

9 - WORKING MODES

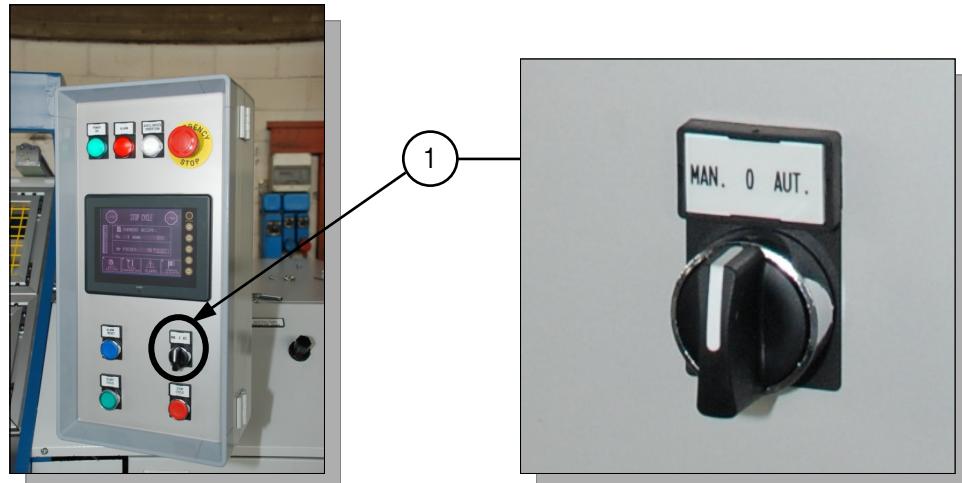
9.1 - INTRODUCTION

There are two working modes:

- ▶ **automatic:** to roll-pack the mattresses
 - ▶ **manual:** to check the movement of the single components

In order to enter in the working modes, use the controls located on the control panel [1] and proceed as explained in following chapters.

picture 16 - KEY CONTROLS



To work the operator must proceed as follows:

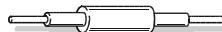
9.1.1 - Plastic roll loading and feeding

To set the machine in working conditions, it's necessary to load and feed the plastic film. The rear part of the machine is suitable to hold two polyethylene rolls.

- **TOP SUPPORTS [2]** for holding the single mattress plastic film
 - **BOTTOM SUPPORTS [3]** for holding double mattress plastic film

In order to correctly execute the rolls loading and feeding operations, the operator must proceed as follows:

E Insert the proper bar [4] inside the polyethylene roll cardboard tube



NOTE The plastic films rolls must be loaded as shown in Fig. 17 in order to have a regular unwinding of the films during the working.

picture 17 - ROLLS LOADING

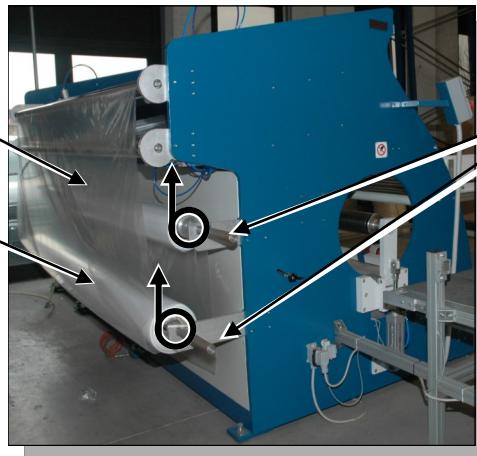
SINGLE MATTRESS

2

DOUBLE MATTRESS

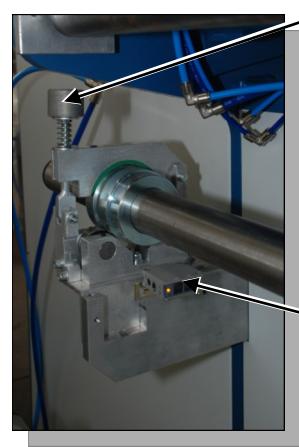
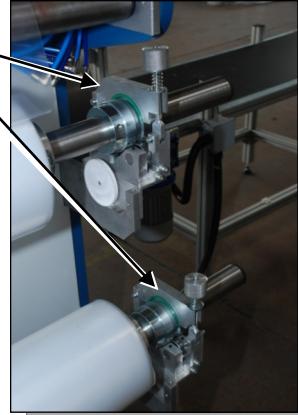
3

