

MACPO S2 1600

STO 18014-02e_Base_MACPO_S2_1600



L.a.e.

Macchina
Machine

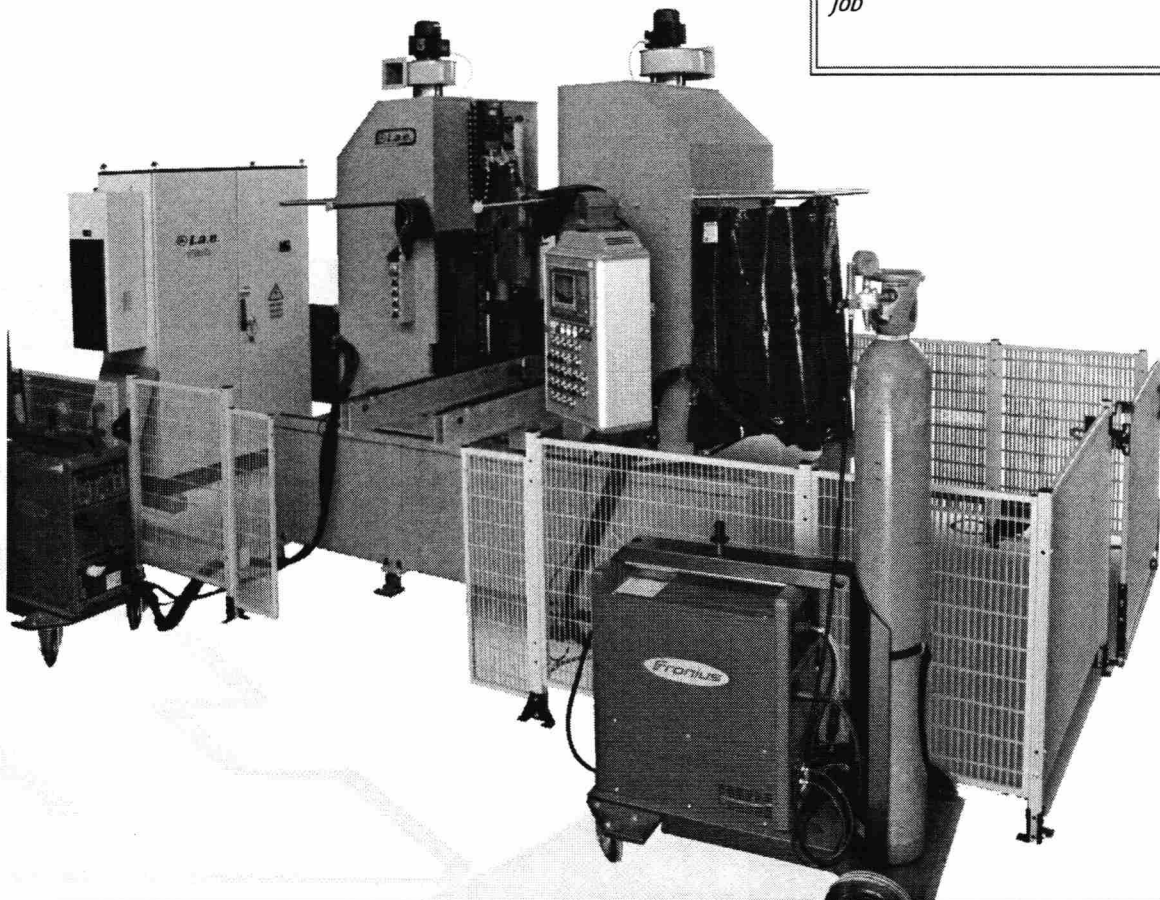
MACPO S2 1600

Specifica Tecnica
Technical Specification

**STO 18014-02e_Base_
MACPO_S2_1600**

Cliente
Customer

Commessa
Job



pag. 1

TABLE OF CONTENTS

1 PREAMBLE.....	3
1.1 GENERAL DESCRIPTION.....	3
1.2 CONFIDENTIALITY CLAUSE.....	3
2 COMPOSITION OF THE MACHINE.....	4
2.1 BASIC MACHINE.....	4
2.2 INCLUDED ACCESSORIES.....	6
2.3 OPTIONAL.....	7
3 TECHNICAL SPECIFICATIONS.....	8
3.1 TECHNICAL DATA OF COMPONENT PARTS.....	8
3.2 TECHNICAL DATA OF MATERIALS, UTILITIES & ENVIRONMENT.....	9
4 PERFORMANCE GUARANTEE.....	10
4.1 PRODUCTIVITY.....	10
5 ENCLOSURES.....	11
5.1 LAYOUT DRAWING (JUST AS A REFERENCE).....	11

