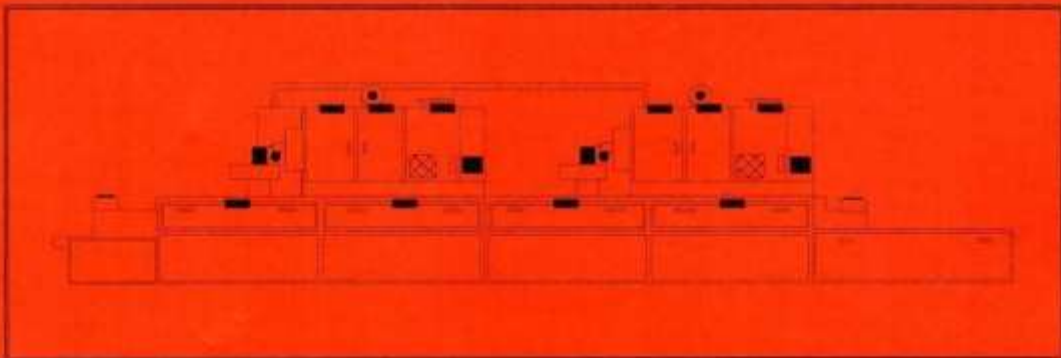


# STALAM

MACCHINE ED IMPIANTI INDUSTRIALI SPECIALI

MODEL " RF 2 x 75 KW "



USE AND MAINTENANCE MANUAL

### **Warranty terms**

#### **a. General parts of the system**

The warranty is valid for 12 months from the moment of delivery and covers all faults in construction.

During the warranty period, the replacement or repair of any part of the system shall be free of charge, as per the general sales terms.

#### **b. Triodes**

The warranty is valid for 12 months from starting up of the system.

The triode warranty consists in assigning new triodes on return of the used ones, at a reduced price conferred at the conventional warranty period of 12 months. The reduced price shall be equal to the price of the triode discounted by as many twelfths as the months not used.

#### **c. General conditions of validity**

The warranty is valid as long as the faults detected are not due to incorrect use, negligence or bad operation of the system, or failure to comply with the directions contained in this manual.

Likewise excluded from the warranty is damage caused by natural disasters, fires, and any other form of damage not depending on normal use of the system.

The costs of transport and any travel, room and board costs of our technicians, are in any case at Customer's expense, and will be billed at the foot of the list or personally borne by the same.

Expressly excluded are any requests for compensation due to lack of production.

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Chapter	0	General index			
DOCUMENTO DI REGISTRAZIONE OQ04RG06					

**Supply Limits**

Excluded from the supply of STALAM systems are any civil works in preparing the site, and systems for carrying electrical energy or any other fluids (water, compressed air, steam or overheated water) up to the connection points foreseen on the machine. In this respect, local laws regarding safety standards of civil and industrial systems must be complied with.

Also excluded are works for carrying the air from the outlet mouths of the machines to the outside of the building.

**Technical assistance**

STALAM provides a specialised assistance service for extraordinary maintenance of the systems or their repair, with the Customer.

This service must be requested by fax, after duly telephoning the STALAM Technical Department, for each intervention included or excluded from the warranty terms.

Any service not covered by the warranty is completely at Customer's expense, as are any transport costs for the replacement parts, travel, room and board expenses for STALAM technicians, and will be billed at the foot of the list or personally borne by the same.

atmosphere, by means of ducting to be applied at the foreseen connection points.

The content of the emissions can therefore vary depending on the material being treated, which for the most part are made up of moist air.

*Therefore we recommend a careful appraisal of local laws, and the preparation of everything required by these, in order to avoid administrative and penal penalties.*

**Waste**

In normal operation the machine does not produce industrial wastes of any kind. During maintenance there may be waste lubricants and replaced mechanical pieces .

