

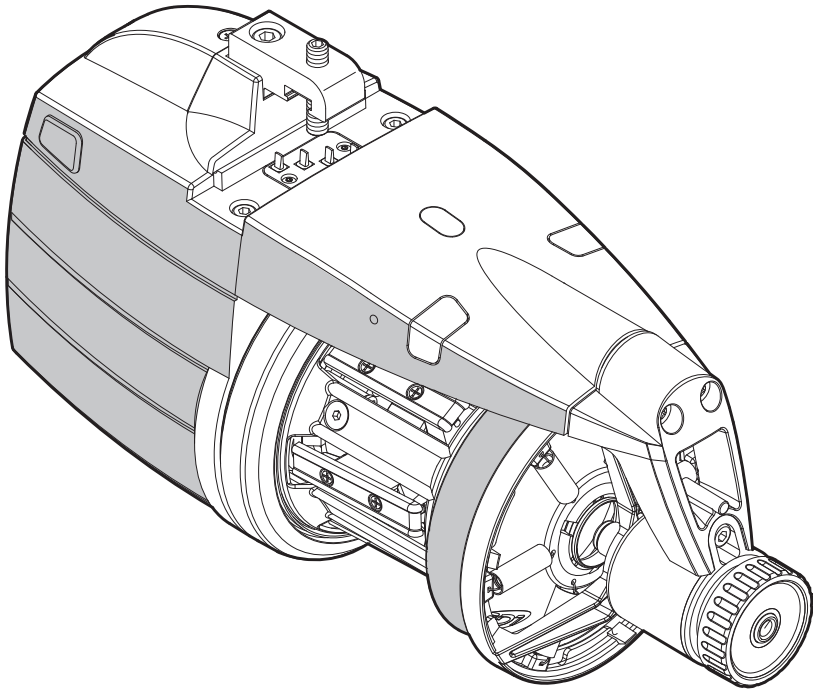


ECO^{MINI}

MANUALE DI ISTRUZIONE

INSTRUCTION MANUAL

使用手册



ALIMENTATORE DI FILO A SPIRE SEPARATE
YARN ACCUMULATOR WITH SEPARATE COILS
分离线圈导纱器



Scope of supply: Design, manufacture and after sales service of yarn feeders, measuring winders, stands, creels and oil systems for textile machinery.

TRADUZIONI DELLE ISTRUZIONI ORIGINALI.
TRANSLATION OF THE ORIGINAL INSTRUCTIONS.
原始使用说明的翻译.

L.G.L. Electronics is gratified by your choice
and thanks you for the preference

ECOMINI

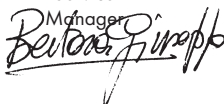
yarn feeder

INSTRUCTION MANUAL

ISSUED BY:

Service

Manager



Date: 01/02/2026

APPROVED BY:

Technical

Manager



Date: 01/02/2026

WARNINGS



- 1) Power down the yarn feeder's power supply box mains switch before beginning any power supply hook-up, maintenance or part replacement operations.



- 2) During standard machine operation, the yarn feeder may suddenly start up without prior warning.
CAUTION: the orange lights do not signal that the yarn feeder is ON, but that the feeder has gone into an alarm mode. Therefore, during standard operation they should be OFF.
- 3) Before yarn feeder start-up, inspect it physically for damage (check the flywheel/the eyelet/all moving parts).
Wear Personal Protective Equipment (gloves, shoes) during transportation and installation of the feeders and the power supply kit, if any, to avoid crushing hazards in the event of a fall.
- 4) Strictly avoid touching any moving part during feeder operation.
Do not wear clothes and clothing accessories that are likely to get caught in the moving parts. Gather up long hair.
- 5) Lubricants may be used to make the yarn slide more easily. The user must refer to the Material Safety Data Sheet of the products used. Keep the feeder clean.



- 6) Only use the original L.G.L. Electronics spare parts and accessories.
- 7) Any repairs to the feeder's electronic parts must be performed by appropriately qualified personnel, regularly authorised by L.G.L. Electronics accordingly.
- 8) Yarn feeders that are moved from warehouse storage into a warmer knitting mill environment may develop condensation; please wait until they are completely dry before connecting them up. Failure to do so may damage the electronic components.
- 9) Never pick the yarn feeder up by its yarn spool body or by its tensioning unit.

WARNINGS

ADVICE TO ALWAYS KEEP THE FEEDER IN PERFECT WORKING ORDER AND EXTEND ITS SERVICE LIFE.

For an always satisfying performance of the yarn feeder over the years, we deem it advisable to provide you with some simple tricks:

- 1. At the time of installation, passing from the store to the warm knitting environment, Condensation may form on a yarn feeder that has been stored in cold places when this is brought into a warm area.
Wait until this is completely dry before connecting it, otherwise the electronic components could be damaged.*
- 2. Water and dampness may harm the electronic parts of the feeder. Operating the yarn feeder for long time periods in extremely damp environments (dampness exceeding 80%) or using water-impregnated threads might quickly compromise the electronic cards. Moreover, the feeder shall not be cleaned with water or similar substances.*
- 3. Machines working in environments featuring a lot of dust require increased maintenance. By prevent the knitting environment clean, you avoid residual dirt and dust from compromising the performance of the machine by stressing the moving parts. The latter are protected, but the accumulation of dust might result in a more difficult movement and, as consequence, in early wear-and-tear.*
- 4. We suggest storing feeders that are not used for long time periods in the special polystyrene boxes, which ensure the best storage.*
- 5. When the yarn feeder is being loaded, use the special heddle tool. Do not use other tools, especially if made from metal, as the inlet sensor might be damaged, along with any outlet brakes.*

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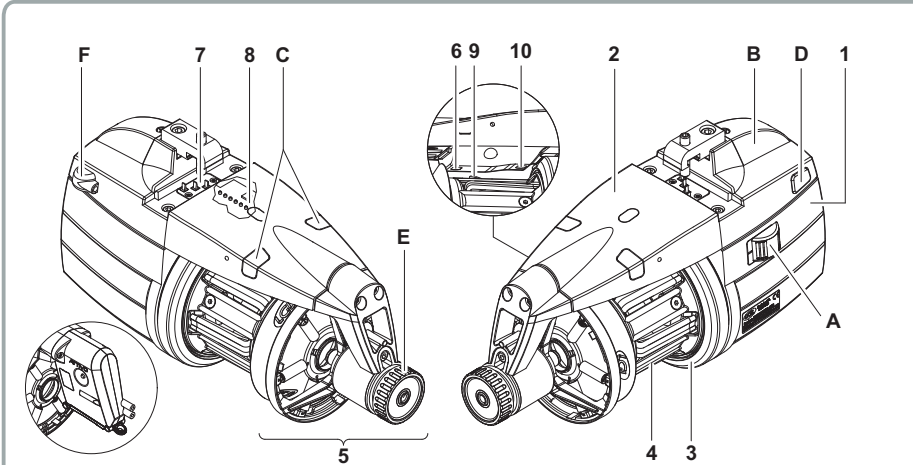
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1 - GENERAL FEATURES

1.1 MAIN PARTS – CONTROL AND ADJUSTMENT POINTS

Main Parts:

- | | |
|---------------------------|------------------------------------|
| 1 • MOTOR | 6 • OPTICAL OUTPUT SENSOR |
| 2 • TOP PANEL | 7 • POWER CABLE CONNECTION |
| 3 • FLYWHEEL | 8 • MAIN ELECTRONIC CONTROL BOARD |
| 4 • YARN SPOOL BODY | 9 • WINDING RESERVE CONTROL FEELER |
| 5 • OUTPUT TENSIONER UNIT | 10 • INPUT FEELER |



For further details concerning the **ATTIVO** electronic tensions, please go to **chapter 6**

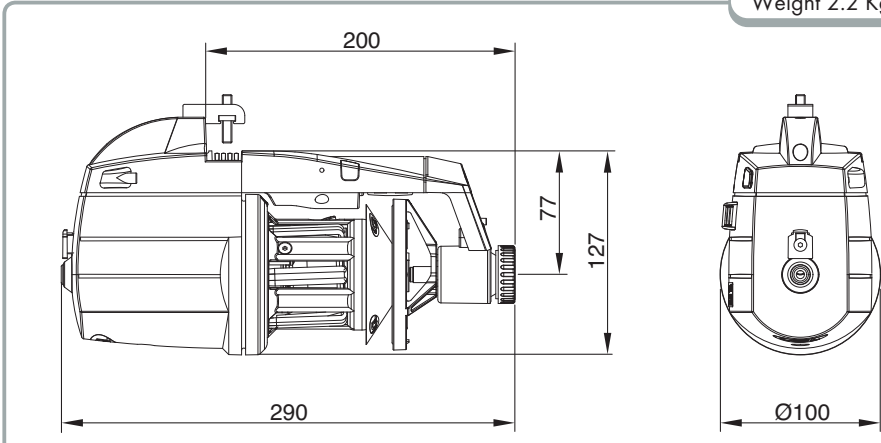
CONTROLS / ADJUSTMENTS		FUNCTION
A	0 – I SWITCH	<ul style="list-style-type: none"> Switches the yarn feeder ON and OFF.
B	SERIAL COMMUNICATION PORT	<ul style="list-style-type: none"> Enables Pocket and PC interfacing.
C	SIGNAL LAMPS	<ul style="list-style-type: none"> If yarn feeder is turned on and there are no malfunctions, they will not light up. They will light up if any malfunction arises. (<i>consult paragraph "Trouble shooting"</i>).
D	DIP SWITCH	<ul style="list-style-type: none"> Enables adjustment of the optical sensor's sensitivity range, reverse the direction of rotation, self-calibrate magnetic sensors and perform the termination of the serial bus.
E	ADJUSTING TWIST-KNOB	<ul style="list-style-type: none"> Enable adjustment of the outbound yarn tensioning.
F	THREE-WAY CONNECTOR	<ul style="list-style-type: none"> Enables connection of an output yarn feeler.