4



- I Secure the bars by means of proper blocks [5].

picture 18 - ROLLS SECURING



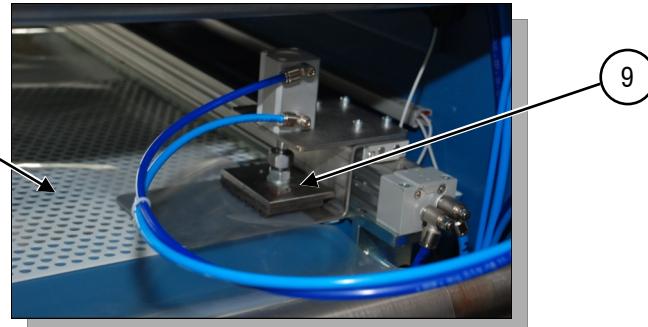
NOTE Rolls blocks [5] act also as tensioning-brakes. By turning knob [6], it is possible to adjust the plastic film tension.



NOTE A photocell [7], located near to each rolls carrying bar, detects the presence of the plastic film and stops the working cycle when the polyethylene roll goes under the monimum diameter and must be replaced.

- I Hold the polyethylene film edge, pull it and set it on the sliding plane [8], inserting its sides inside the robot-hands [9];

picture 19 - ROBOT HANDS



- I Push the film along sliding plane [8] until it reaches the cutting blade.
- I Press the START CYCLE pushbutton on the control panel. The robot-hands [9] close and the machine is ready to start the working cycle.



NOTE

The machine is built in two versions, without or with mattress-size recognition-device.

- ◆ In case of **machine without recognition-device**, operations 4), 5) and 6) must be repeated anytime the mattress size changes.
- ◆ In case of **machine with recognition-device**, said operations are necessary only when replacing the plastic film rolls.

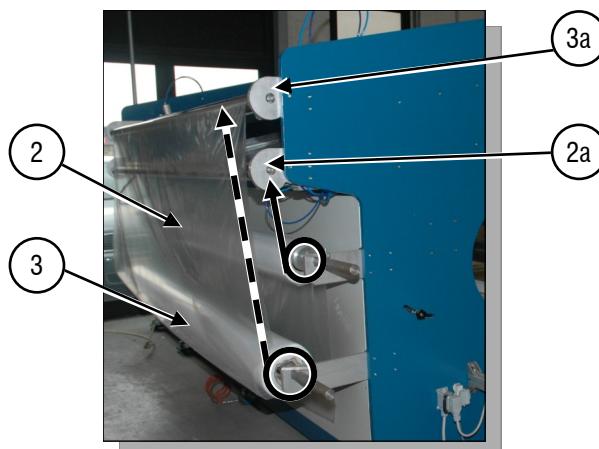


IMPORTANT

In case of machine with recognition-device, make sure that the double mattress plastic film (3) is loaded on the top supports (3a) and the single mattress plastic film (2) is loaded on the bottom supports (2a), as shown in Fig. 20.

picture 20 - PLASTIC FILM FEEDING

SINGLE MATTRESS
DOUBLE MATTRESS



9.2 - AUTOMATIC MODE

In order to enable the working cycle:

- ▶ Select the working program/recipe on screen-page "STOP CYCLE" as described in chapter 10;
 - ▶ Set the key selector to "**AUT**";
 - ▶ Press the "**START CICLO**" pushbutton to enable the automatic cycle

On the LCD touch-scre there is the following page:

picture 21 - AUTOMATIC MODE 1



In this screen-page are visualised:

- ▶ current recipe name and number [10]
 - ▶ number of executed pieces [11]
 - ▶ calender working pressure [12]
 - ▶ type of mattress being worked [13].

Moreover, it is possible to execute following operations:

By pressing the "RESET" icon [14], the pieces counter is set to 0.



When inserting a new mattress to be rolled-up, the counting will start from 1

By pressing the "EDIT RECIPE" icon (15), it's possible to modify the parameters of



The modified parameters will be effective starting from the working cycle following the one during which the recipe in use has been modified.

