TECHNICAL DOCUMENTATION - COMPACTA M 4-6-9-12

Date	Revisions	Revisions reasons	Issue	Checked by	Approved by
27/09/2011	00	First issue	Garavelli D.	Garavelli D.	Garavelli D.
31/01/2013	01	General revision	Garavelli D.	Garavelli D.	Garavelli D.
16/05/2014	02	I/O description table	Garavelli D.	Garavelli D.	Garavelli D.
02/05/2017	03	Technical document number insertion	Baldinini F.	Baldinini F.	Baldinini F.
19/06/2018	04	I/O table revision	Baldinini F.	Baldinini F.	Baldinini F.
16/07/2018	05	Index realization	Baldinini F.	Baldinini F.	Baldinini F.
16/07/2020	06	New graphic of the configuration parameters table	Baldinini F.	Baldinini F.	Baldinini F.

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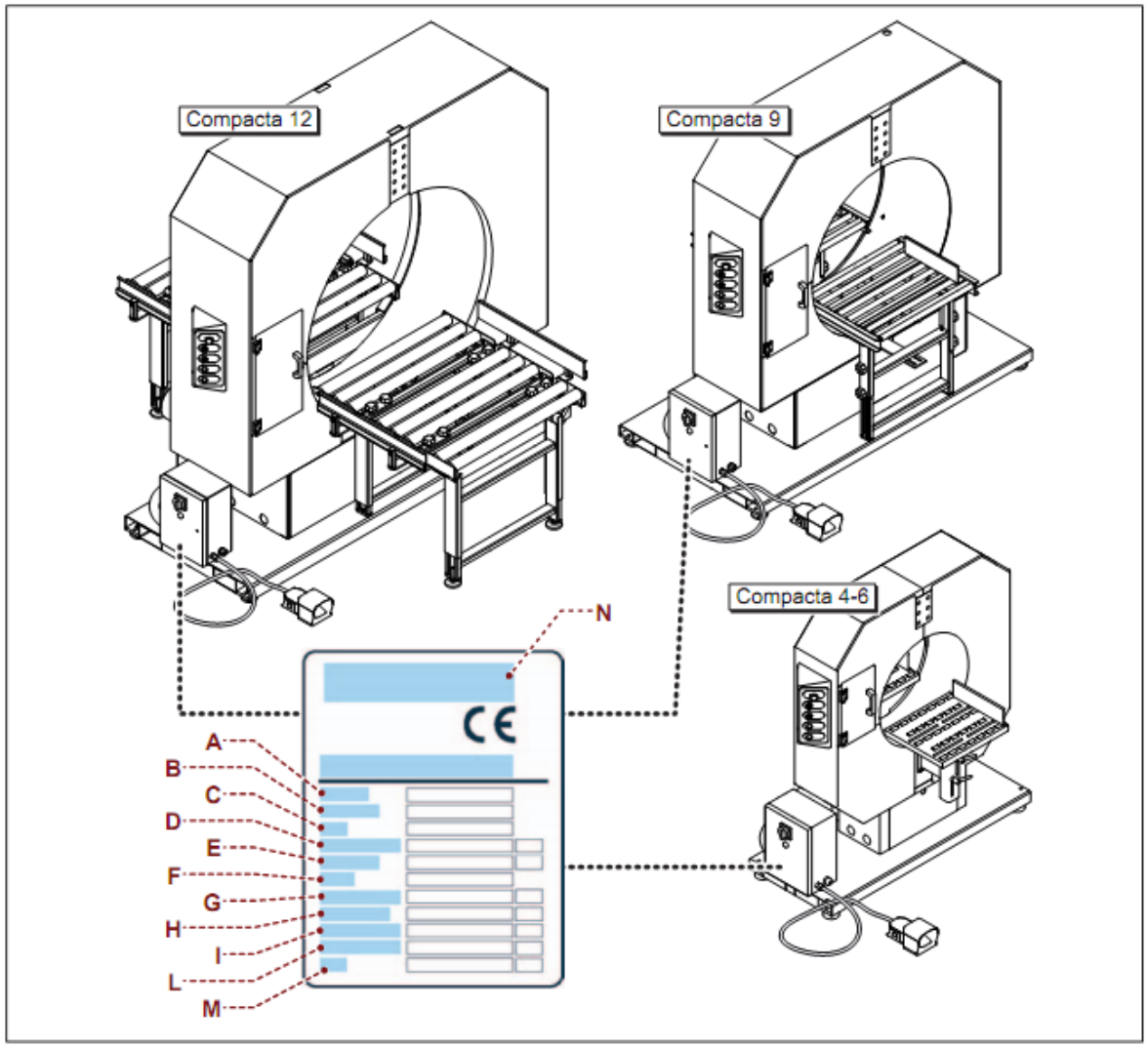
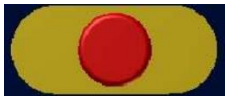
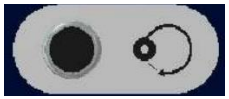
MACHINE CONFIGURATIONS DETAIL