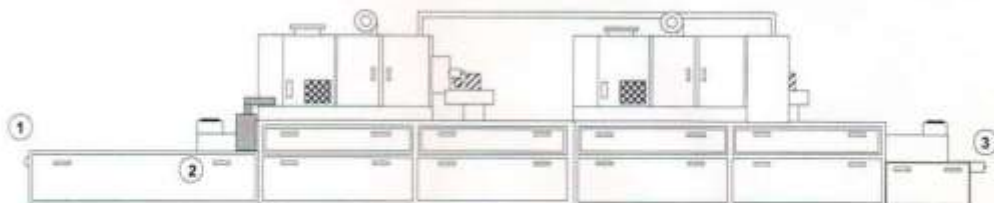
**The elimination of these materials is subject to local regulations on the elimination of special, toxic and harmful wastes.**

**Noise** (CEE 98/37)

According to measurements carried out during machine testing at STALAM a pondered A continuous acoustical pressure level was determined in the workplaces foreseen by the manufacturer. The data are given in the following table:

POSITION	Leq. dB(A)	Lpeak dB
1	< 75	
2	< 75	
3	< 75	

*According to the values obtained, use of individual protection devices (ear protectors, plugs) during machine operation is not deemed necessary*



**Safety and accident prevention**

- 3.1 Introduction
- 3.2 Foreseen use
- 3.3 General safety warnings
- 3.4 Lighting
- 3.5 Connections
- 3.6 Earthing
- 3.7 Safety devices on machine
- 3.8 Risk or remaining risk zone
- 3.9 Control zone
- 3.10 Periodical checks
- 3.11 Noise
- 3.12 Reference Norms

### **Introduction**

STALAM systems are designed and built to offer the operators maximum safety, however, due to the high technological content of these systems suitable preparation of the operator in correct use of the machine is important, and this can be obtained by means of the instruction manual.

***The operator of this machine must be in good physical and mental health.***

Otherwise, there will be the danger of unforeseeable mistakes by the operator, which therefore cannot be eliminated.

STALAM systems are realised to always meet current safety norms in the country where the machine is installed.

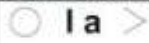
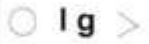







### **Foreseen use** (CEE 89/392, EN 292-1, EN 292-2)

The STALAM system to which this manual refers is designed and built for drying, by means of Radio Frequency, of textile products after a mechanical hydroextraction process.



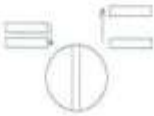

The rates of humidity to be evaporated, referred to the conditioned weight of the material (containing the take up rate), acceptable for the drier are the following:

<b>synthetic fibres/yarns</b>	<b>08% - 14%</b>
<b>artificial fibres /yarns</b>	<b>55% - 70%</b>
<b>Wool fibres/ yarns</b>	<b>30% - 35%</b>
<b>cellulose fibres/ yarns</b>	<b>45% - 55%</b>









### Generator modules

	<p><b>red LED</b> indicates excessive absorption of anode current</p>
	<p><b>red LED</b> indicates a too high triode grid current.</p>
	<p><b>red LED</b> indicates excessive water temperature in the internal cooling circuit</p>
	<p><b>red LED</b> indicates insufficient pressure in the internal cooling circuit</p>
	<p><b>red LED</b> indicates failed functioning of triode filament blower or excessive temperature of power transformer</p>
	<p><b>red LED</b> indicates failed functioning of booth aspirator</p>
	<p><b>red LED</b> indicates the reaching of intermediate height foreseen for the electrodes <b>(OPTIONAL DEVICE)</b></p>
	<p><b>red LED</b> indicates a problem due to radio frequency discharge</p>
	<p>Pushbutton for turning on each generator. The green button I is used to turn on generator, the red one O causes stopping, both buttons can be pressed only when alright, otherwise no effect is achieved.</p>



<p style="text-align: center;"><b>Auto Man</b></p> 	<p>Selector for machine operation in <b>AUTOMATIC</b> or <b>MANUAL mode</b>. See paragraph 5.5.</p>
	<p>Threshold regulator for <b>automatic operation</b>.</p>
	<p>Yellow luminous selector switch for adjusting height of electrodes in material booth. The electrodes rise by turning the selector right. The selector lights up when the electrodes are in one of the two foreseen positions. To vary the height of the electrodes, keep the pushbutton turned until the light goes off, and the electrodes continue their movement until reaching the other set position, where the pushbutton light comes on again. <b>(OPTIONAL DEVICE)</b></p>
<p style="text-align: center;">- <b>KW</b> +</p> 	<p>Selector for adjusting coupling of variable condenser. It intervenes only when turned. Turn left to reduce coupling, and subsequently the generator power output on material. Turn right to increase coupling, as well as power. Lighting up of the pushbutton indicates the reaching of motor stop. Keeping lighted pushbutton turned achieves no effect.</p>