To exit from the automatic mode, press "STOP CYCLE" pushbutton.

If during the working cycle the "STOP CYCLE" pushbutton is depressed, the machine stops in the current working sequence.
The following screen-page is visualised:

picture 22 - AUTOMATIC MODE 2



In this screen-page, following informations are visualised

- current recipe name and number [10];
- number of executed pieces [11].

Moreover, it is possible to execute following operations:

È By pressing the "RESET" icon [14], the pieces counter is set to 0.



When inserting a new mattress to be rolled-up, the counting will start from 1

È By pressing the "EDIT RECIPE" icon (15), it's possible to modify the parameters of



The modified parameters are immediately effective, the current working cycle is terminated with the newly set parameters.

I modificare i parametri tecnici [16] (vedi capitolo 10).



The setting/modification of technical parameters can be executed exclusively by qualified technical personnel, authorized by the Customer

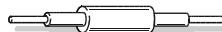


The modified parameters are immediately effective, the current working cycle is terminated with the newly set parameters.



IMPORTANT

Modify the technical parameters only at the end of the working cycle

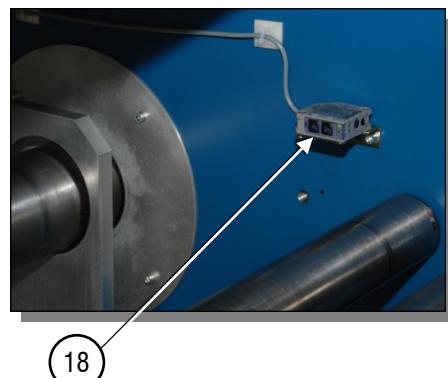


9.2.1 - Working cycle

II The cycle proceeds as follows:

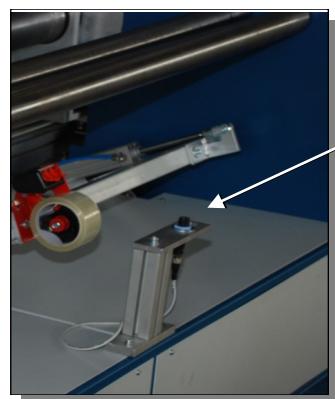
- 1 The mattress is put on the entrance rolls-conveyor or motorised-carpet [17]. The mattress is pushed towards the machine until it reaches photocell [18].

picture 23 - WORKING CYCLE 1



- 2 A second photocell [19] recognises the mattress size, single or double, and starts the feeding phase.

picture 24 - WORKING CYCLE 2

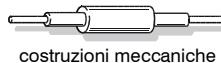


NOTE Il ciclo di lavoro prende inizio quando entrambe le fotocellule [18] e [19] sono coperte contemporaneamente dal materasso.

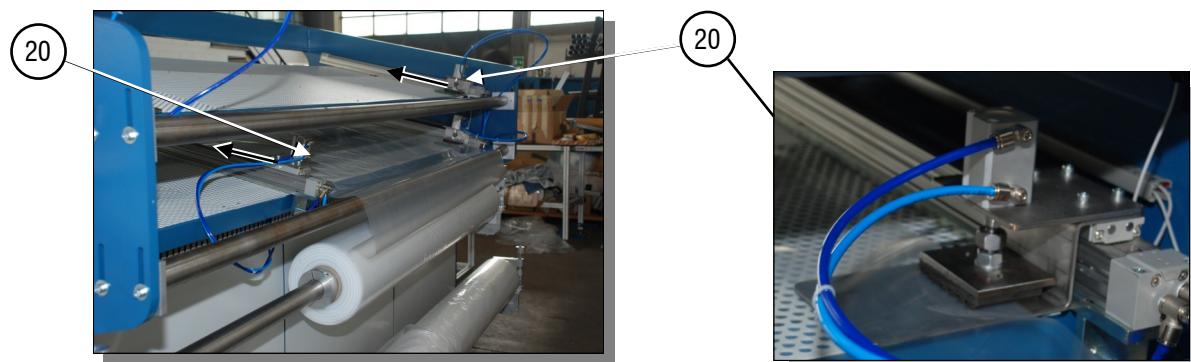
- 3 The **feeding phase**, same for both polyethylene films dragging-groups, proceeds as follows:
 - robot-hands advancing[20];