1 - GENERAL FEATURES

1.2 OVERALL DIMENSIONS

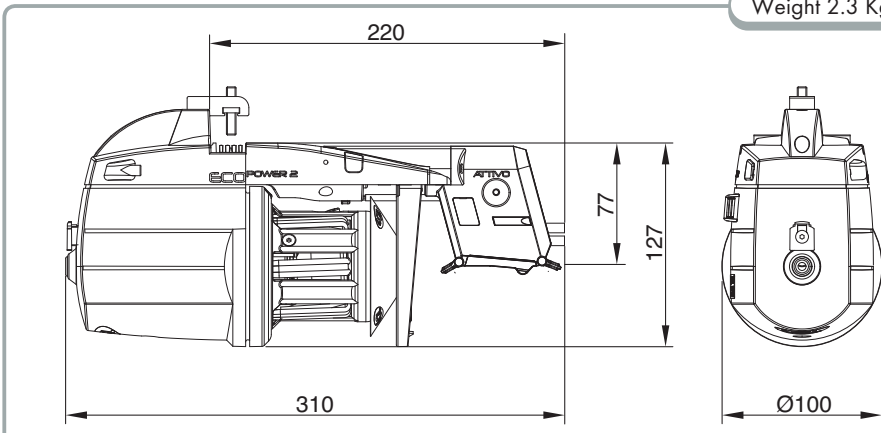
ECOMINI featuring the TWM tension modulator

Weight 2.2 Kg



ECOMINI with ATTIVO electronic tensioner

Weight 2.3 Kg



1 - GENERAL FEATURES

1.3 INTENDED USE – TECHNICAL AND OPERATIONAL FEATURES

Intended Use:

The ECOMINI is a yarn feeder featuring **separate coils**, suitable for all types of knitting machines or for textile machines requiring yarn feed-in with constant tension.

Optimised operation is provided with yarn counts ranging from **800 den** (the thicker yarn counts) down to **5 den** (fine yarn counts).

IMPROPER uses

Improper uses are all those uses which are not expressly indicated among the design uses, namely:

- Working of yarns other than those specified
- Power supply of the machine not matching the specified value
- Use of the machine in an explosive atmosphere.

Operational features:

- Automatic speed adjustment designed to cover the machine's yarn quantity requirements.
- Spool body winding reserve control by means of a magnetic feeler system.
- Yarn feeder and machine stop function if no yarn is detected at the feeder's yarn input (broken yarn or empty yarn bobbin).
- Kit KLS:
Feeder and machine stop function when no yarn is found on feeder outlet without using mechanical sensors (yarn broken or out of the needles).
- The option of being able to fit on various tensioning devices based on the type of yarn actually being used, at both the feeder's inlet and outlet.
- Either vertical set-up or horizontal set-up assembly option, selectable based on requirements.
- Real-time detection and display function of the yarn consumption related to each machine feed
- **ATTIVO** electronic tensioner (optional). The operator sets the desired output tension, and the system will maintain it, to avoid all tension changes depending on the yarn, the bobbin and the like issues.

Technical specifications:

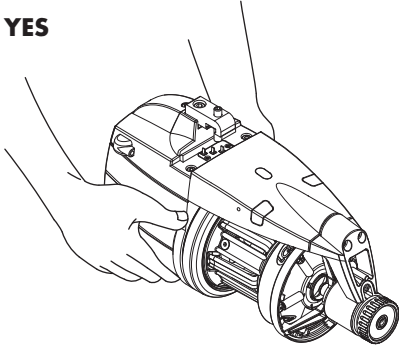
- Power supply by means of a direct connection with the machine, or through a power supply box that is supplied separately by L.G.L. Electronics.
Power supply voltage data: **V = 42-48 VAC three-phase Hz = 50/60 (AC version)**
V = 57 VDC (DC version)
- Automatic yarn input speed control provided up to a maximum of **1000 m/min**.
- Coil separation feature fixed at **1 mm (STD); 2 mm (Z1)**.
- Permanent magnet synchronous motor.
- Motor data:
Maximum power: **35 W**
- Equivalent continuous A-weighted sound pressure level at maximum speed: **<70 dB (A)**
- Operation and storage conditions:
 - Room temperature: from **+10 to +40°C**
 - Maximum humidity: **80%**

1 - GENERAL FEATURES

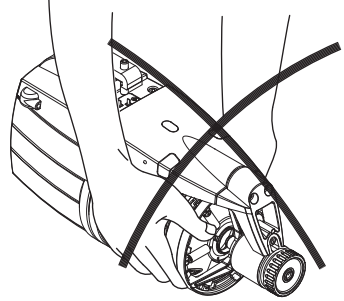
1.4 HANDLING AND STORAGE INSTRUCTIONS

Never pick the yarn feeder up by its yarn spool body, by its top panel or by its tensioning unit.

YES



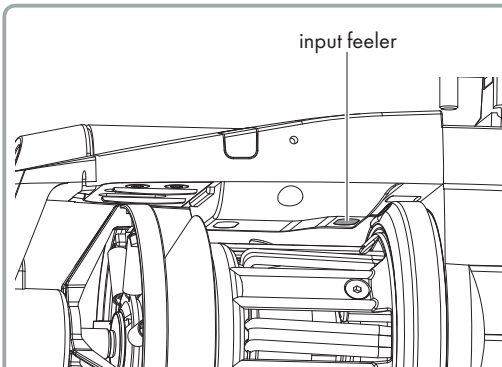
NO



The yarn feeder is supplied in an appropriate polystyrene casing; please store the casing for use during any future handling.

1.5 INPUT FEELER

The yarn feeder features an input feeler that provides the following function:



• **“Machine stop” function:**

this function stops both the feeder and the machine if no yarn is detected at feeder input (broken yarn or empty yarn spool).

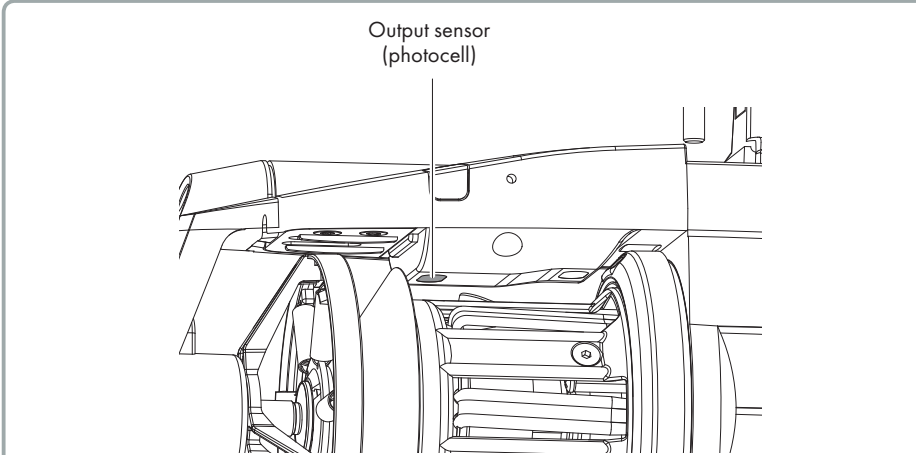
CAUTION: the machine will not stop if the feeder comes to a halt.

The machine stop signal is operative only if the signal lamps are ON.

1 - GENERAL FEATURES

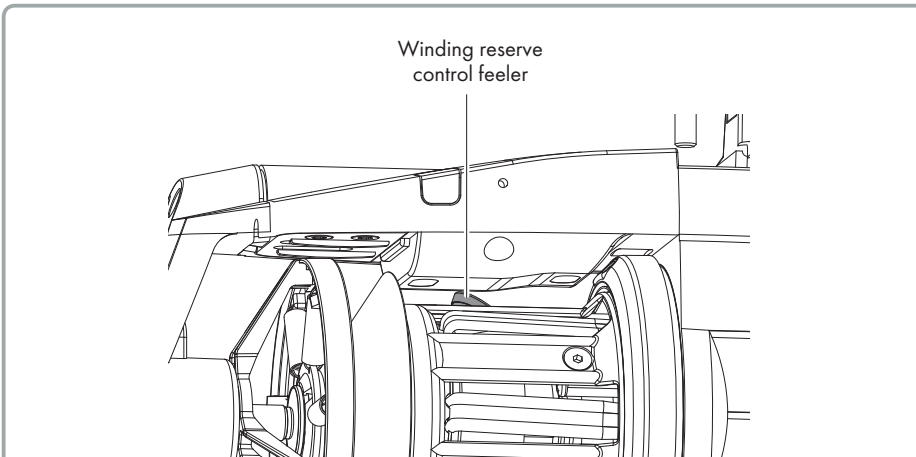
1.6 OPTICAL OUTPUT SENSOR

The optical sensor featured by the yarn feeder provides automatic speed adjustment based on the quantity of yarn needed by the machine. For very fine yarn count processing (lower than 40 den), the sensor requires DIP SWITCH settings (paragraph 2.4 refers).