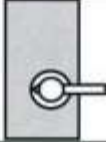



### Services

<p style="text-align: center;"><b>Reset</b></p> 	<p>yellow reset pushbutton</p>
	<p>Selector for starting drawing. On the left of the selector is a potentiometer for adjusting the speed, given on a display. On the right of the selector is a control for racing speed</p>
	<p><b>Red LED</b> indicates lack of pressure in external cooling circuit</p>
	<p><b>Red LED</b> indicates failed functioning of conveyor belt</p>
	<p><b>Red LED</b> indicates insertion of conveyor belt racing speed</p>
	<p><b>Red LED</b> indicates that the lengthening of the belt has reached maximum value and therefore the belt must be retightened <b>(FOR POLYESTER BELT ONLY)</b></p>
	<p><b>Red LED</b> indicates failed functioning of defrosters <b>(OPTIONAL DEVICE)</b></p>
	<p><b>Red LED</b> indicates failed functioning of blowers under booths. <b>(OPTIONAL DEVICE)</b></p>

### Work Cycle (CEE 89/392, EN 292-2)

**INTRODUCING METAL OBJECTS IN CONTACT WITH PARTS OF THE BODY THROUGH THE MATERIAL INLET AND OUTLET MOUTHS WITH MACHINE ON, IS STRICTLY FORBIDDEN, BECAUSE OF DANGER OF ELECTRIC SHOCKS.**

The sequence of operations to be carried out for turning furnace on is as follows:

	<p>arm main switches of each generator on side of electrical panel;</p>
	<p>start drawing by turning the left selector switch to position 1 and the one on the right to zero. Adjust speed by means of potentiometer situated on side of speed indicator display.</p>
<p>Reset</p> 	<p>press yellow RESET pushbutton: if all the red LEDs go off and the green RF generator run pushbutton lights up, this means that all facilities are working correctly with consent for turning on the RF.;</p>
<p>KW</p> <p>- +</p> 	<p>wait about 5 minutes for heating of triode filaments; in the meantime, load the material up to the booth inlet;</p>

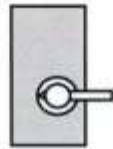
The sequence of operations to be carried out for turning off the drier is as follows:

**empty the booths** of all the material making sure it does not remain also near the mouths;



**press red pushbutton O.** At this point the system turns off and the red light flashes;

**wait about 10 minutes** for aspiration of the remaining vapour in the booths;



**turn power to machine off , releasing the main switch.**

If one generator is stopped by the operator in normal conditions by means of red pushbutton O, the green pushbutton lights up immediately to allow the subsequent eventual starting up.

If one generator is stopped by the safety circuit, to make the green pushbutton light up the cause of stoppage must be removed, and press the yellow RESET pushbutton.

To calculate the belt speed to be set for obtaining the desired production, use the following formula:

$$v = \frac{P \times 1,2}{Q_{H_2O}}$$

where

$v$  = conveyor belt speed (in m/h)

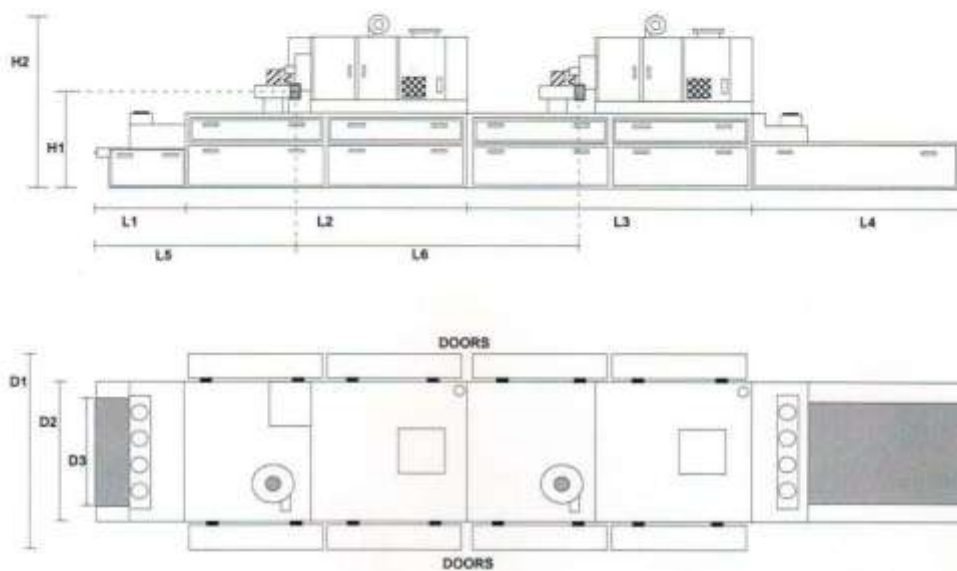
$P$  = power delivered by the system according to the type of material and loading method (in KW). The theoretical value is equal to maximum power.