NOTE The robot-hands do not close immediately during the advancing phase but the data "single/matrim. clamp close delay" that can be set in "technical parameters", controls their closing delay;



picture 25 - FEEDING PHASE 1

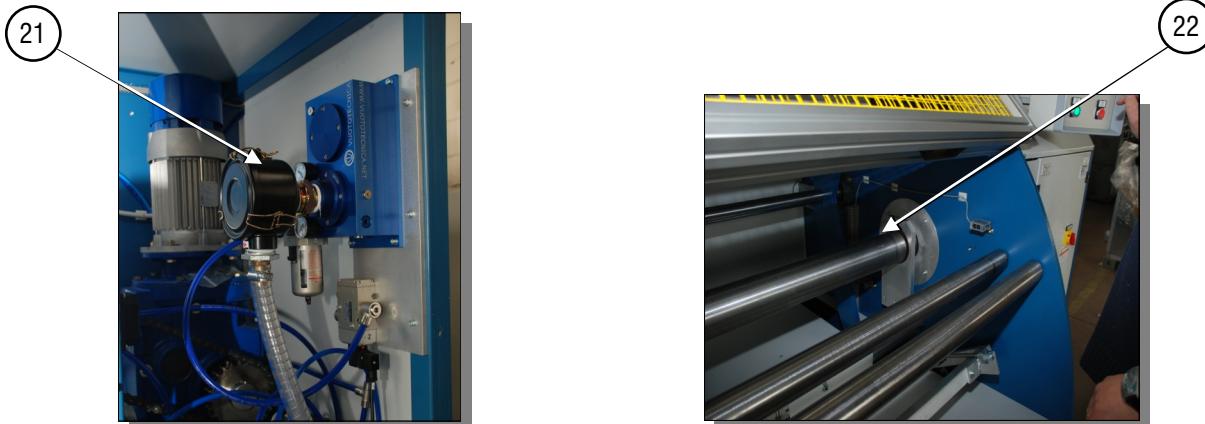


- **vacuum generator [21] starting** and subsequent polyethylene film suction along the holes of mandrel [22];

**NOTE**

in order to avoid lost of pressure or of aspiration during the working cycle when passing from a single to a double mattress and viceversa, the mandrel has been divided in four zones. These zones may be excluded (all except the last at the machine exit) from the aspiration and evacuation phase, by modifying respective data "single/matrim. mattress extraction & void zone number" that can be set in the recipe.

picture 26 - FEEDING PHASE 2



- **robot-hands advancing [20] and mandrel starts[22].**
- **feeding phase end.**

**NOTA**

In order to make easier the polyethylene film winding-up on the mandrel, the data "mandrel start delay" has been introduced in "technical parameters", allowing to delay the rolling-up phase starting in respect to the advancing of the robot-hands dragging the polyethylene film.

**NOTA**

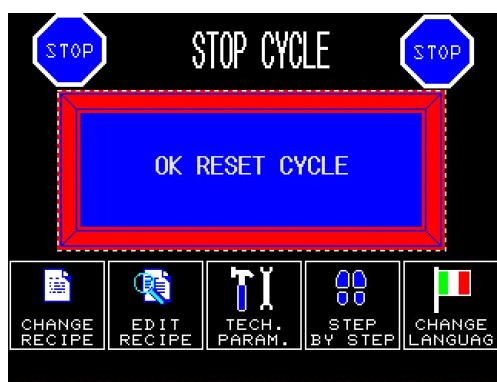
The data "initiation turns", that can be set in "technical parameters", controls the polyethylene film winding-up around the mandrel phase.

During the feeding phase it is possible that the plastic film does not wind up correctly around the mandrel. In this case, act as follows:

- ▶ press the “**STOP CICLO**” pushbutton;
- ▶ set the key-selector to “**MAN**”;
- ▶ press the “**START CICLO**” pushbutton in order to open the robot-hands;
- ▶ from the machine rear, wind up manually the plastic film on its roll until its edge is beyond the cutting blade
- ▶ press the “**STOP CICLO**” pushbutton and keep it depressed for at least 10 seconds.