1.7 YARN SPOOL BODY WINDING RESERVE CONTROL FEELER

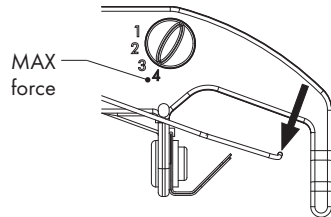
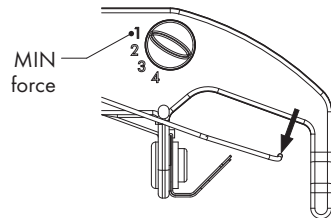
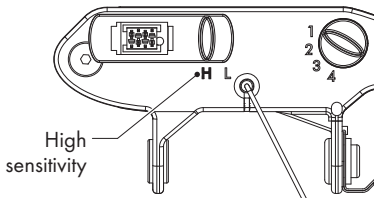
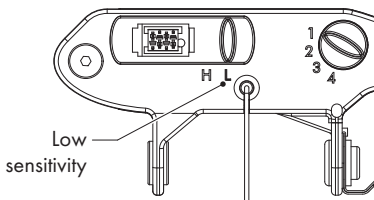
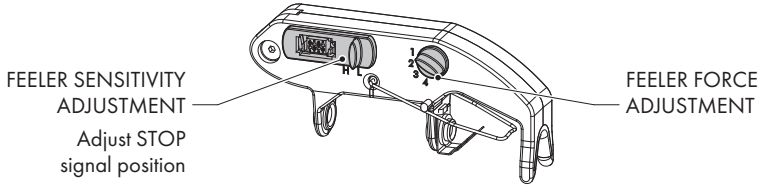
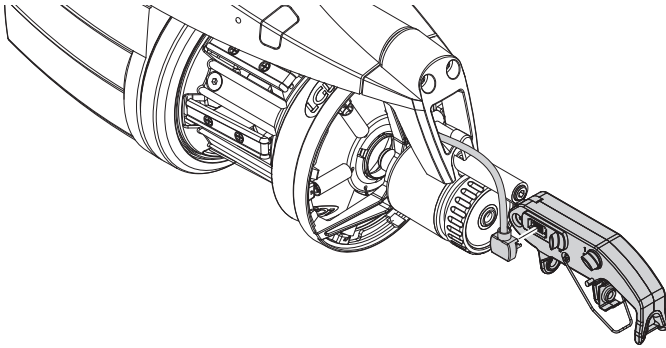
The magnetic sensor that the yarn feeder is provided with has the function of monitoring the yarn winding reserve on the spool body.



1 - GENERAL FEATURES

1.8 YARN OUTPUT DETECTION FEELER

The assembly of this detection feeler onto the feeder output, enables the machine to receive a stop signal that is relayed by the feeder when it detects output yarn snaps/breaks.



2 - INSTALLATION AND START-UP

N.B.: Yarn feeders that are moved from warehouse storage into a warmer knitting mill environment may develop condensation; please wait until they are completely dry before connecting them up.

Failure to do so may damage the electronic components.

2.1 YARN FEEDER INSTALLATION AND START-UP (AC VERSION)

For installation of the yarn feeder onto the machine, proceed as follows:

VERTICAL SET-UP VERSION

Fix the feeder onto the appropriate support plate (**F**) and fit in the power supply flat cable (**G**) as well; tighten in grub screw (**H**) until the flat cable is punctured.

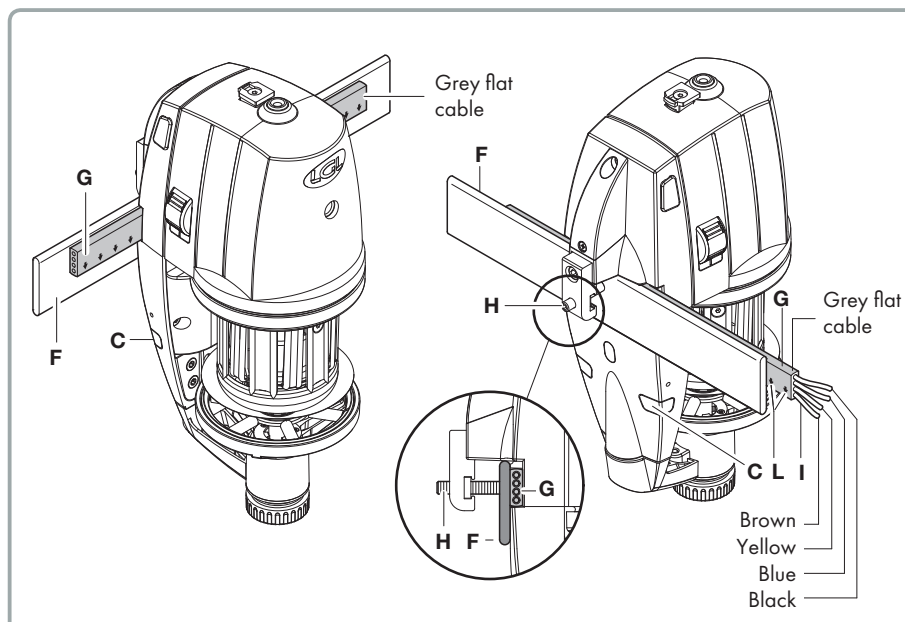
N.B.: The support ring shall be sized as follows:

- Height not less than 25mm
- Max thickness 10 mm

IMPORTANT: To avoid damaging the electronic components, the installation sequence illustrated in the figures below must absolutely be complied with exactly.

The brown cable (**I**) must be kept facing the signal lamps (**C**) (if the flat cable is supplied by LGL, the brown cable (**I**) can be identified by the arrows (**L**) printed on the flat cable).

N.B.: Make sure that the support plate the yarn feeder is fixed onto is provided with an earth connection, the same goes for the 48V AC threephase power supply transformer star-connection.

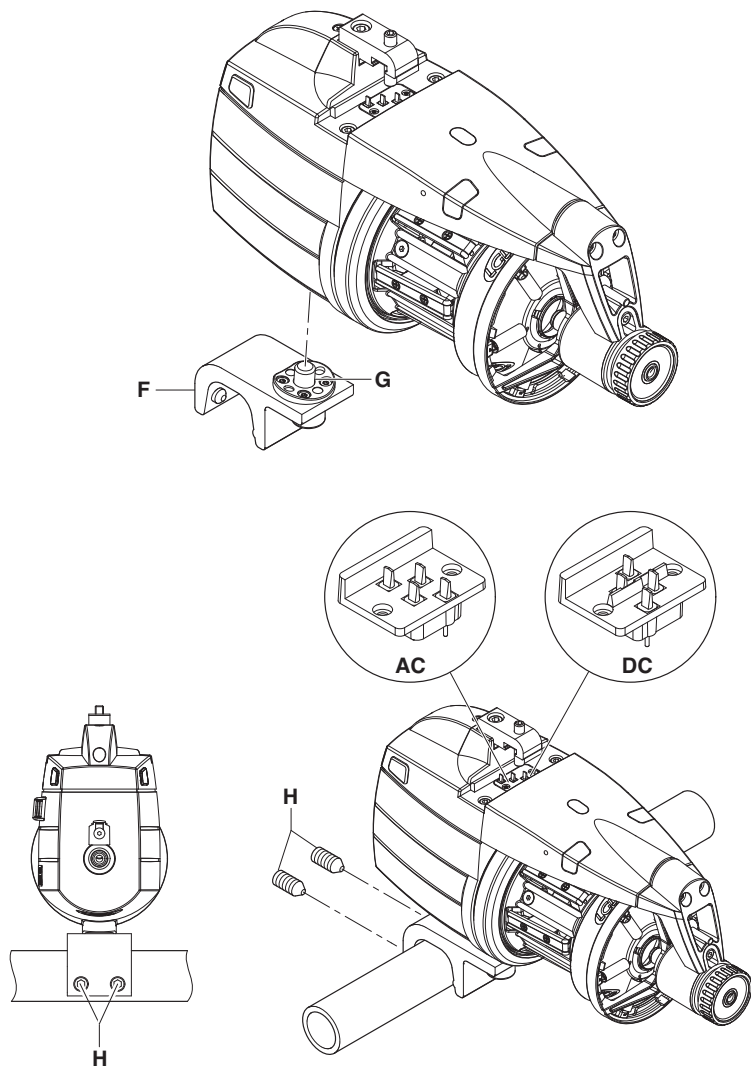


2 - INSTALLATION AND START-UP

HORIZONTAL SET-UP VERSION

For installation of the yarn feeder onto the machine, proceed as follows:

