

## 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.



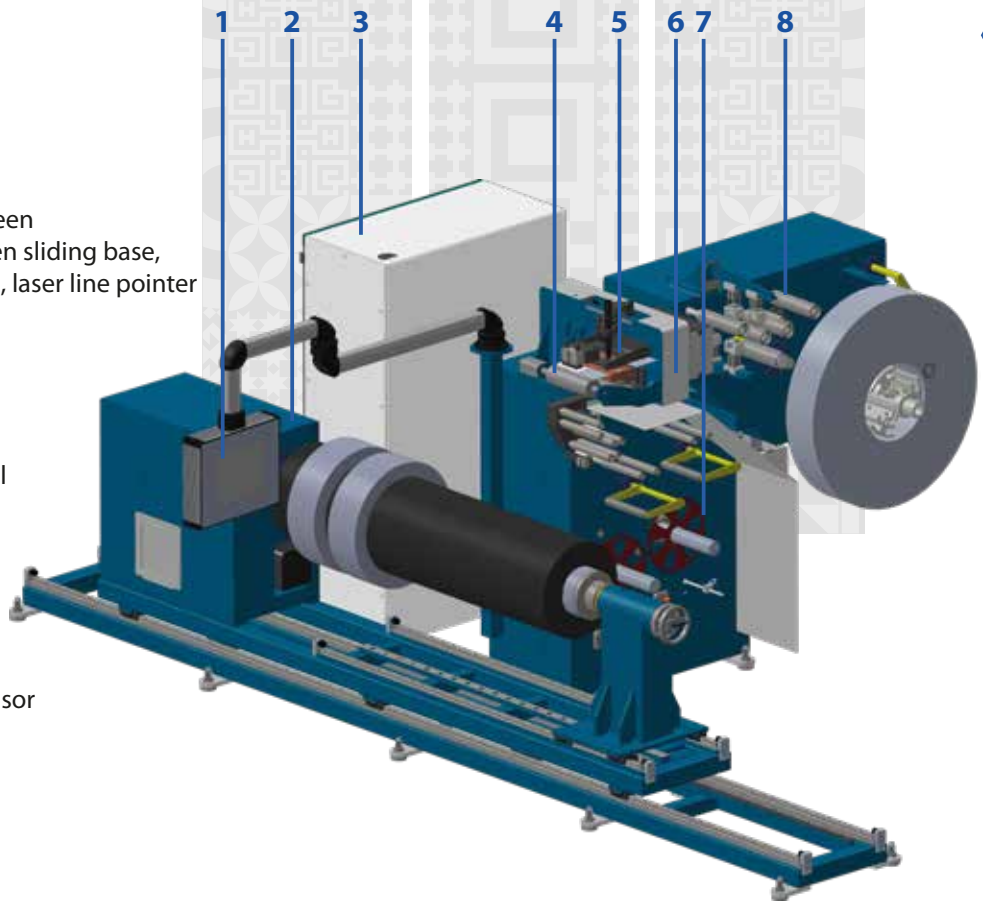
The FWM HV is equipped with one conductor foil decoiler and with two insulation decoilers. Each decoiler has a pneumatic expandable mandrel and it can be easily loaded and unloaded from the side. The diameter measuring device on each decoiler continuously monitors the outer diameter of the supply coil and a dancer system ensures that tension of foil and each insulation stays constant. An edge-alignment system ensures a repeatable, accurate position of the conductor foil and insulation on the coil even if they are misaligned on the supply rolls. An additional pressing arm on conductor foil decoiler prevents the conductor foil from slipping. The conductor foil decoiler can also be optionally equipped with an edge deburring unit.



TIG welding can be used to weld copper or aluminum. Both the conductor foil and the lead bar must be made of the same material. The lead bar will be actively cooled by water cooling system during welding process. The welding area is protected by a shielding gas. The torch is directly connected to the welding current generator which is located near the front side of the machine. The speed of the torch can be adjusted step-less. The conductor foil and the lead-outs are fixed by pneumatic clamps.

## MACHINE CONSISTS OF:

- 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 Control cabinet
- 4 Length measuring and clamping unit
- 5 TIG welding
- 6 Cleaning brushes
- 7 Insulation de-coiler
  - a) Pneumatically expandable mandrel
  - b) Clamping unit for insulation
  - c) Diameter measuring device
  - d) Dancer
  - e) Motorized brake
- 8 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
- 9 Hand electric scissor
- 10 Remote service (GSM 4G) access

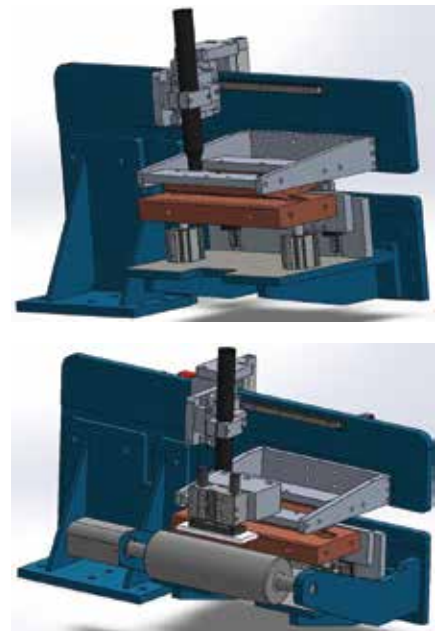


## AVAILABLE OPTIONS:

- Second conductor foil decoiler
- Intermediate insulation decoiler
- Protection paper rewinder
- Winding tools to clamp casting mould
- Safety system:
  - a) Fence
  - b) Laser area scanner,
  - c) Light barrier
  - d) Laser safety scanner at winder

## TECHNICAL DATA

MACHINE	FWM-HV 150	FWM-HV 200
Coil Diameter, mm	1000	1200
Coil Width, mm	1500	1800
Winding Speed, rpm	0 - 250	0 - 200
Foil tension, N	30 - 1500	30 - 2200
<b>FOIL Cu / Al</b>		
Number of Foil Decoilers	1 - 2	1 - 2
Foil Width, mm	20 - 150	25 - 200
Al Foil Thickness, mm	0,15 - 1,5	0,2 - 2,0
Cu Foil Thickness, mm	0,1 - 1,2	0,15 - 1,5
Loading Capacity, kg	500	800
<b>INSULATION</b>		
Number of Insulations	2	2
Insulation Width, mm	160	210
Insulation Thickness, mm	0,012 - 0,036	0,012 - 0,036
Inside Diameter of Supply Roll, mm	10 - 80	10 - 100
<b>TIG WELDING UNIT</b>		
TIG Welding, A	400	400



**Note:** Machines with different specifications are available on request.