The working cycle will be reset and the following confirmation screen-page appears

picture 27 - FEEDING PHASE 3



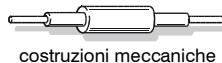
IMPORTANT

Eseguire l'operazione di RESET CICLO solo se il materasso non è in fase di arrotolatura. In questo caso attendere la sua espulsione.

- ▶ Set the key selector to “**AUT**”;
 - ▶ Press the “**START CICLO**” pushbutton. La macchina esegue un'espulsione a vuoto per resettare il ciclo in esecuzione ed iniziare un nuovo ciclo di lavoro.
- ④ The transport-carpet moves the mattress between mandrel and calender.

picture 28 - WORKING CYCLO 3



**NOTE**

In case of rolls-conveyor, push the mattress pushed between mandrel and calender, without exerting an excessive pressure on the polyethylene film

- 5 The starting of the rolling-up phase must be driven by the operator by pressing again the "CYCLE START" pushbutton.
- 6 The rolling-up phase ends when photocell (23) stops detecting the mattress.

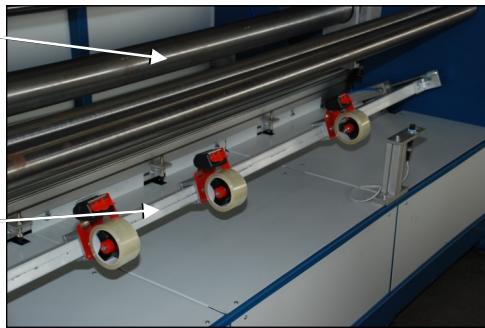
**NOTE**

The data "in fotoswitch stop delay", that can be set in the recipe, controls the mandrel stop delay once the photocell stops detecting the mattress.

- 7 The polyethylene film cut is executed
- 8 The scotch-tape holding bar [24] is started, the tape-guns are pushed against the mattress, rolled-up around the turning mandrel [25].
- 9 The mandrel closing turns in order to seal the mattress.

Picture 29 - CICLO DI LAVORO 4

25

**NOTE**

the data "tape-gun turn duration", that can be set in the recipe

- 10 Once the sealing phase is completed, the scotch-tape holding-bar [24] is withdrawn.

**NOTE**

During the return phase the tape-guns rotate in such a way to cut the tapes.

The data "tape-gun turn delay", that can be set in the "technical parameters", controls the tape-guns rotation delay starting from the sealing phase end. While the data "tape-gun turn duration", that can be set in the "technical parameters", indicates the time passing between the tape-guns rotation and their return to the initial condition.

- 11 Calender is lifted, mandrel support fork [26] is opened and exit carpet [27] is started.

picture 30 - CICLO DI LAVORO 5



- 12 Electrovalve (18), supplying compressed-air to the mandrel holes, is commuted;
 - 13 Evacuator (28) pushes the rolled-up matress through the machine exit. As the operation proceeds, the mandrel zones no more working are disabled, in order to prevent lack of pressure.

picture 31 - CICLO DI LAVORO 6



- 14 As soon as the rolled-up mattress passes photocell [19], the exit carpet [27] is stopped and the mandrel support fork [26] is closed.
 - 15 the cycle is finished and the machine is ready for a new cycle, repeating the above described phases.

9.3 - MANUAL MODE

In this mode it is possible to singularly activate all machine electrovalves and motors.

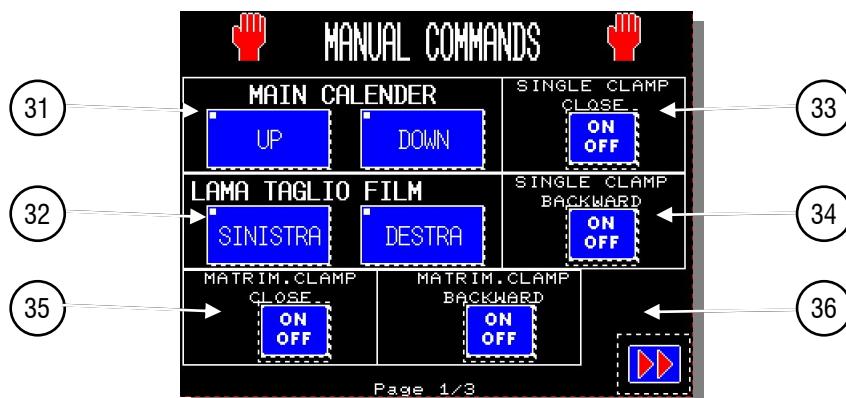
To enter this mode, set key selector [30] in "MAN" position.