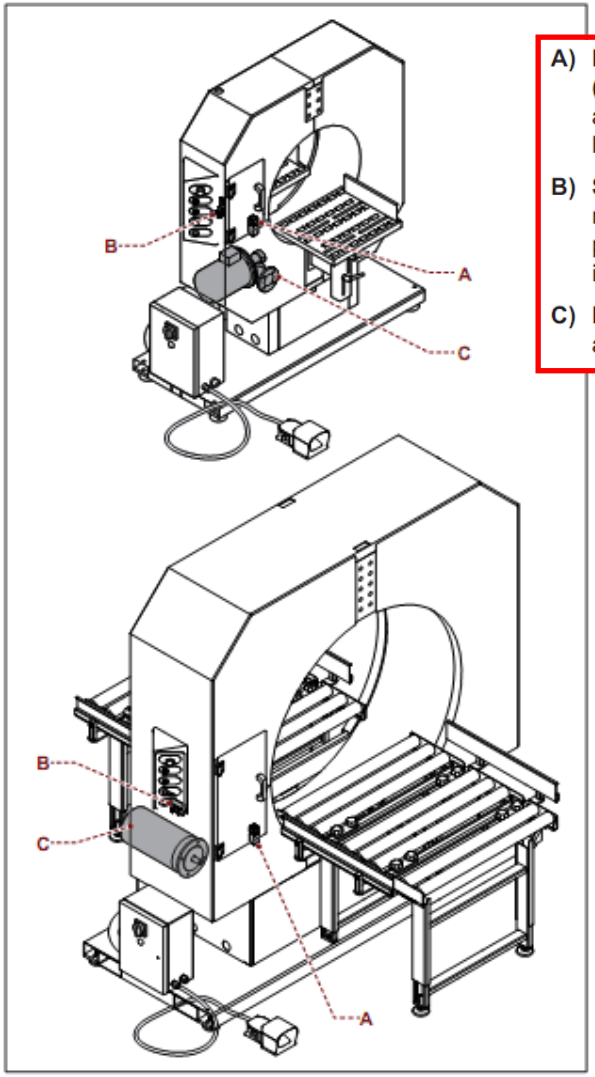
OPERATOR PANEL DESCRIPTION

	**Emergenza** **Emergency**
	**Velocità rotazione** **Ring rotation speed**
	**Numero giri ralla / Rounds number** **Macchina alimentata / Power supplì ON**
	**Manuale rotazione ralla** **Manual ring rotation**
	**Manuale pinza (avanti / indietro).** **Manual clamp (for-ward / back-ward)**

CYCLE PARAMETER RANGE

Parameter	Min. – Max.	Machine model	Step	Measure unit
Ring rotation speed	10 -- 50	Compacta 4	1	rpm
	40 - 120	Compacta 6		
	30 -- 75	Compacta S9 (reel width 125)		
	30 -- 60	Compacta S9 (reel width 250)		
	30 - 58	Compacta 12 (reel width 125)		
	30 - 58	Compacta 12 (reel width 250)		
Wrapping rounds number	3 -- 5	All models	1	rounds
Film reel width	125	Compacta 4		
	125	Compacta 6		
	125 / 250	Compacta S9		
	125 / 250	Compacta 12		

ELETTRICAL DEVICES DESCRIPTION

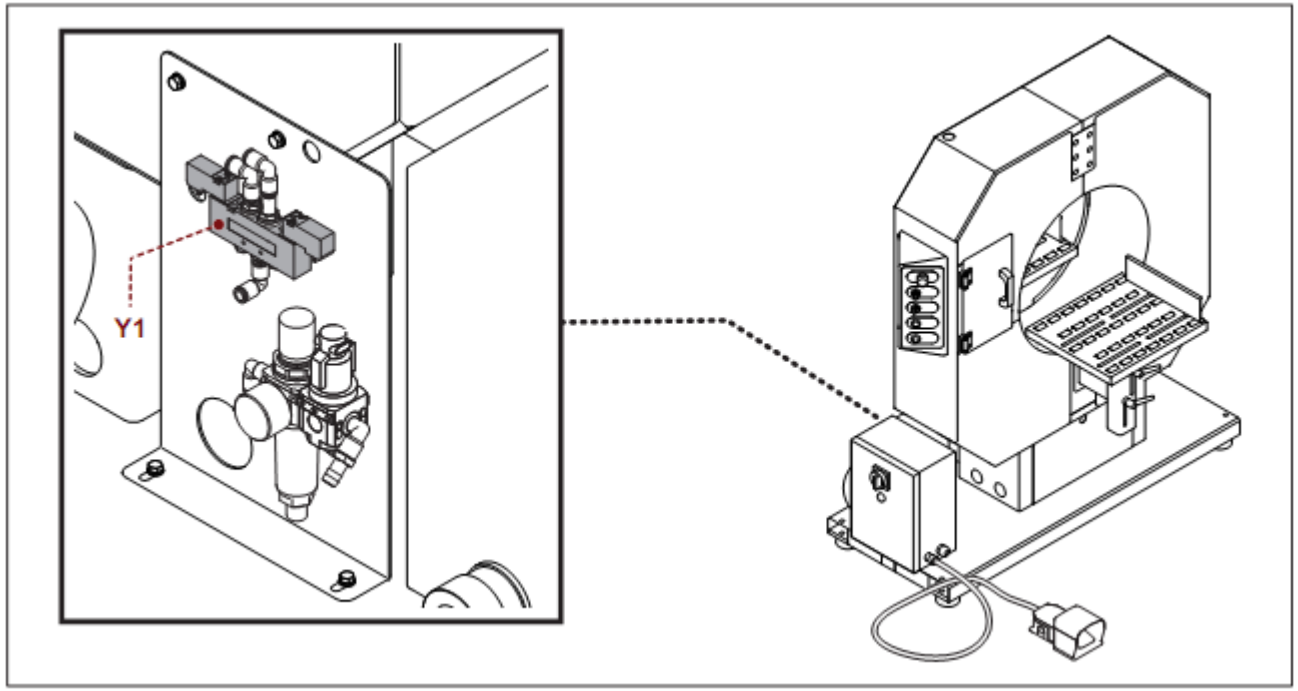


A) **Microinterruttore di sicurezza (SQ1)**:
all'apertura del riparo esegue l'arresto della macchina.

B) **Sensore di fase (SQ2)**:
rileva l'anello rotante nella posizione di inizio ciclo (macchina in fase).