$Q_{H_2O}$  = quantity of water to be evaporated in 1 linear metre of conveyor belt (in Kg/m)

### **Controls and inspections** (CEE 89/392, EN 292-2)

During machine operation the introduction of material with different percentages of humidity will bring about variations in the power emitted, which, however, will be limited in maximum values by the threshold in AUTOMATIC function. Therefore the operator's intervention is necessary only if an increase in power delivered on the material is desired and if the variable condenser is not already at maximum coupling.

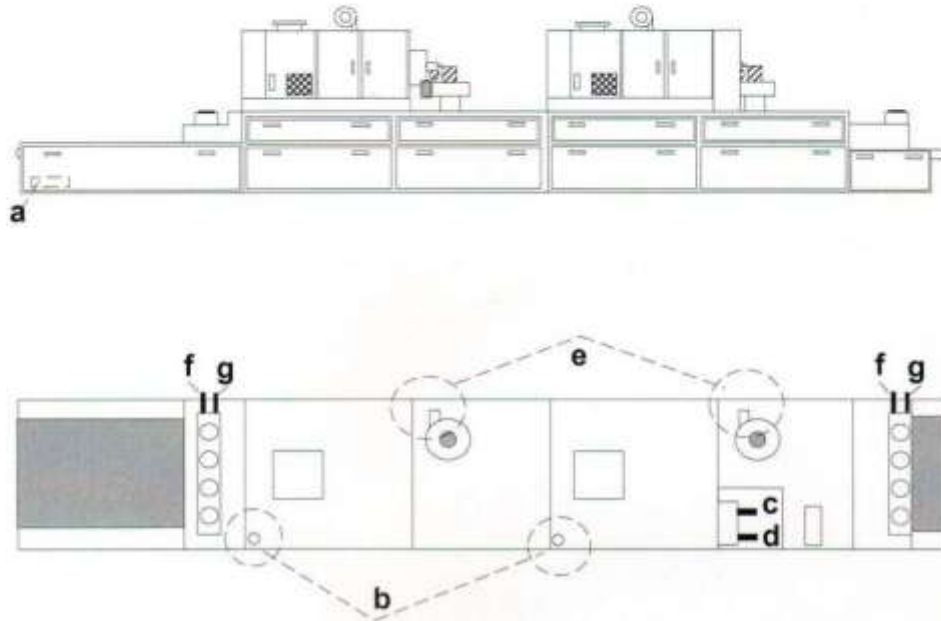
### LAY OUT



L1	2200 ± 50 mm
L3	4000 ± 50 mm
L5	3200 ± 50 mm
H1	2100 ± 50 mm
D1	3580 ± 50 mm
D3	1750 ± 50 mm

L2	4000 ± 50 mm
L4	2700 ± 50 mm
L6	4000 ± 50 mm
H2	3400 ± 50 mm
D2	2280 ± 50 mm

### SUPPLIES AT CUSTOMER CHARGE



a: compressed air

NO.

b: power supply for electrical board and generator

cables must stand a continuous current of 260 A; the generator is equipped with a 300 A - 380 V switch. Thermal protection at 250 A and magnetic protection at 2400 A.