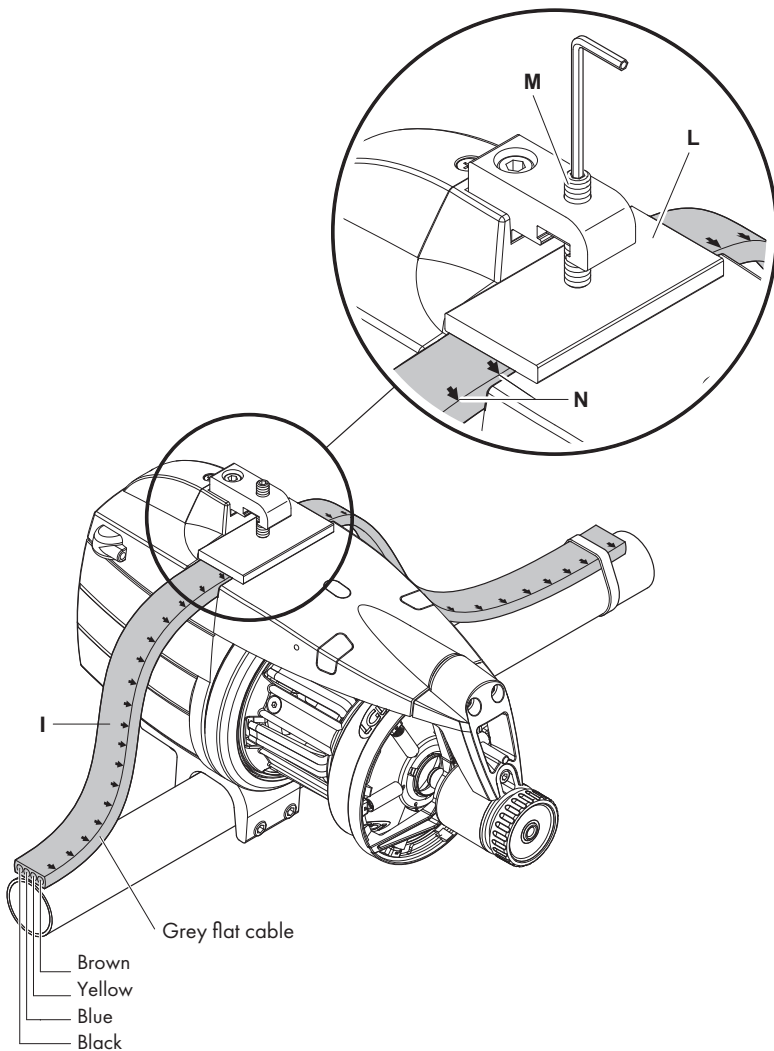
- Fasten the clamp (**F**) with the screw (**G**) to the feeder; then block the clamp on the machine pipe using the grub screw (**H**) that is found in the clamp, placing the feeder with the proper inclination to operate.



2 - INSTALLATION AND START-UP

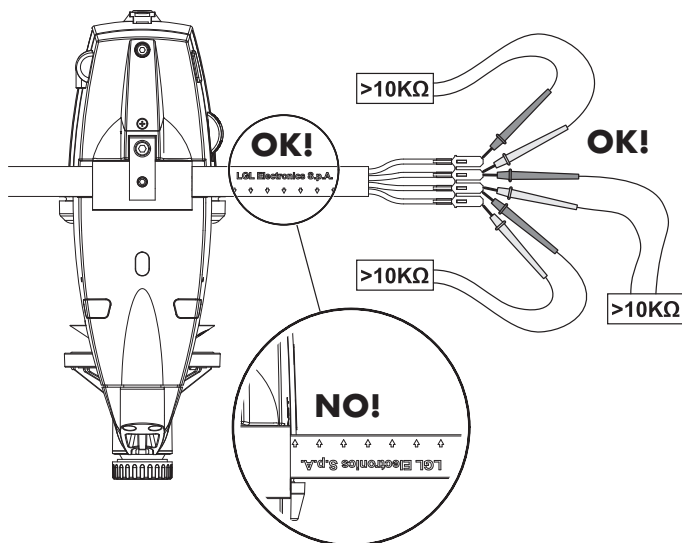
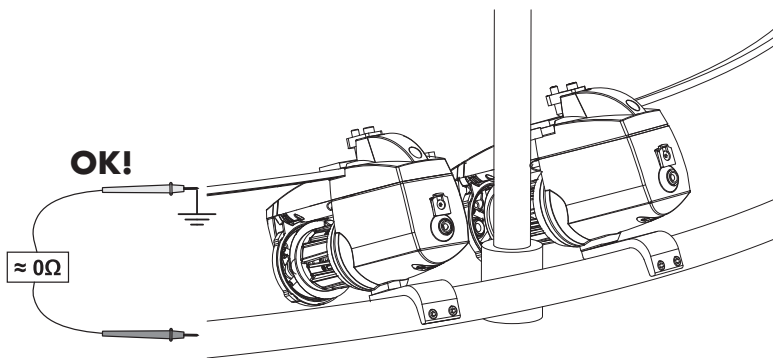
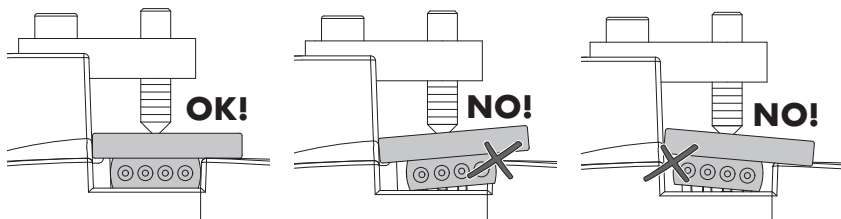
- Connect up the feeders to the flat cable (**I**) by means of the appropriate locking plate (**L**) then tighten it in with screw (**M**) located on the housing.

CAUTION: when connecting the flat cable, keep to the printed reference marks showing the exact fixing position (the arrows (**N**) must point towards the front end of the feeder).

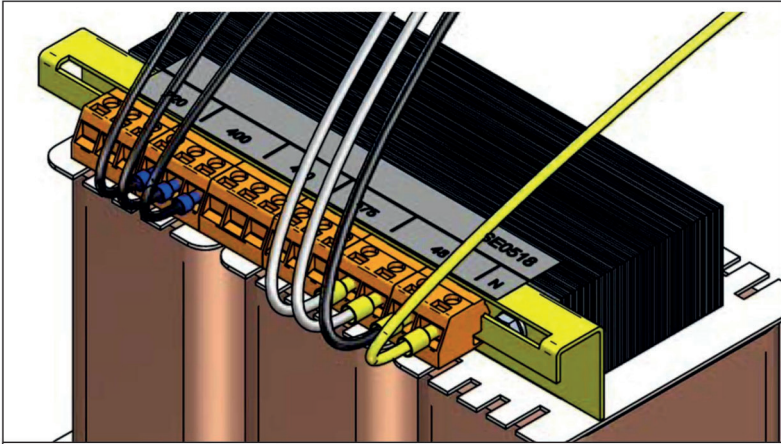


2 - INSTALLATION AND START-UP

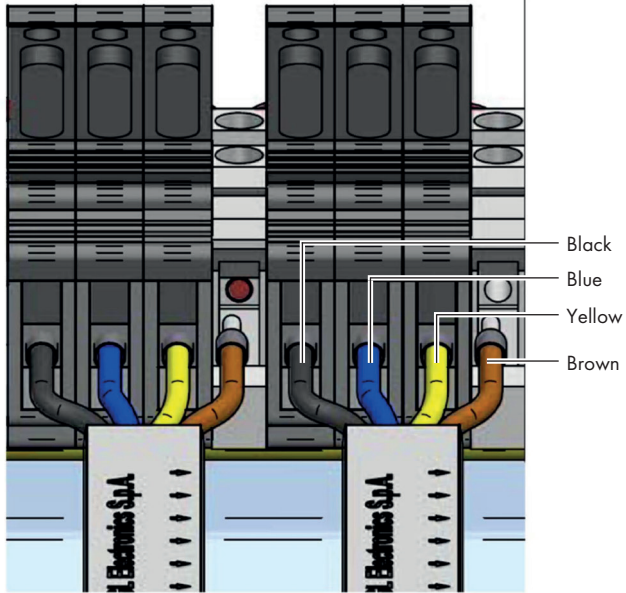
2.1.1 To be checked before switching power on (AC version)



2 - INSTALLATION AND START-UP



Be sure that the transformer is connected to the correct primary voltage



Be sure that flat cables are connected to the transformer with the correct color sequence

2 - INSTALLATION AND START-UP

2.2 YARN FEEDER INSTALLATION AND START-UP (DC VERSION)

For installation of the yarn feeder onto the machine, proceed as follows:

VERTICAL SET-UP VERSION

Fix the feeder onto the appropriate support plate (**F**) and fit in the power supply flat cable (**G**) as well; tighten in grub screw (**H**) until the flat cable is punctured.