C) **Motore elettrico**:
aziona l'anello rotante

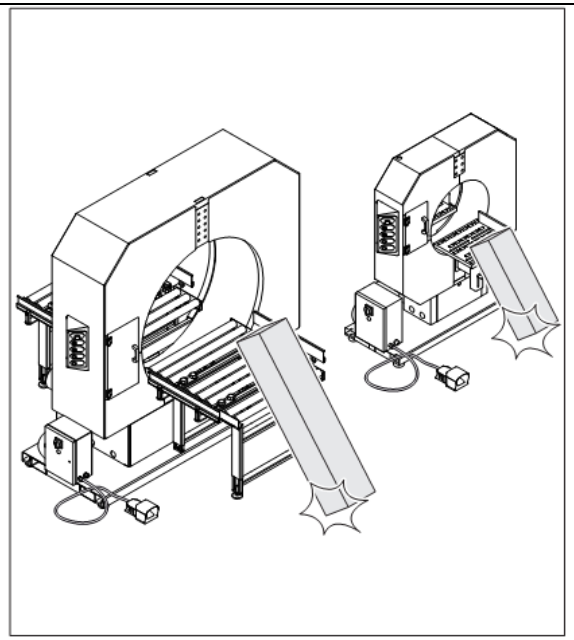
PNEUMATICS DEVICES DESCRIPTION



Solenoid valves

Y1 Solenoid valve that controls the gripper opening/closing.

SAFETY DEVICES DESCRIPTION



Danger on the inlet roller conveyor
The roller conveyor can support products up to a certain length (approximately 700 mm).
Longer products or improperly balanced, once placed onto the conveyor, may fall over the operator.
When these types of products require wrapping, arranging a support that can sustain the protruding part of the product being processed is recommended.

Danger on the outlet roller conveyor
The roller conveyor can support products up to a certain length (approximately 700 mm).
Longer products or improperly balanced, once placed onto the conveyor, may fall over the operator.
When these types of products require wrapping, arranging a support that can sustain the protruding part of the product being processed is recommended.

Danger during wrapping operation
On machines not equipped with pressure units (optional), when exceeding on film tension adjustment and wrapping relatively light products at high speeds, the light products might be lifted up and dragged by the rotating ring.
During this phase, it is advisable to HOLD THE PRODUCT WITH THE HANDS.
DO NOT EXCEED IN WRAPPING TENSION or on rotating ring speed.

TECHNICAL DATA

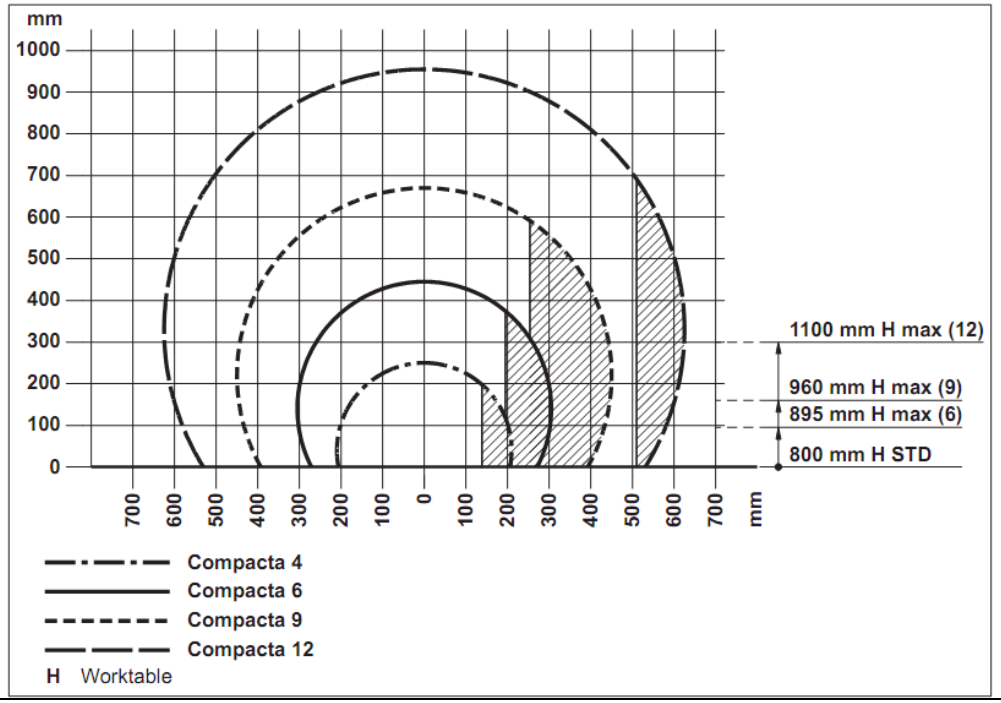
Machine	*Coil*	*Power*	*Absorption*		*Air consumption*	*Max pressure*
		kW	A		Nl/cycle	Bar
			Power (V)			
			230 single-phase	400 + N Three-phase		
Compacta 4	125	0,55	5,4		1,8	6
Compacta 6	125	0,75	7		1,8	6
Compacta 9	125	0,75	7		1,8	6
Compacta 9	250	0,75		7	3,2	6
Compacta 12	125	1,5		12	3,2	6
Compacta 12	250	1,5		12	3,2	6