picture 17 - MODALITA' AUTOMATICA 1



The screen-page in Fig. 33 shows the "manual mode" first page.

picture 33 - MANUAL MODE PAGE 1



In this page it is possible :

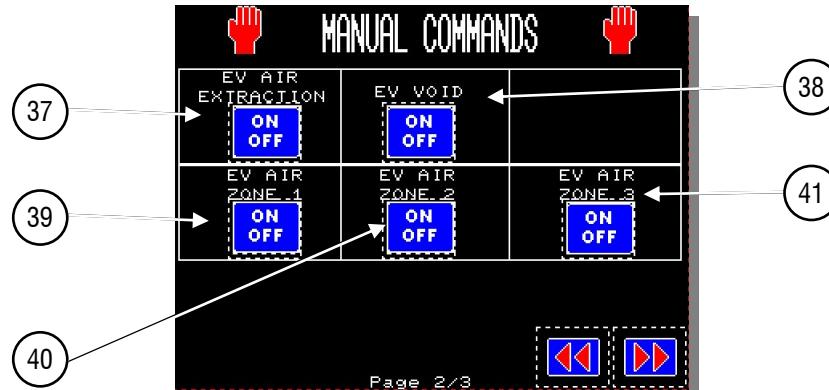
- ▶ to lift or to lower calender (31)
- ▶ to move the polyethylene film cutting-blade (32) from right to left and viceversa
- ▶ to close the single mattress film robot-hands (33)
- ▶ to withdraw the single mattress film robot-hands (34)
- ▶ to close the matrim. mattress film robot-hands (35)
- ▶ to withdraw the matrim. mattres film robot-hands (36)

To proceed to next screen-page "manual controls" press 



The following page will appear:

picture 34 - MANUAL MODE PAGE 2



In this screen-page it is possible:

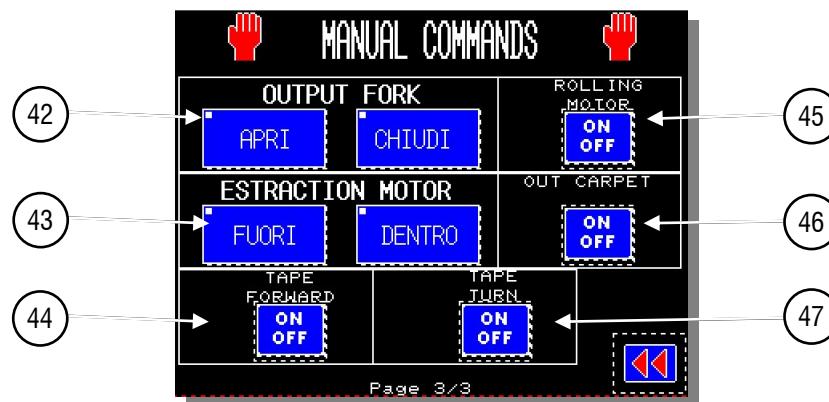
- ▶ to activate the evacuation compressed-air electrovalve (37)
- ▶ to activate the mandrel vacuum generator electrovalve (38)
- ▶ to disabilitate zone 1 of the mandrel (39)
- ▶ to disabilitate zone 2 of the mandrel (40)
- ▶ to disabilitate zone 3 of the mandrel (41)

To return previous screen-page of "manual controls" press

To proceed to next screen-page of "manual controls" press

The following page will appear:

picture 35 - MANUAL MODE PAGE 3



In this screen-page it is possible :

- ▶ to open and close the mandrel support fork (42)
- ▶ to move rightwards or leftwards the mattress evacuation-carriage (43)
- ▶ to activate the electrovalve for advancing the scotch-tape holding-bar (44)
- ▶ to activate the mandrel rotation (45)
- ▶ to activate the exit motorised-carpet (46)
- ▶ to activate the electrovalve for rotating the scotch-tape holding-bar (47)

To return previous screen-page of "manual controls" press