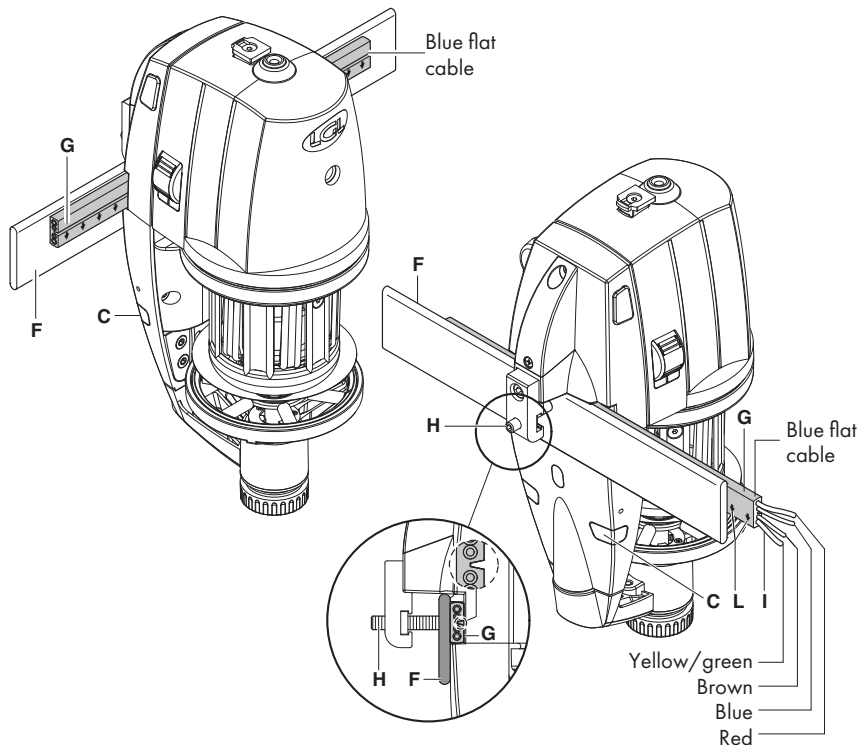
N.B.: The support ring shall be sized as follows:

- Height not less than 25mm
- Max thickness 10 mm

IMPORTANT: To avoid damaging the electronic components, the installation sequence illustrated in the figures below must absolutely be complied with exactly.

The yellow/green cable (**I**) must be kept facing the signal lamps (**C**) (if the flat cable is supplied by LGL, the yellow/green cable (**I**) can be identified by the arrows (**L**) printed on the flat cable).

N.B.: Ensure that the stand onto which the yarn feeder is fastened is electrically grounded.

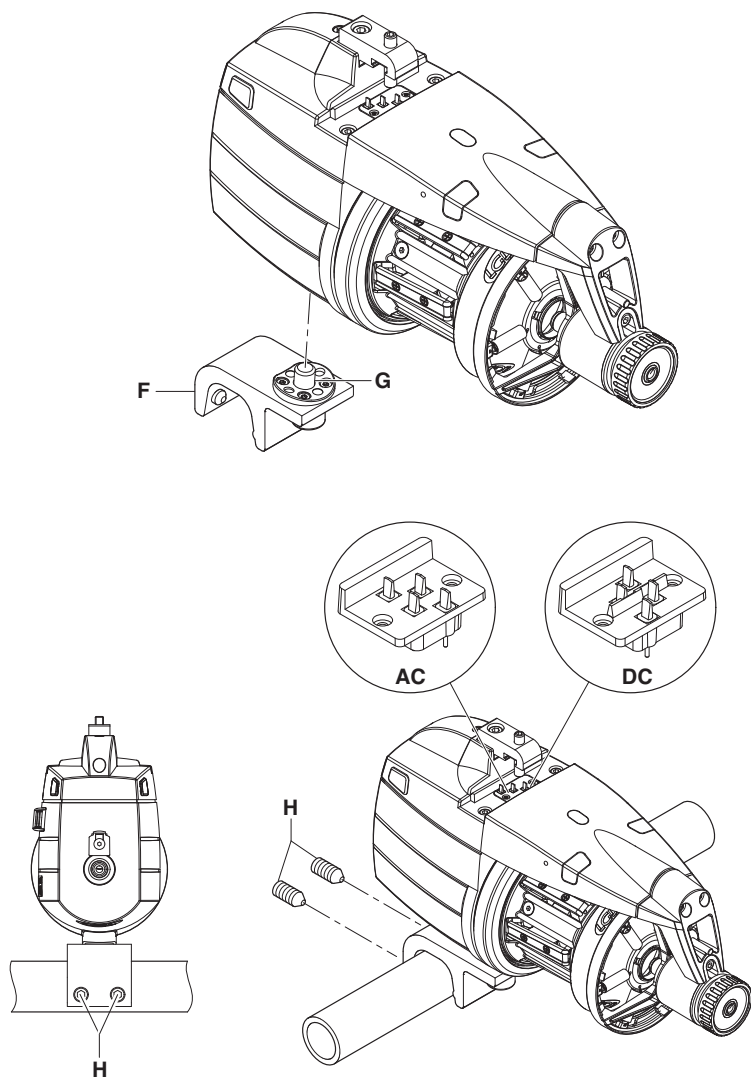


2 - INSTALLATION AND START-UP

HORIZONTAL SET-UP VERSION

For installation of the yarn feeder onto the machine, proceed as follows:

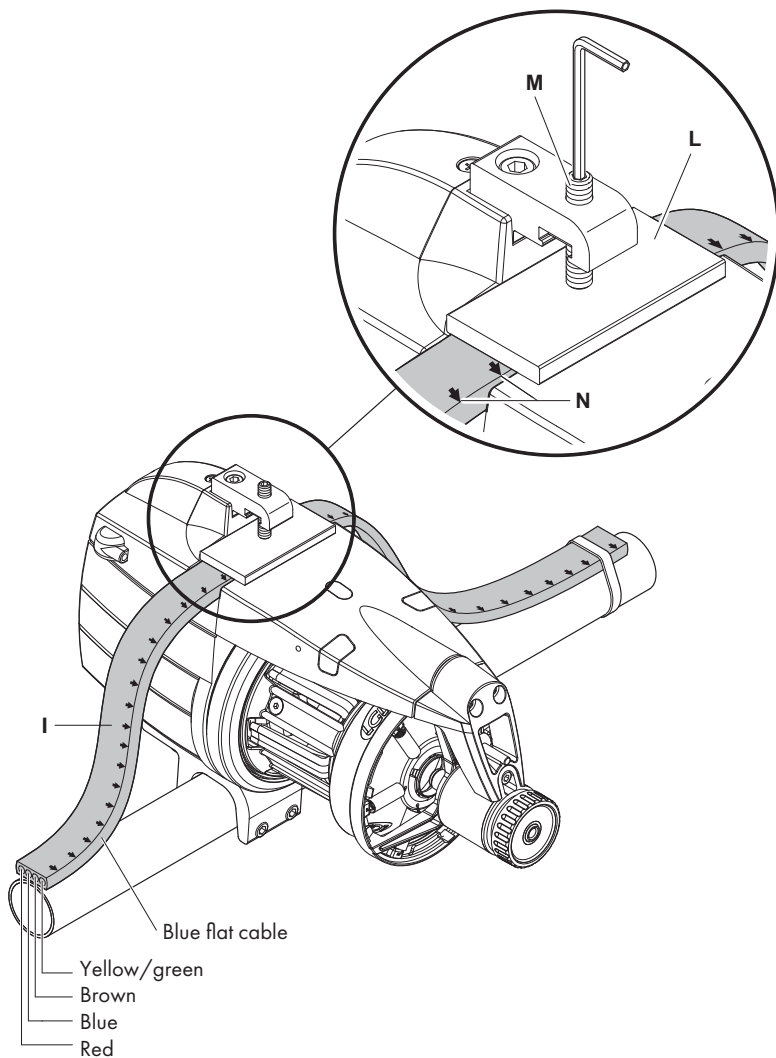
- Fasten the clamp (**F**) with the screw (**G**) to the feeder; then block the clamp on the machine pipe using the grub screw (**H**) that is found in the clamp, placing the feeder with the proper inclination to operate.



