



L.a.e.

Lugheze Attrezzature per l'Elettromeccanica Srl

BOB L 120M
BOB L 150M
BOB L 200M

Your Partner for Transformers Manufacturing

FOIL WINDING MACHINES FOR HV COILS OF CAST RESIN TRANSFORMERS



TARGET

The winding machines BOB L 120M, BOB L 150M and BOB L 200M have been designed to produce windings using aluminium or copper strip for HV coils to be used in cast resin transformers.

MAIN FEATURES

The winding of the conductor strip and insulating material is performed on the inner part of the casting mould at high speed. This ensures extremely short winding times for each coil and constant tension thanks to a fast electronic braking control by means of servomotors and pneumatic operated dandy-rolls. The tension value on different windings is directly set from the control system and quickly adjustable. The machine is equipped with an electronically-controlled system, for the automatic alignment of the conductor strip. The TIG welding system for bus bars is easily accessible from the operator place, avoiding waste of time. Further saving in time is possible because this machine can wind the coils suitably spaced directly on the final mould used for the resin casting operation. Therefore, all assembly operations which are usually to be performed between the winding phase and the casting phase are ruled out.

The machine is controlled by a PLC, the operator interface is a Colour Touch Screen Operator Panel for a user-friendly operating.

High level of safety, without compromising in productivity, is granted by the optical barriers and the Safety PLC which supervises the operating.





MACHINE COMPOSITION

MAIN MACHINE :

- (a) 1 conductor foil decoiler
- (b) Foil tension electronic control
- (c) Foil automatic alignment
- (d) Foil cleaning unit
- (e) Laser pointer
- (f) Bus-bar TIG welding unit
- (g) Driving unit & Tailstock (sideways movable)
- (h) 4-jaw chucks for inner mould clamping
- (i) Winding locking
- (j) 2 insulation dereelers
- (k) Controls with computer
- (l) Internet teleservice

ACCESSORIES :

- (1) Deburring unit
- (2) Foil protection paper collecting system
- (3) Insulation protection cover
- (4) Electric shears for foil cutting
- (5) Winding program editor application

TECHNICAL DATA

GENERAL			BOB L 120M	BOB L 150M	BOB L 200M
Weight of basic machine	approx.	kg	6500	7000	7000
WINDING					
Height	max	mm	1300	1500	1500
Winding diameter	max	mm	700	1000	1000
Overall diameter	max	mm	800	1200	1200
FOIL MOVEMENT					
Winding mandrel speed	max	rpm	200	150	150
Foil linear speed	max	m/min	300	200	200
Foil tension	min/max	N	15 / 950	15 / 1800	150 / 2000
Weight between centres	max	kg	700	1700	1700
CONDUCTOR (Cu or Al)					
Foil width	min/max	mm	15 / 120	15 / 150	50 / 200
Cu foil thickness	min/max	mm	0.1 / 0.8	0.1 / 1.2	0.3 / 1.5
Cu cross section	min/max	mm ²	1.5 / 50	1.5 / 180	15 / 300
Al foil thickness	min/max	mm	0.2 / 0.8	0.2 / 1.5	0.3 / 2.0
Al cross section	min/max	mm ²	3 / 100	3 / 225	15 / 400
INSULATING MATERIAL					
Width	min/max	mm	20 / 130	20 / 160	50 / 210
Thickness	min/max	mm	0.023 / 0.2	0.023 / 0.2	0.023 / 0.2
Tension	min/max	N	5 / 260	5 / 260	10 / 300