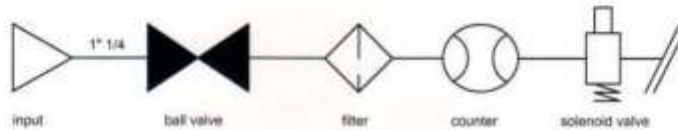
It should be connected copper or aluminium flexible cables up to 185 mm<sup>2</sup>.

c: cooling water output



ball valve and output pipe diameter 1" 1/4

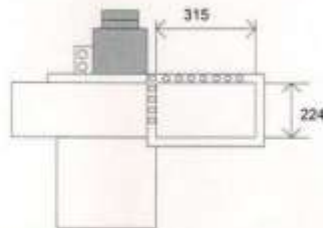
d: cooling water input



input pipe diameter 1" 1/4, ball valve followed by close-packed filter, counter and solenoid valve at 110/220 Volts.

Flow rate 6,8 cubic meters/hour at 25 °C and minimum pressure 1 ate.

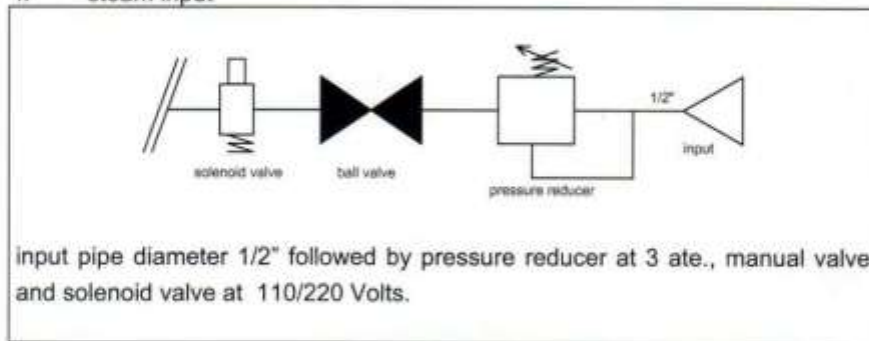
e: exhauster



flow rate 60/70 cubic meters/minute  
flange with hole 315 x 224 millimetres

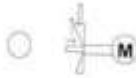



f: steam input






g: steam drain

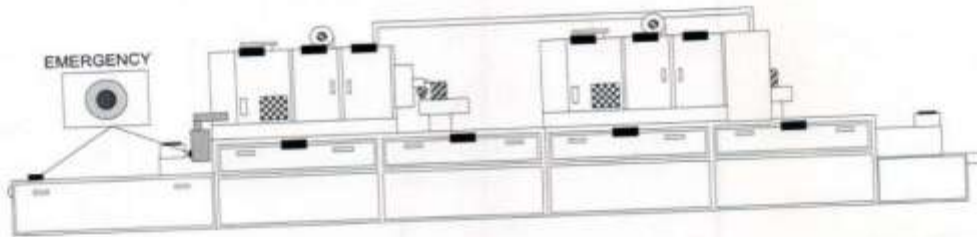
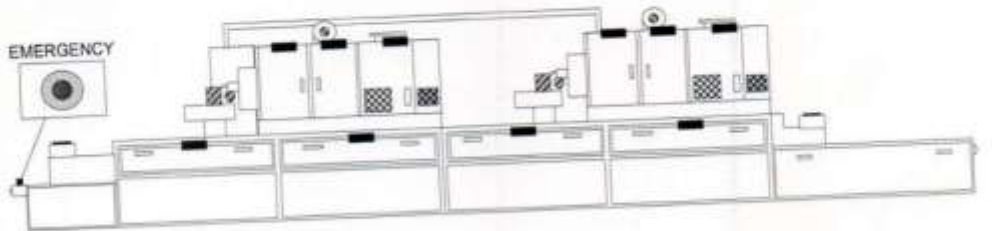
output pipe diameter 1/2"

	<p>The red LED lights up when the booth aspirator is not functioning. Possible causes are intervention of the thermal protector or opening of a knife switch on the machine.</p>
	<p>The red LED lights up in the presence of anode over currents (radio frequency discharges). The phenomenon can leave visible traces on the oscillating circuit or in the drier booths or on the material itself; to restart the machine press the reset pushbutton, after having removed the eventual cause of the discharges.</p>