PRODUCT SIZE

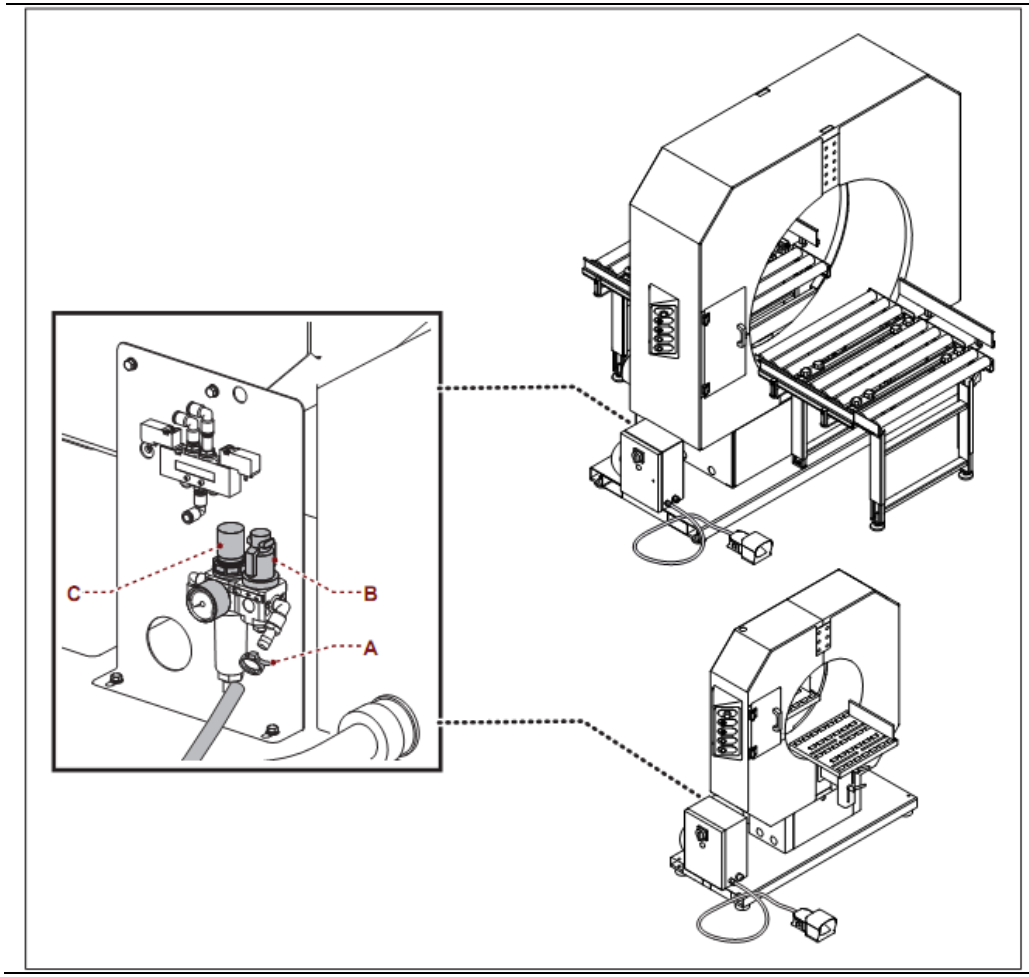
Product size

The dimensions (width and height) of the products that can be processed must be kept within the limits marked on the chart
The above-mentioned data are valid when the section is uniform for the whole length of the product.

For best quality results, the production cross section should be as close as possible to the machine diameter.
For products that intersect the sketched areas, contact the manufacturer.

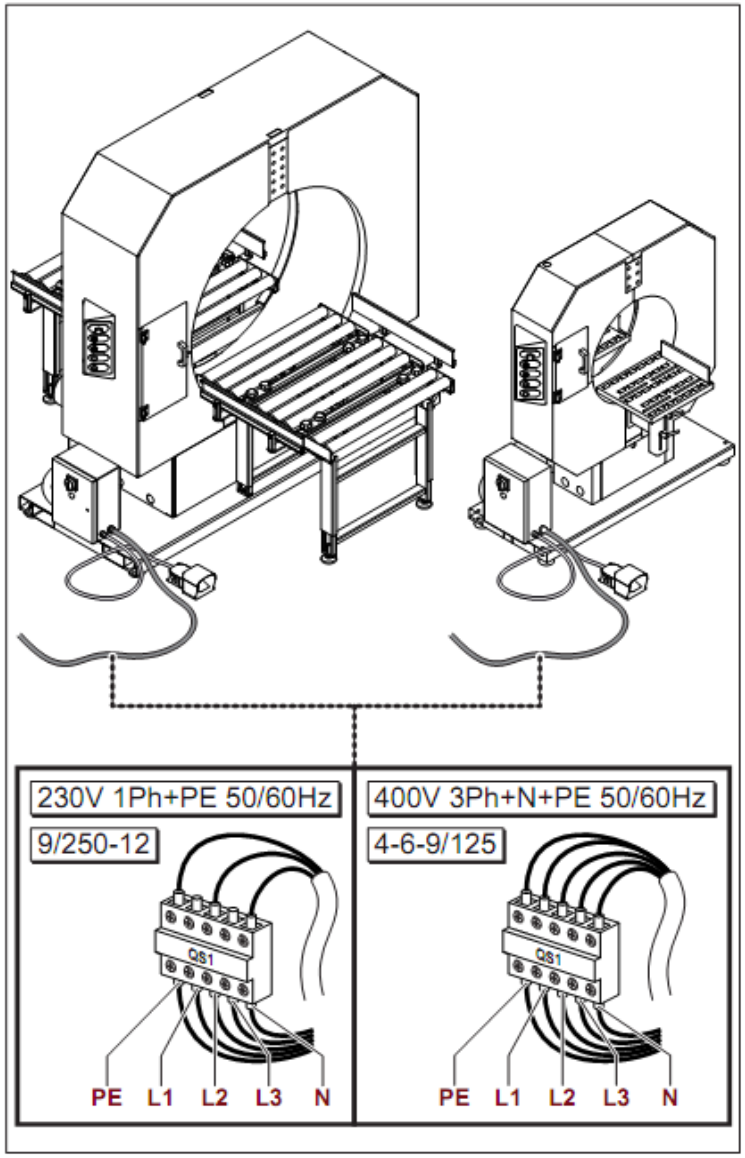


POWER SUPPLY & PNEUMATIC CONNECTIONS



Proceed as indicated

1. Insert a flexible tube on the end of the rubber fitting and fasten it with a metallic screw clamp **(A)**.
2. Check that the valve **(B)** is in the "OPEN" position.
3. Turn on the power supply line.
4. Check that the pressure gauge indicates at least 6 bar and use the knob **(C)** to compensate any pressure differences. Repeat this operation when the machine is running.



Standard models work with a mains voltage of:

- 230 V 1Ph + N + PE 50/60 Hz (Compacta 4-6-9/125)
- 400 V 3Ph + N + PE 50/60 Hz (Compacta 9/250-12)

Proceed as follows for electrical connections.

1. Check that the mains voltage (V) and frequency (Hz) correspond to those of the machine (see identification plate and wiring diagram).
2. Turn the mains switch to **0** (**OFF**).
3. Connect the power cord as illustrated, according to the network mains.