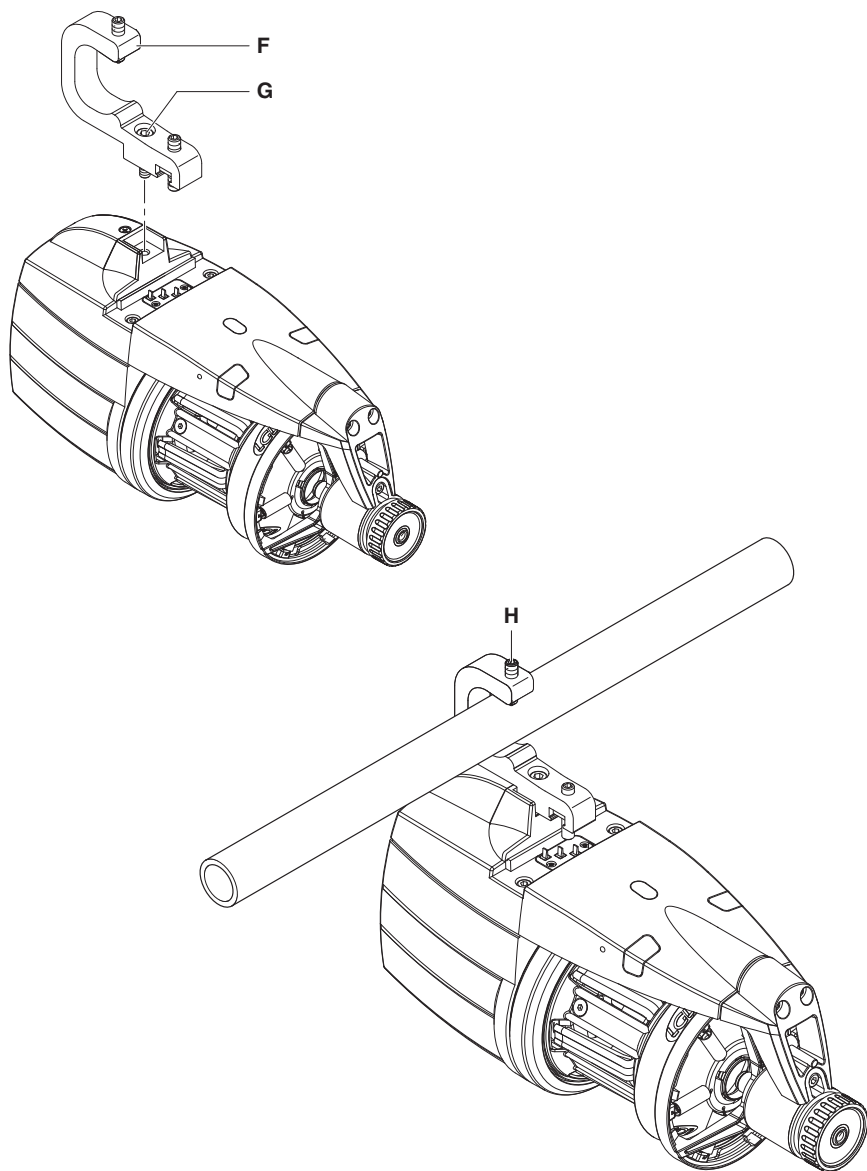
2 - INSTALLATION AND START-UP

- Connect up the feeders to the flat power cable (I) by means of the appropriate locking plate (L) then tighten it in with screw (M) located on the housing.

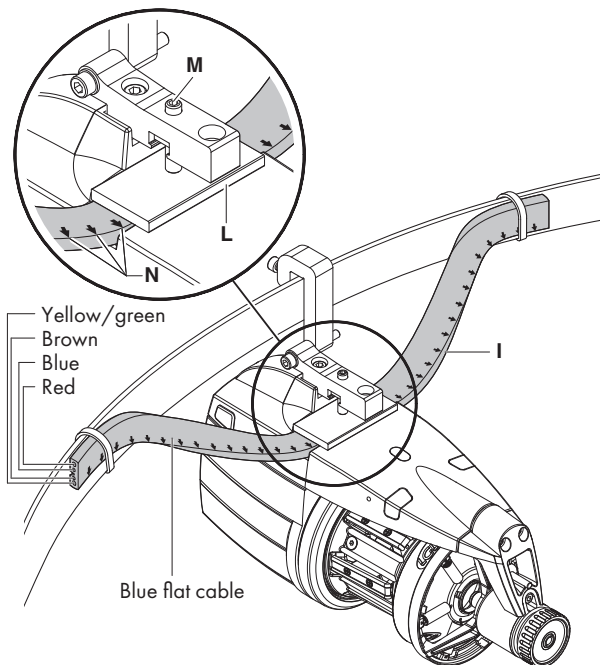
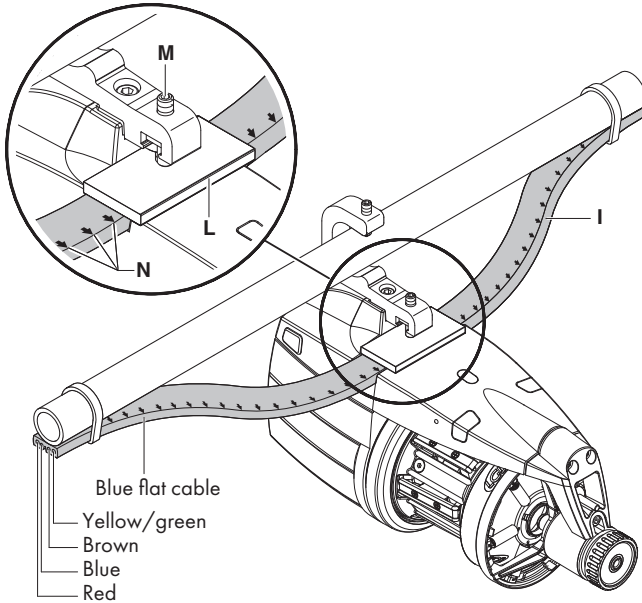
CAUTION: when connecting the flat power cable, keep to the printed reference marks showing the exact fixing position (the arrows (N) must point towards the front end of the feeder).