1 PREAMBLE

Since 1978 LAE has been designing and producing machines and equipment for the manufacturers of electric transformers. The company target is assuring our clients the highest functionality and reliability of our machines, for this reason we propose ourselves as **partners** of our clients. The experience gained on our daily work with the clients allows us to offer state-of-the-art solutions, defined on specific exigencies of the users, maintaining a manufacturing philosophy which still holds the artisan care for the particulars and the functionality. With the awareness of the customer exigency of having the machine permanently available for production, LAE is oriented in the selection of its suppliers to the most well known brands with proven experience, capacity and with easy traceable components on the global market.

1.1 GENERAL DESCRIPTION

Since 1988 LAE has developed a line which allows to produce corrugated panels from flat sheets in coils and to weld their edges in a fully automatic way, obtaining tanks for transformers. Through this process, using sheet strips as wide as up to 1600 mm, it is possible to cover the full range of distribution transformers up to a power rating which can reach approximately 8-10 MVA, depending on the transformer design.

1.2 CONFIDENTIALITY CLAUSE

The disclosure or reproduction of technical documents provided to the Customer to a third party, as well as the use of these documents or of their contents for purposes that are not related to the cooperation with L.A.E., is not permitted without a prior written consent of L.A.E. L.A.E. reserves the right to claim a compensation for damages in case of breach of the confidentiality clause.

2 COMPOSITION OF THE MACHINE

The present specification is presented in order to have clearly individuated which are the components included in the basic machine, despite the ones which will be available upon request. The specification is therefore divided as follows:

- *Basic machine* – To describe the **basic** components of the machine;
- *Included accessories* – To describe the components **included** as per customer request and/or necessary for the machine performance;
- *Optional* – To illustrate any other available component **not included** in the basic machine.

2.1 BASIC MACHINE

2.1.1 Edges and rod iron welding machine type MACPO-S2-1600

2.1.1.1 Structure

The main structure of the machine consists of thick steel supporting walls, machined using NC machine tools. Such system makes it possible to accurately assemble all component parts and to ensure the consistent repetitiveness of working conditions and product features. The structure placement to the ground is made through double plates, which ensure levelling in case of not perfectly flat floors. In addition, the machine is fitted with safety guards in compliance with the regulations in force.

2.1.1.2 Conveyor

After being inserted in the machine, the produced panel is conveyed on a chain-motorized structure which positions it in the welding point and facilitates the unloading operation after processing. Use the handwheel to adjust the width of the conveyor and the welding units relative to the sheet width (400 to 1600 mm). Their position is displayed by the decimal counter. When inserting and unloading the panels these are guided sidewise by holding tracks.

2.1.1.3 Torch carriages

The welding torches are installed on carriages motorized with a Brushless type constant torque electric system. The carriages are moved by means of a ball bar on high precision linear guides. This system ensures good movement accuracy and, as a result, an even weld bead, consistent in time. The carriage allows various position adjustments of the torch from the melting point.

2.1.1.4 Fin locking

An automatic system ensures the positioning and locking of the fin to be welded. The fin locking pressers are easily removable and interchangeable to allow quick replacement.

2.1.1.5 Reinforcing rod welding

The machine is prearranged for the automatic welding of the reinforcing rod. This unit consists of positioning and locking pneumatic pressers which can be adjusted sidewise to change the rod distance from the fin edge. Furthermore, rods of varying diameters (6 or 8 mm) can also be used.

2.1.1.6 Welding units

The machine is equipped with two complete units for the MIG / MAG welding type, each one being composed as follows:

- 1 x 250 Amp. generator for continuous wire welding (wire diameter 1,0 mm.);
- 1 welding torch with cooling system;
- 1 automatic cooling unit with refrigerant liquid re-circulation;
- 1 welding wire feeding unit;

- 1 welding parameter adjusting and control panel.