Important

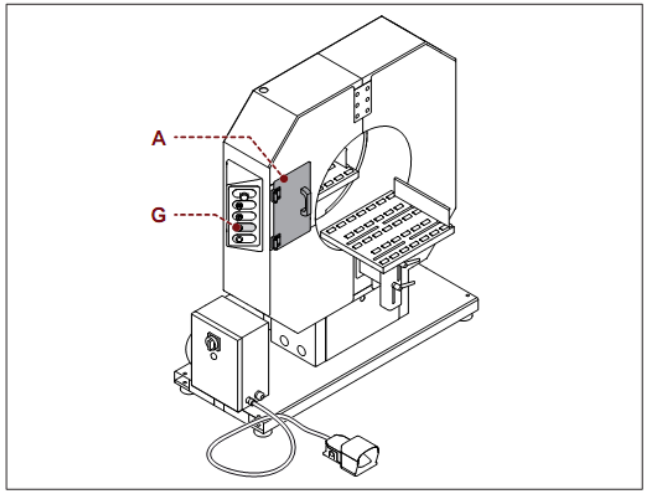
The earth wire (yellow and green) must be connected to its earth terminal PE.

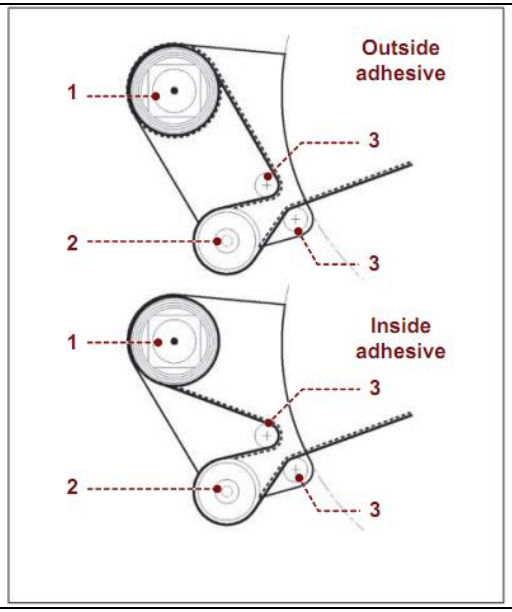
Refer to the wiring diagram given in the machine powering page to check the correct dimensions of the power cable and protection device.

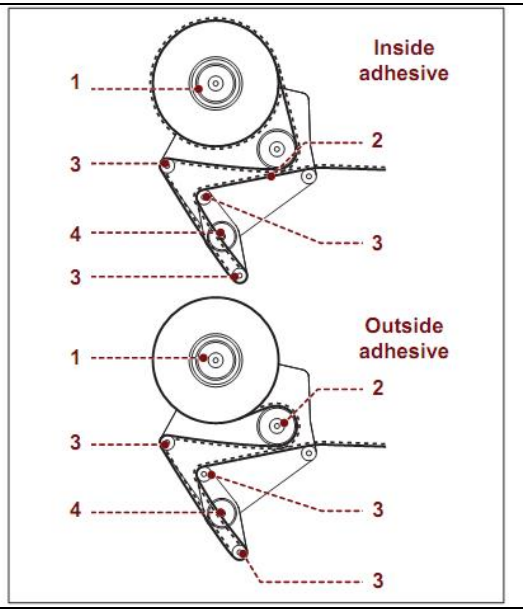
4. Use the main switch to start the machine.
5. Press the START pedal.

FILM REEL LOADING AND ROUTE

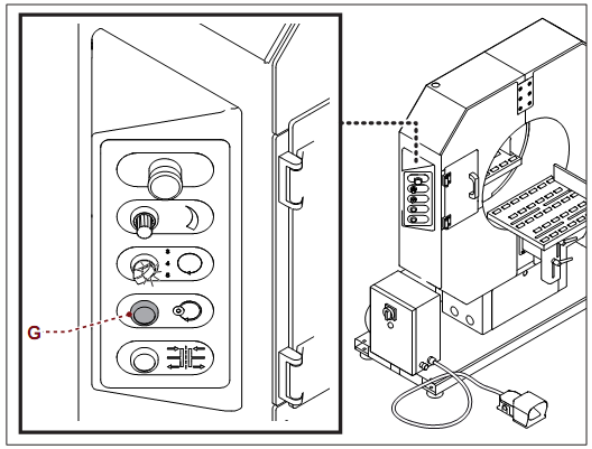
1. Make sure the rotating ring is in phase.
2. Press the push-button **(G)** for "reel change".
   The reel unit will move in front of the door **(A)** automatically.
3. Open the door **(A)** to access the reel.





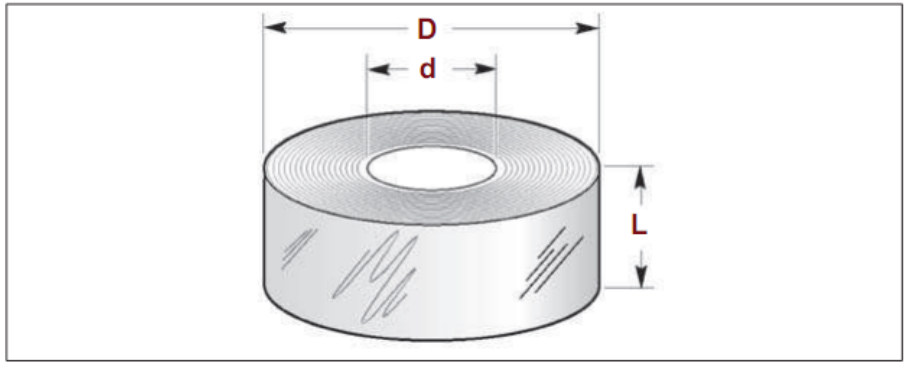


5. If necessary, adjust the clutch of the clutched roller.
6. Close the mobile shelter and press the button **(G)** again to bring the rotating ring in phase.
7. If necessary, adjust the clutch on the spool carriage roller (➔ "Friction adjustment on reel carriage").