### Facilities

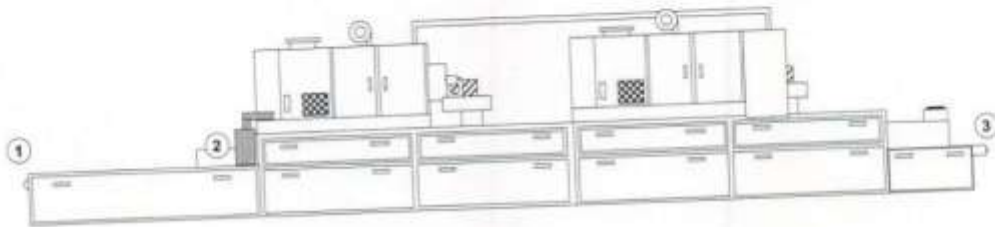
	<p>The red LED lights up when the pressure in the external cooling circuit is lower than that set on the pressure switch situated opposite the water inlet point. Therefore, the pressure in the circuit must be increased.</p>
	<p>The red LED lights up when the conveyor belt is stopped. Make sure that the drawing start selector switch is on position 1, or that the motor thermal protection inside the electrical panel has not tripped.</p>
	<p>The red LED lights up when the conveyor belt racing speed is activated. To reactivate the RF it must be turned off.</p>

### Safety Systems



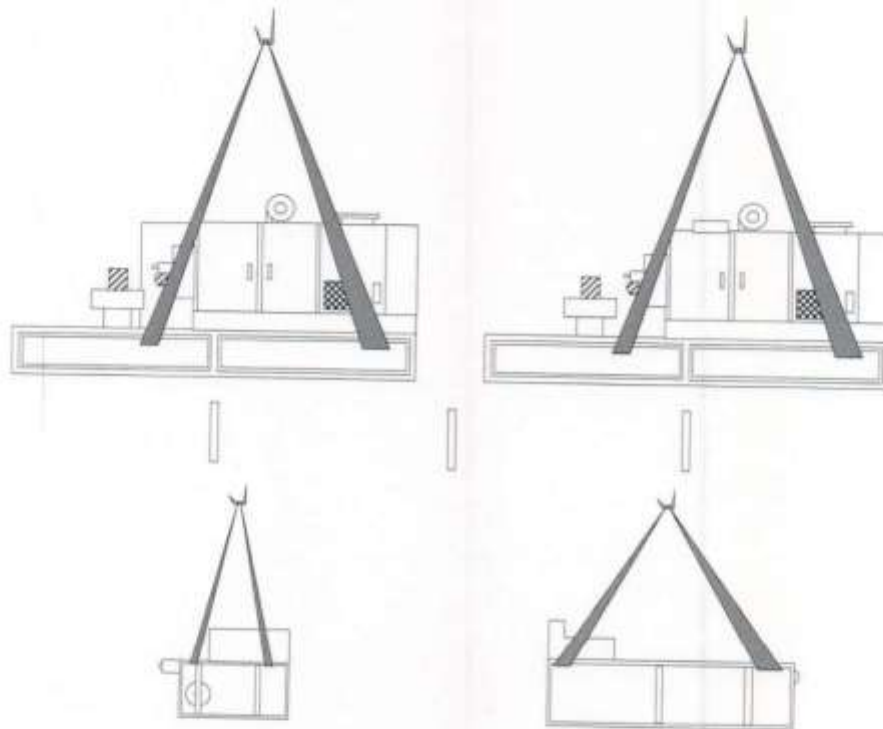
The diagram shows the emergency pushbuttons on the machine and on the control panel. The safety microswitches are also shown.

### Work positions



The drawing shows the three work positions foreseen:

1. material loading level
2. generator control panel
3. material outlet mouth

**Lifting instructions**

For lifting the various parts making up the machine a crane of at least 40 q.li capacity is required.

Use straps passed through the frame of the machine.

Alternatively, use a lift truck of 60 q.li capacity, inserting the forks in the same points of the straps.





### Instruction for triode replacement

We will see step by step the necessary operations and the correct sequence when the replacement of the triode is required. The initial situation is shown in the picture, where the original triode connections can be seen:



Note the three rings, on top the filament, in the middle the cathode, lower the grid. Observe also the positions of the two small capacitors, C grid-cathode and C filament.

Before taking out the old triode we have to drain the water from the cooling water circuit. Keep open the air drain located on the top of water circuit box to let the water come out easier



Drain the water from the manual valve located in front of the pump





Unscrew the 7 mm nut that tight the grid-cathode capacitor.

Take out the filament and cathode connection rings together to avoid to damage the filament capacitor.



Take out the grid connection ring