All component parts are installed on a trolley moving on wheels and independent from the machine. Moreover the welding gas cylinder can be installed on the above-described trolley. A welding fumes aspiration / extraction system is installed on the machine.

2.1.1.6 Control console

The control console is located beside the machine and houses the programming computer, the keyboard, the monitor and the push-button panel which is necessary to actuate and control all operations. The working programs being set can be stored and retrieved very easily. A text diagnostics system displays and checks all main functions of the machine, showing the machine alarm phases, if any. Additional control panels are also installed on the machine to help the operator. The machine electric system conforms to the regulations in force.

2.1.1.7 Protections

The perimeter of the machine is surrounded by rigid protections preventing unauthorized access.

2.2 INCLUDED ACCESSORIES

The accessories described below **are included** in the offer together with the basic machine as requested by the customer and/or required to guarantee the performance as per specification.

2.2.1 Internet Teleservice

The machine is provided with a Ethernet port. The Customer must provide for an internet connection and allow LAE after-sales service to connect to the machine.

The system will allow faster diagnostic & troubleshooting, as well as possible software updates or implementation.

2.2.2 Service tools and spare parts

Service tools (such as wrenches, screwdrivers, pliers, etc...) and a set of spare parts, will be included in the supply.

2.2.3 Transport roll guides with idle rollers

To connect the machine components units it is included nr. 2 roll guides composed of:

- sliding surface made of various idle rollers;
- supporting structure in steel tubes, mounted on 4 turning wheels with a pedal stay brake.

2.3 OPTIONAL

The optional described below **are not included** in the basic machine.

With reference to the machine as described in the point 3.1, we suggest the following optional items:

2.3.1 Transport roll guides with idle rollers

Transport roll guides with idle rollers can be supplied upon request. These transport roll guides are made of:

- sliding surface made of various idle rollers;
- supporting structure in steel tubes, mounted on 4 turning wheels with a pedal stay brake.

2.3.2 Pneumatic tilting end for transport roll guide;

Pneumatic tilting ends to be applied on the transport rolls in order to increase the crossing areas in the line can be supplied upon request.

2.3.3 Recommended spare parts.

Upon specific request, additional spare parts can be supplied. The list will include most recommended components, basing on our experience, for a correct function of the machine for about 2 years.

2.3.4 CMT welding type for MACPO-S2-1600

For high productivity of the edges welding process it can be provided CMT welding type.

2.3.5 Automatic insertion of the rod

This device can insert automatically the rod on each panel in order to permit the its automatic welding . The pneumatic positioning system allows to use cut-to-length rods, On each side of the machine are present a couple of tanks where rods must be loaded by the operator according with their length. The correct sequence must be loaded manually by the operator. The pneumatic positioning system takes the rod alternatively from the two rod-tank for each machine side.

This device must be set, at the order, to one of the 2 possible rod diameters (6 or 8mm).

3 TECHNICAL SPECIFICATIONS

3.1 TECHNICAL DATA OF COMPONENT PARTS

FIN EDGES WELDING MACHINE TYPE MACPO S2 1600			
Fin height	min/max	50/400	mm
Fin width	min/max	400/1600	mm
Sheet thickness	min/max	1,0/1,5	mm
Step between fins	min	40	mm
Step between panels	min	40*	mm
Step between panels with rod	min	80	mm
Rod diameter	min/max	6/8	mm
Rod length	min/max	300/1800	mm
Basic machine weight (approx)		3000	Kg
Installed power		34	KVA
Air pressure	min/max	6/8	bar
Air flowrate	min/max	180/310	NI/min
Noise level	Medium level acoustic radiation pressure	85	dB
Standard machine colour	Blue RAL5012		

* : between panels with equal high fins.