1) Spool carriage roller
2) Friction roller
3) Idle rollers
4) Dancing roller

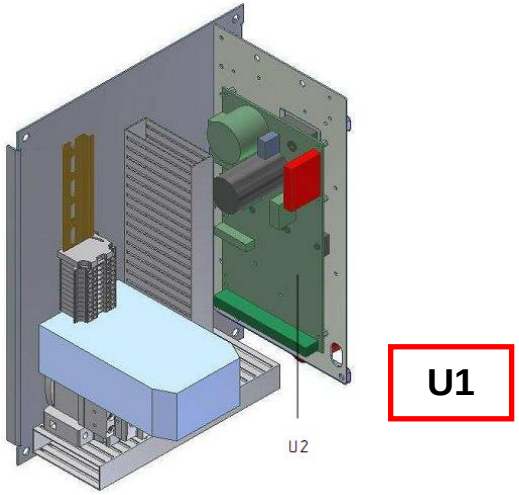
FILM SPECIFICATION



		Compacta 4	*Compacta 6*	*Compacta 9*	*Compacta 12*
D	mm	200			250
d	mm	76			
d optional	mm	50			
L	mm	50/125		125	250
				250 (opt.)	
Thickness	µm	17-50			

MACHINE SOFTWARE DOWNLOAD PROCEDURE

Fig. 2



To download the software of the machine into the inverter card START02_Compacta follow the next procedure:

2.1. Be sure that the PLC electronic card is not fed *(machine OFF).*
2.2. Insert the KEY-PRG02 (fig.2), getting the appropriate machine's software into the connector CN4 on the electronic card START02_Compacta (please refer to fig.3).
2.3. Turn ON the machine by the main switch QS1.
2.4. Check that the **LD1** led on START02_Compacta card (fig.3) will **light ON for about 3 seconds** (insertion key checking phase).
2.5. The LD1 led will switch OFF for about 0.5 seconds.
2.6. The **LD1** led will **light ON for about 8 seconds** *(deleting of the memory flash on the microcontroller master).*
2.7. The LD1 led will switch OFF for about 0.5 seconds.
2.8. The **LD1** led will **light ON for about 28 seconds** *(reading & printing from EEPROM to the FLASH of the microcontroller master).*
2.9. The LD1 led will switch OFF.
2.10. Turn OFF the machine by the main switch QS1.
2.11. Wait the necessary that all the led on the PLC electronic card are will light completely OFF *(full discharge of condensers).*
2.12. Extract the KEY-PRG02 from the socket CN4 on the PLC electronic card START02_Compacta.
2.13. Software download completed.

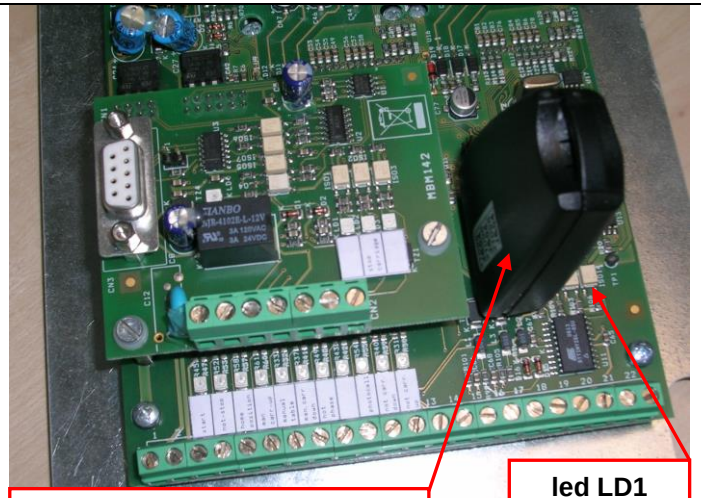


Fig.3

HARDWARE CONFIGURATION FOR COMPACTA MODELS

Machine model / Elettronic card (Robopac code)	COMPACTA 4	COMPACTA 6	COMPACTA 9 Reel width 125 mm	COMPACTA 9-Bobina l Reel width 250 mm	COMPACTA 12
START02_Compacta Code1430300186	●	●	●	●	●
P&P03_A Code.1430300170	●	●	●		
P&P04 Code1430300167				●	●

INTERNAL PARAMETER SETTING AND FAST DEFAULT FOR MACHINE TYPE (TIP)

(this operation can be made using the programming keypad shown on fig.4 & Fig.5)

14.1. Scroll the parameter list till the parameter “TIP”
14.2. Select the required machine type (model)
14.3. Press the “encoder” JOG button and keep it pressed till get the message ‘DEF’ on the program keypad display.
14.4. Release the JOG push button,
14.5. **This procedure all the counters become reset to zero (partial and total counter too).**

Fast configuration to default values for each machine model (recommended by producer)

Parameter	Range	Minimum values	Compacta 4	Compacta 6	Compacta 9 Reel 125	Compacta 9 Reel 250	Compacta 12 Reel 125	Compacta 12 Reel 250	Compacta 12 Reel 250 Riatio 1:4	Parameter description
TIP	**00 ÷ 07**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	Machine Type
P 1	**0 ÷ 100**	30	30	20	30	30	30	30	30	Open clamp delay time (first round)
P 2	**0 ÷ 100**	10	10	30	30	30	60	60	60	Open clamp delay time (last round)
P 3	**0 ÷ 100**	13	13	25	25	30	64	80	72	Film reel position manual movement
P 4	**0 ÷ 100**	60	20	20	20	20	40	60	30	Acceleration time
P 5	**0 ÷ 100**	60	20	18	20	20	40	55	53	Deceleration time
P 6	**20 ÷ 70**	20	55	60	54	47	40	40	63	Maximum frequency
P 7	**05 ÷ 40**	20	20	20	20	20	20	20	32	Minimum frequency
P 8	**01 ÷ 20**	3	3	3	3	3	3	3	3	Wraps number position 1 selector
P 9	**01 ÷ 20**	4	4	4	4	4	4	4	4	Wraps number position 2 selector
P10	**01 ÷ 20**	5	5	5	5	5	5	5	5	Wraps number position 3 selector
P11	**01 ÷ 20**	10	10	10	10	10	10	10	10	Forward clamp time
P12	**00 ÷ 35**	5	35	35	35	35	10	10	10	Inverter boost
P13	**00 ÷ 01**	0	0	0	0	1	1	1	1	Plug & Play (0 = PP3, 1 = PP4)
P14	**00 ÷ 01**	1	1	1	1	1	1	1	1	Pedal diagnostic OFF – ON
P15	**01 ÷ 100**	40	50	50	60	60	80	80	60	Nominal current ring motor

INTERNAL PARAMETER SETTING COMPACTA 4 / 6 / 9 / 12

(this operation can be made using the programming keypad shown in the below picture).

