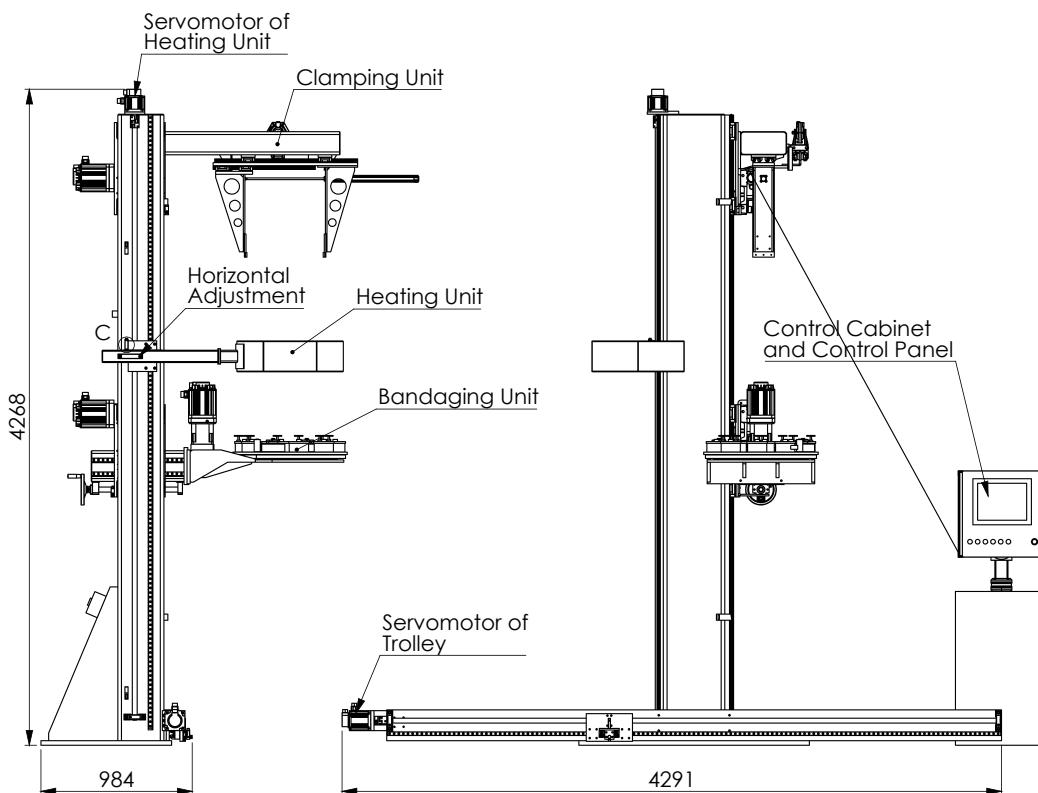


- 1.** Ground base
- 2.** Hydraulic upending unit
- 3.** Stacking pallet:
 - a.** Pallet frame
 - b.** Leg support bars
 - c.** Yoke support bars
- 4.** Switch cabinet with control panel 10" color touch screen
- 5.** Remote control



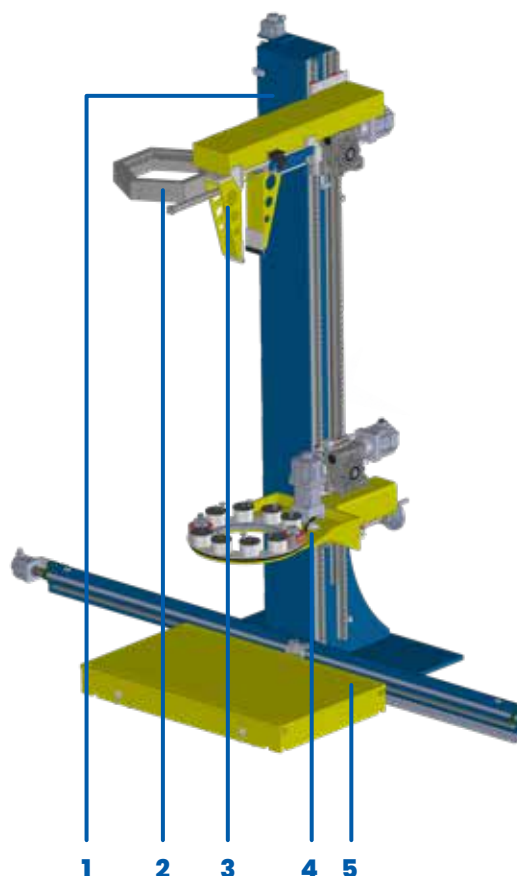
CORE BANDAGING AND HEATING UNIT

Vertical CBHU-V is designed for bandaging and heating (baking) of tape on core legs in vertical position. The unit has a rigid structure, and it is easy to operate. The machine is controlled by an operating panel with a touch screen and remote control.