** : no possibility to modify the dimensions

NR. 2 ROLLERS			
Load length	max	2000	mm
Load width	max	1600	mm
Standard colour	Blue RAL5012		

ROLLERS (optional)			
Load length	max	2000 /3000	mm
Load width	max	1600	mm
Standard colour	Blue RAL5012		

3.2 TECHNICAL DATA OF MATERIALS, UTILITIES & ENVIRONMENT

3.2.1 Technical specifications of environment

Altitude above sea level	max	1000	m
Ambient temperature	min/max	+ 5/+40	°C
Relative humidity	50% at 40°C and 90% at 20°C		

3.2.2 Technical specifications of utilities

Mains voltage	3Ph+Gnd 400V±10% 50Hz±2%		
Network air capacity	max	400	NI / min
Network air pressure	min / max	6/8	bar
Network suction capacity	max	2 x 600	mC / h
Welding gas	SIO ARCAL-2I	92%Argon/ 8%CO ₂	

3.2.3 Materials

The following materials (coils for corrugated panels) are "recommended" for the production and "prescribed" for pre-acceptance and acceptance tests.

Correspondance table

ISO 3574	UNI 5866	DIN 1623-1	British s. 1449- 2	UNE 36086	MNC 915-E	ASJM	SAE	JIS G3141	GOST 9045
CR2	Fe P02	USt13	CR SP3	AP-02	SIS 11 46-00	A 619- 82	1006	Class 2 SPCD	VG-08 kp

Max. yield point Re = 250 (N/mm²)

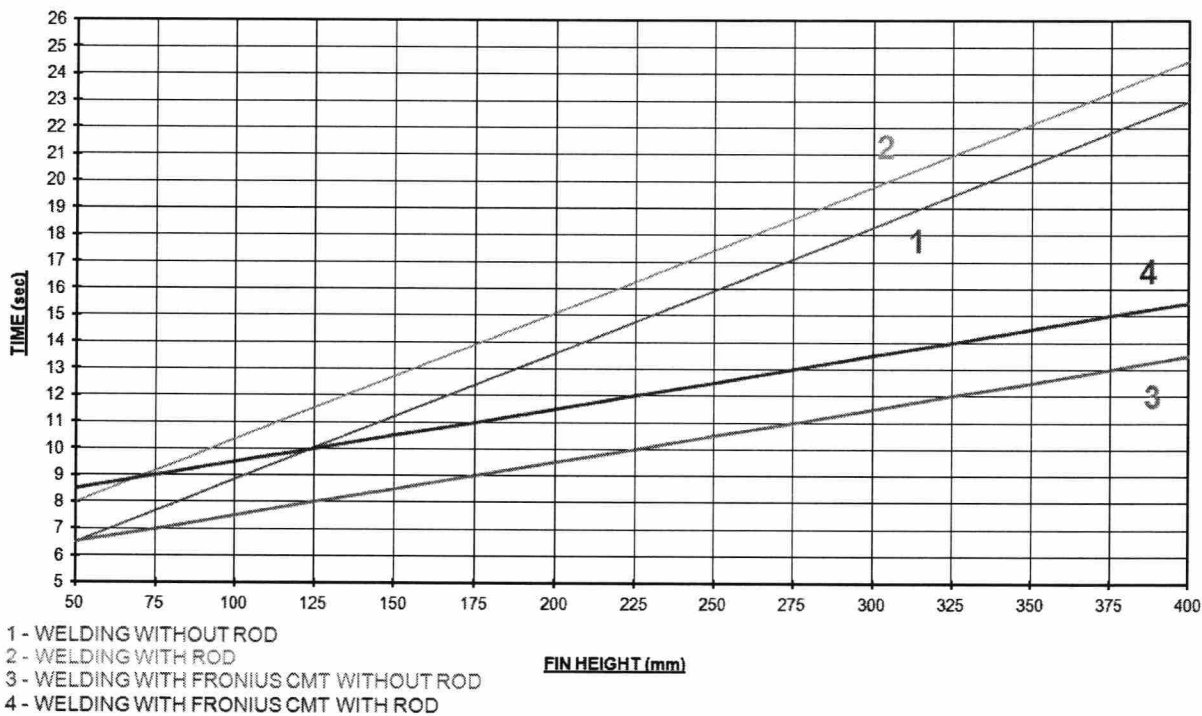
Surface Protection

Light oiling

4 PERFORMANCE GUARANTEE

4.1 PRODUCTIVITY

MACPOS2 PRODUCTIVITY



The chart refers to panels made with a normal production cycle, using 40 mm. steps between fins.

5 ENCLOSURES

5.1 LAYOUT DRAWING (JUST AS A REFERENCE)