To visualize and modify the list of the internal machines parameters, follow the next procedure:

15.1. Turn OFF the machine

15.2. Move the deep switch SW1,1 of the display card of the programming keypad (Fig.4) in position ON

15.3. Turn ON the machine. The first parameter shown on display will be “TIP“ (machine type).

15.4. To scroll-down the parameters, press the encoder JOG push button

15.5. To modify the visualized parameter, rotate the “encoder” button JOG

15.6. When the operation is completed, move again the deep switch SW1,1 in its OFF original position (working cycle mode). Turn OFF the machine that will be ready to pack on the start-up.

Example of programmer key-pad for Compacta

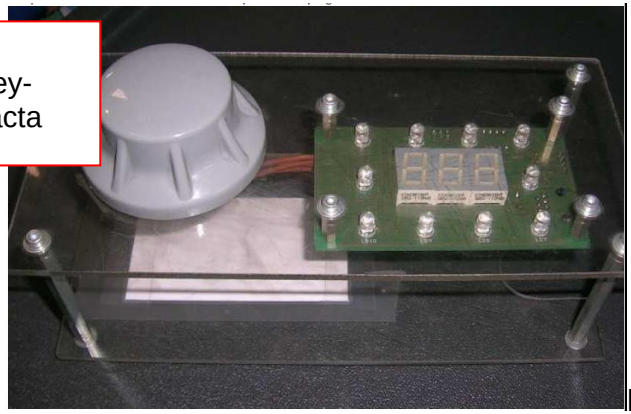


Fig.4

Rear view of the display panel

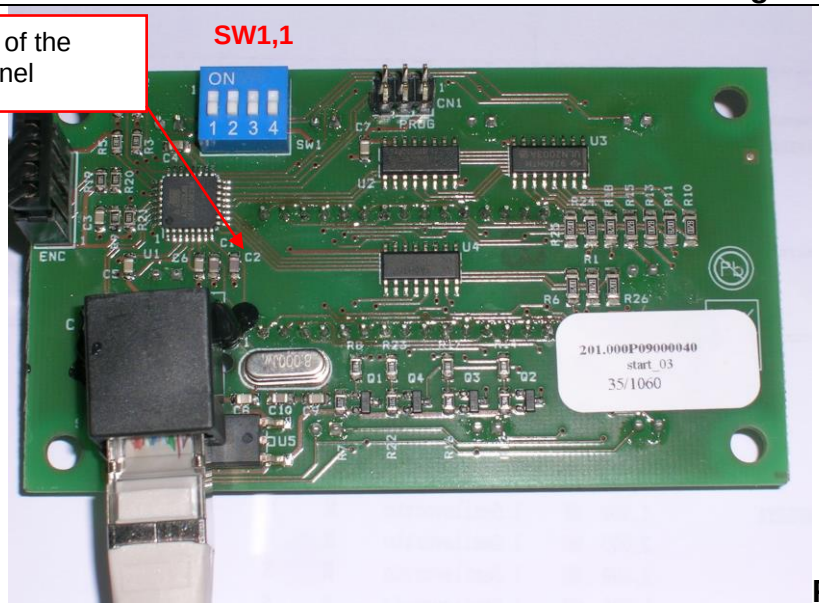


Fig.5

LAYOUT WITH INPUT / OUTPUT FOR ELECTRONIC CARD START02_Compacta & TECHNICAL INFO

INPUT STATUS DETAIL (MOTHER-BOARD U1)		
Led #	**Description**	**Led status (upon press start)**
LD8	PEDAL START (open contact)	**OFF (IN3)**
LD10	EMERGENCY	**ON (IN4)**
LD12	MANUAL CLAMP	**OFF (IN5)**
LD13	MANUIAL ROTATION	**OFF (IN6)**
LD4	FREE	**OFF (IN7)**
LD6	FREE	**OFF (IN8)**
LD9	RING PHASE POSITION	**ON (IN15)**
LD7	FREE	**OFF (IN16)**
LD11	WRAPS SELECTOR 1	**OFF (IN19)**
LD5	WRAPS SELECTOR 2	**ON (IN20)**
LD3	PEDAL START (close contact)	**ON (IN22)**

OUTPUT STATUS DETAIL (EXPANSION CARD U2)		
Led #	**Description**	**Led status (upon press start)**
LD1	CLAMP BACKWARD	**ON (OUT33)**
LD2	CLAMP FORWARD	**OFF (OUT32)**