UHB



- 1.** Column – main body
- 2.** Core leg clamping:
 - a.** Height adjustable arm
 - b.** Clamping jaws
 - c.** Clamping brake
- 3.** Bandaging unit:
 - a.** Vertically moveable frame
 - b.** Horizontally adjustment
 - c.** Rotating ring
 - d.** Brake rollers
 - e.** Holder of tape
- 4.** Heating unit:
 - a.** Vertically moveable frame
 - b.** Horizontally adjustment
 - c.** Clamping
 - d.** Infrared radiators
 - e.** Holder of tape
- 5.** Core holding trolley
- 6.** Switch cabinet with control panel 10" color touch screen
- 7.** Remote control

ACCESSORIES



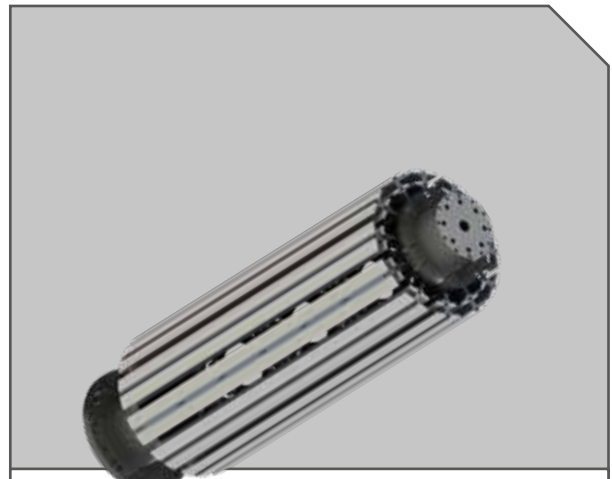
Round and rectangular expandable mandrels for wire winding machines



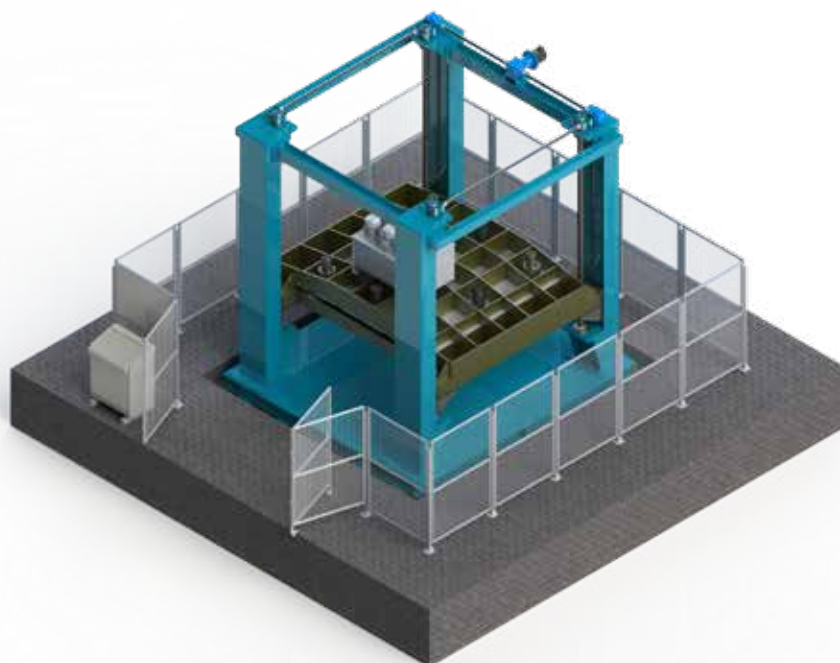
Round and rectangular expandable mandrels for foil winding machines



Expandable mandrels for vertical and horizontal winding machines

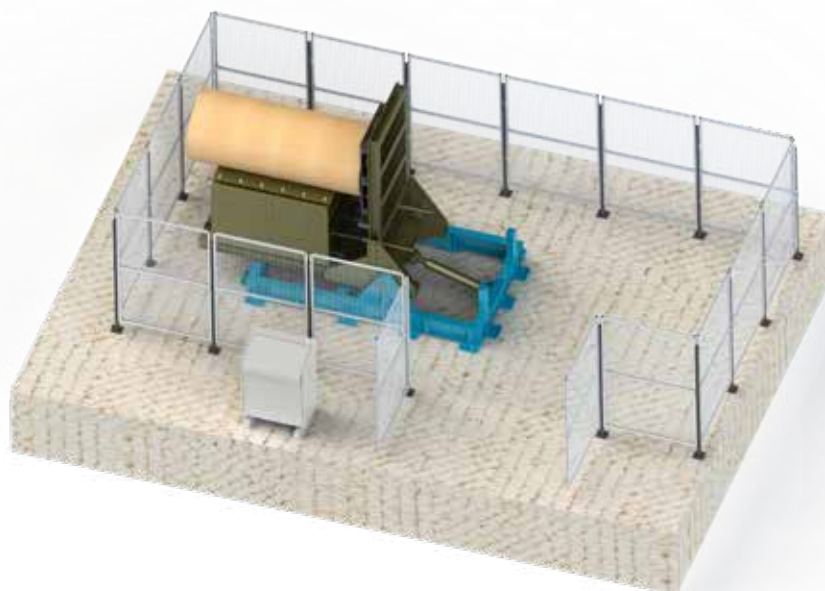


Expandable mandrels for traction transformer winding machines



COIL PRESS UNIT – HYDRAULIC CPU-H

The Coil Press Unit – Hydraulic CPU-H is designed for pressing windings and active parts of transformers to a certain height, depending on the transformer design.



COIL TILTING UNIT

The coil tilting unit is designed for tilting and unloading coils.



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