2 - INSTALLATION AND START-UP

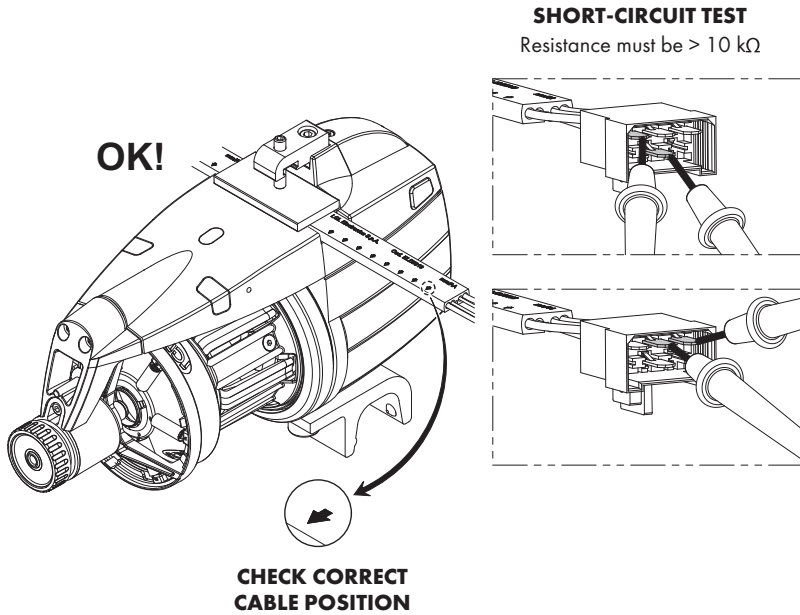


2 - INSTALLATION AND START-UP

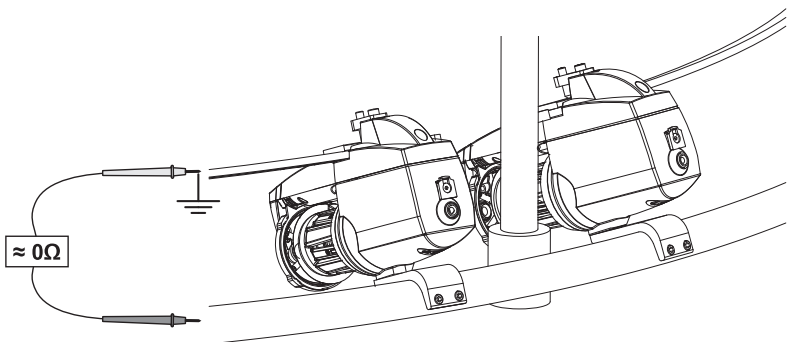


2 - INSTALLATION AND START-UP

2.2.1 Checklist before power on (DC version)

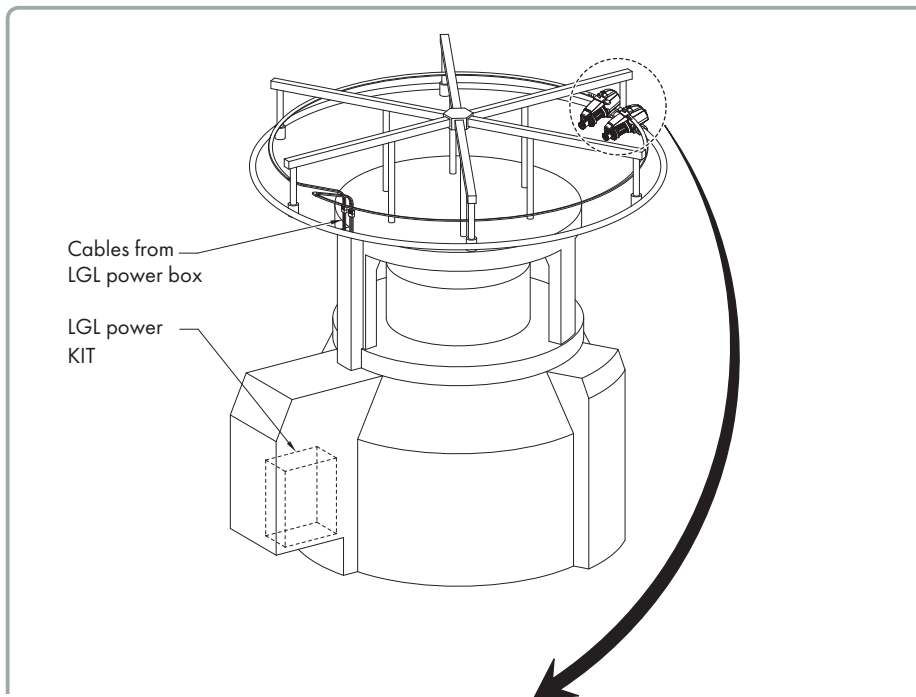


CHECK ON THE RING THE GROUND CONNECTION

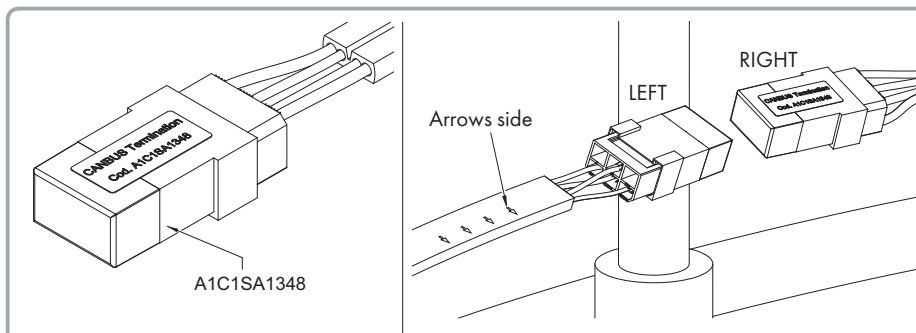


2 - INSTALLATION AND START-UP

2.2.2 CAN-BUS cables connection



N.B: CAN BUS Version. If blue flat cable ends like in the following picture:



The CAN is terminated with a resistor on the cable, so DS4 must be OFF **on all feeders**. If one or more DS4 are ON, this will produce a decrease of the BUS resistance, thus leading to communication problems.

2 - INSTALLATION AND START-UP

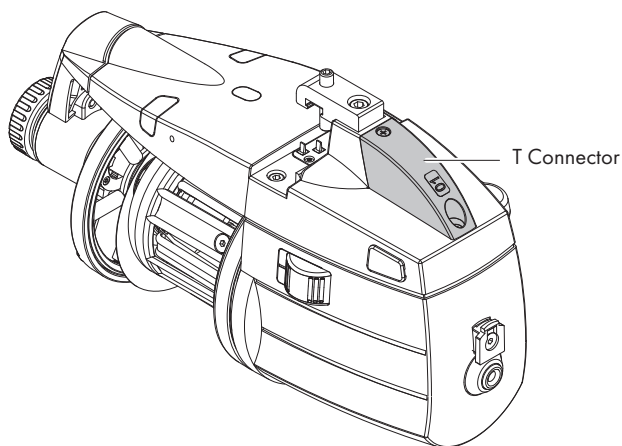
2.3 THE ADDRESS KIT

The address kit identifies each feeder on the communication bus, thus allowing a communication with the machine or with a dedicated interface.

This interface allows to get information from feeders or to set parameters (for example set tensions on ATTIVO or read yarn consumption).

On the DC Version (Blue Flat Cable) the address T-connector is installed on the feeder in LGL. The addresses are also marked outside feeder boxes, so that the operator can take the needed numbers.

We suggest to match feeder number with machine feed number.

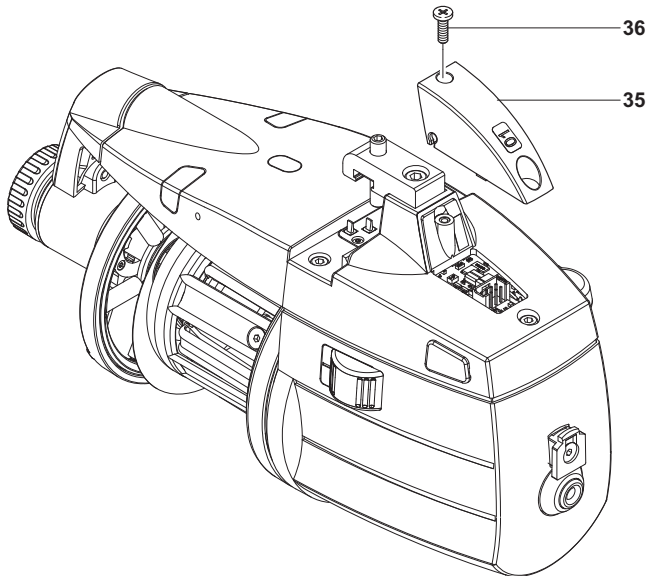


2 - INSTALLATION AND START-UP

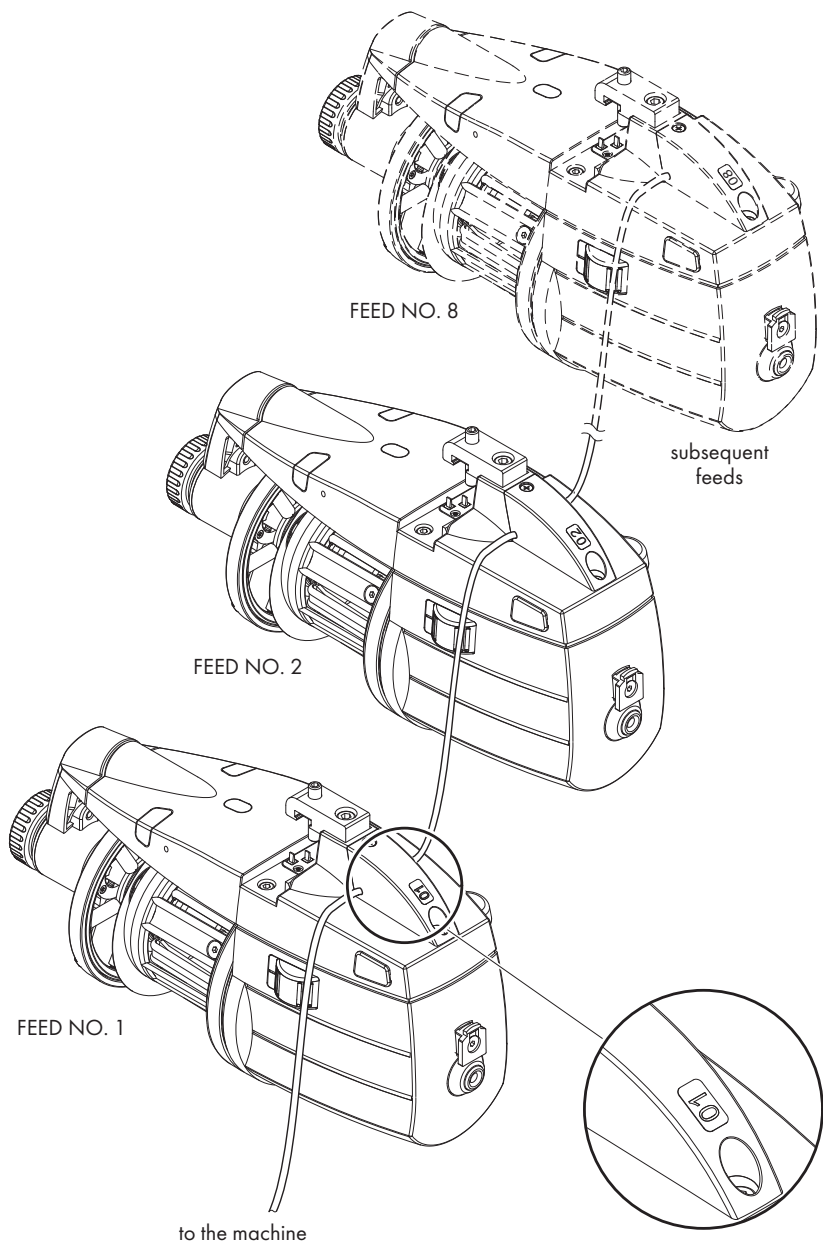
AC VERSION: Plug the T-connector into the serial communication port and carefully check to see that the number on the connector corresponds with the machine-feed number.

Using its appropriate screw (**36**) fix the connector (**35**) to the outer feeder housing. If not already connected, connect up the relative cables as shown in figure below. Connect the cable leading from the first feeder up to the machine.

The kit comprises a set of numbered T-connectors with the relative connection cables.



2 - INSTALLATION AND START-UP



2 - INSTALLATION AND START-UP

2.4 DIP-SWITCH SETTINGS

Access to the DIP-SWITCH is enabled by snapping off side cap located on the feeder housing.