Fig.6

ELECTRONIC EXPANSION CARDS DETAILS AND DESCRIPTION

U1 - P&P03_A

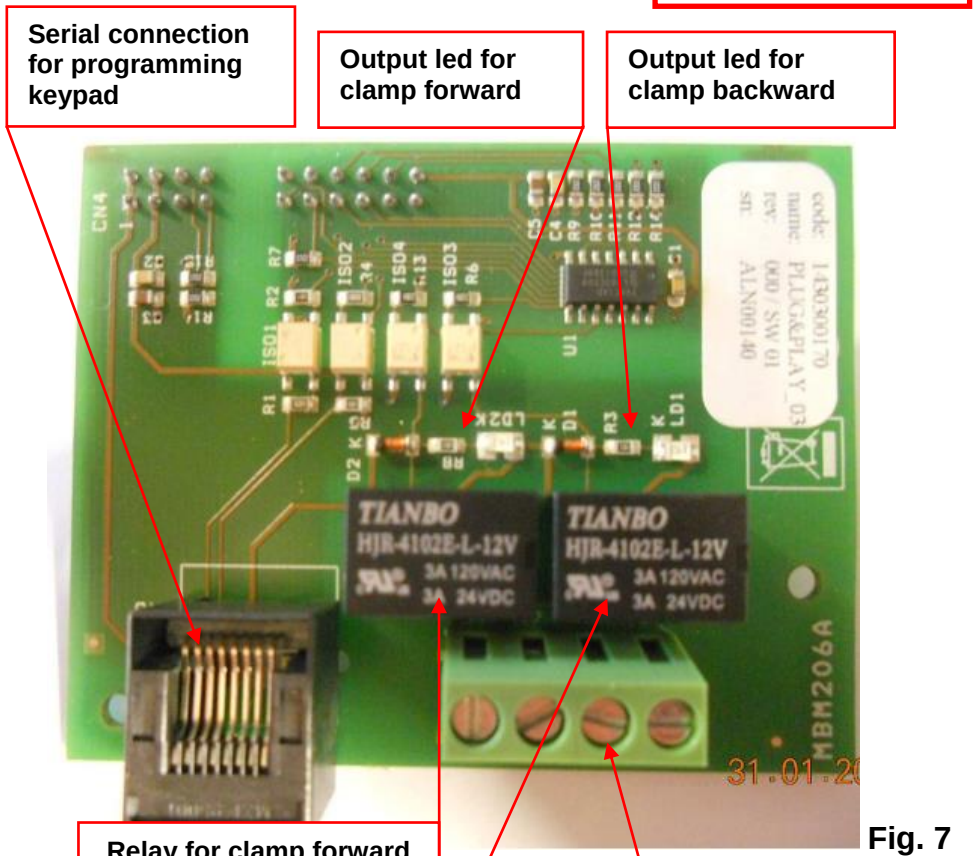


Fig. 7

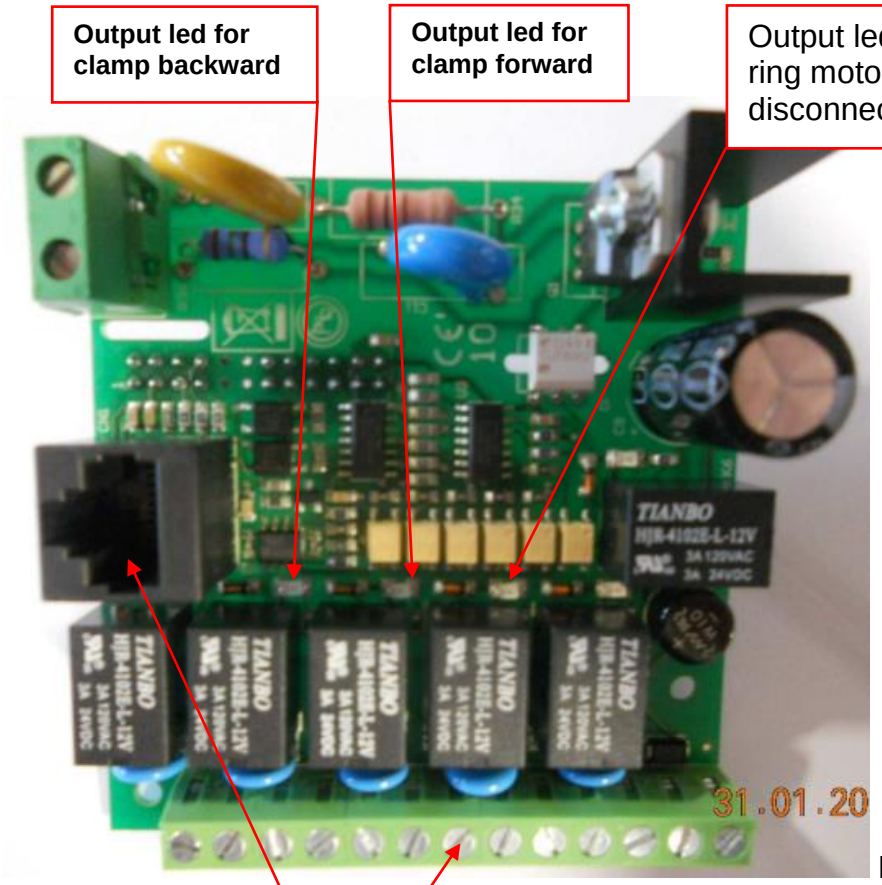


Fig. 8

U1 - P&P04

MACHINE STATUS & ALARM LIST

(refer to Fig.6)

Number of blinks led LD1	Alarm code	Alarm status	Description alarm status
1		Machine in STOP	Machine waiting for START
2		Machine in RUN	Machine running in auto mode
3	E30	Over current ring motor	Hardware alarm given by a current pick same as shortcut
4	E33	Overload ring motor	Alarm given by a average current consumption
5	E91	Power supply over tension	Power supply excided 276VAC (390VDC)
6	E90	Power supply low tension	Power supply lower than 135VAC (190VDC)
7	E34	Temperature alarm	Temperature on power module over > 85°C
8	E46	Communication alarm	Communication alarm between master-slave.
9		Slave alarm	(Producer only).
10		Slave alarm 2	(Producer only).
11		Communication alarm	Communication alarm given by slave microcontroller (producer debug only).
12		Tiny alarm	Tiny program alarm, analogical input (producer only)
13		Initialization phase	(Producer only).
13	E80	Pedal command diagnostic alarm	Possible hardware fault from unreal signals from input pedal command
14	E61	Ring phase alarm	Missing phase signal alarm during ring rotation
17	E42	Data save alarm	Inconsistent data with software release
17	E43	Data save alarm	Flash data not writable alarm
17	E44	Data save alarm	Wrong checksum data alarm
	E01	Emergency	Emergency push button pressed or safety gate open
	E71	Clamp forward alarm	Function not enabled