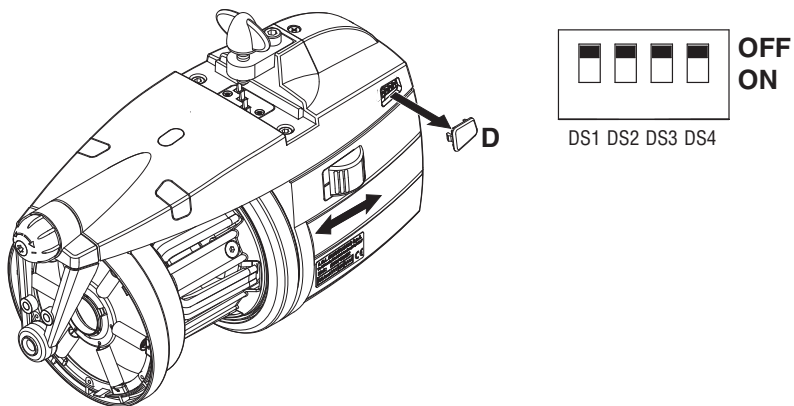
DS1	SETTING MEANING (Default Position = OFF)
OFF	Z Rotation
ON	S Rotation

DS2	SETTING MEANING (Default Position = OFF)
OFF	Standard optical sensor sensitivity.
ON	Increased optical sensor sensitivity, set when operating with yarn counts thinner than 40 den.

DS3	SETTING MEANING (Default Position = OFF)
OFF	Work position (standard)
ON	<p>Self-calibration of magnetic sensors. The recommended procedure is stated below:</p> <ul style="list-style-type: none">- Set switch 0-1 to 0. Set DS3 to ON.- Remove the yarn reserve from the spool body, keeping the feeder threaded.- Set switch 0-1 to 1. The feeder winds the reserve laying down a fixed number of turns on the spool body- If the procedure has been correctly performed, the feeder will put the indicator lamps on for one second to indicate that calibration has been correctly performed.- At the end of the procedure, set switch 0-1 to 0.- Set the DS3 to OFF.- Set switch 0-1 to 1 to complete the self-calibration.

DS4	SETTING MEANING (Default Position = OFF)
OFF	Bus termination off.
ON	Bus termination on (see paragraph 2.3).

2 - INSTALLATION AND START-UP

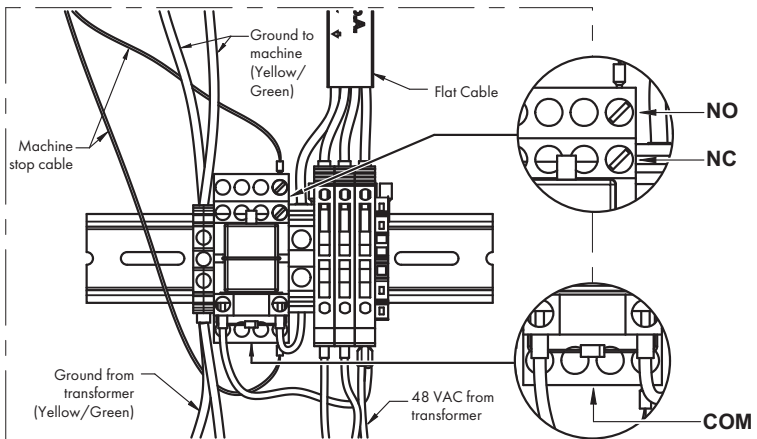
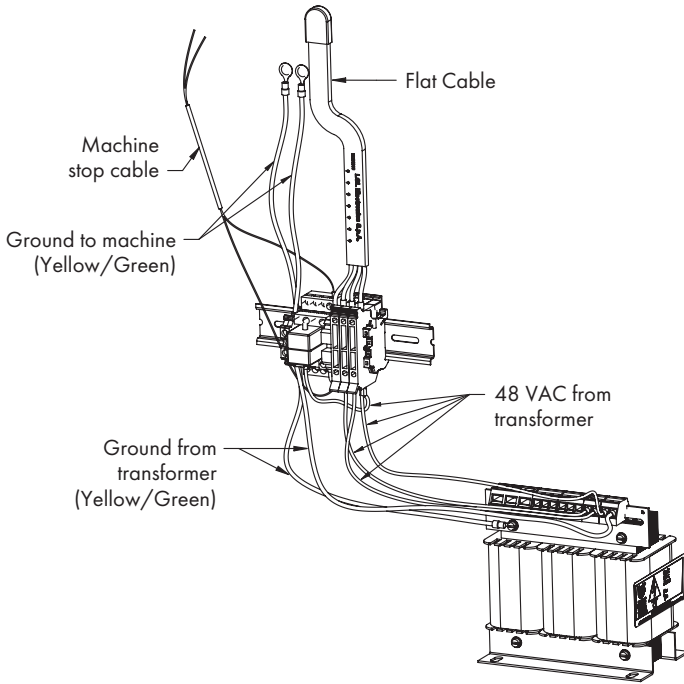


NOTE: To enable the function performed by each Dip-Switch, the feeder needs to be switched off by acting on switch 0-1; then set the Dip-Switch to the desired position and switch the feeder on again. Alternatively, dip-switches 1, 2 and 3 can be programmed remotely via tablet or PC.

2 - INSTALLATION AND START-UP

2.5 AC VERSION TRANSFORMER KIT

Up to 10 Feeders



2 - INSTALLATION AND START-UP

2.6 LARGE DIAMETER KNITTING MACHINES (ONLY DC VERSION)

2.6.1 KLS: automatic output stop motion system

KLS system allows the feeder to stop the machine without using a sensor, in case of an output yarn break event. If the yarn gets broken between the feeder and the machine, the feeder will be able to detect the event and stop the machine.

NOTE: if the yarn gets broken before the feeder (between the bobbin and the feeder), this system is not involved. There is another sensor on the feeder itself detecting this case.



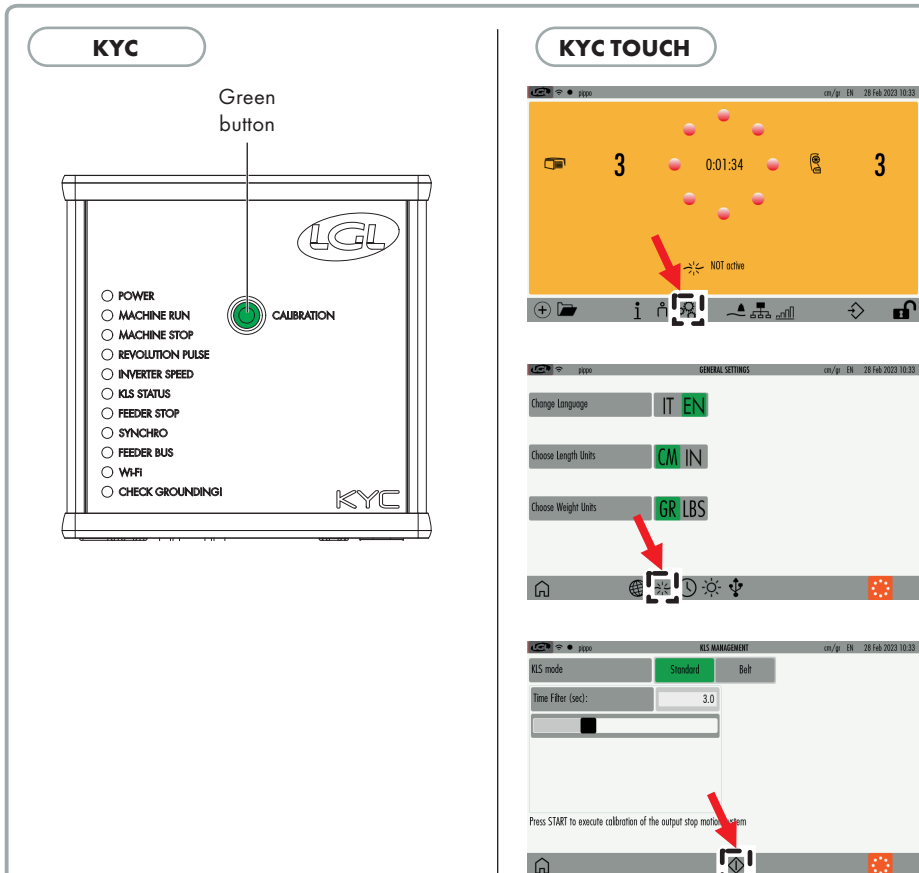
KYC



KYC TOUCH

2 - INSTALLATION AND START-UP

2.6.2 Button for the learning procedure located on the KYC box



Once the installation is finished and the machine is ready to start, perform the following learning procedure:

1. Press the button for the learning procedure until all feeders lights turn on (approximately 1 s). Feeders will keep their lights on while the machine stands.
2. Start up the machine with working speed. All lights turn off.
3. Run the machine until the end of the pattern.
4. At the end of the pattern stop the machine.

When the machine stops, the feeders store the timing in their memory. Now the feeders are ready to check yarn breaks between feeder and machine.

2 - INSTALLATION AND START-UP

NOTE 1: The machine has to run for at least 8 seconds. If for any reason the machine stops earlier than 8 seconds, re start the machine. If the machine runs for more than 8 seconds, but it stops before the end of the pattern, feeders will be ready to check output yarn breaks. In any case if you get false stops, repeat the procedure being sure that the machine completes one full pattern.

NOTE 2: during the procedure, feeders are not able to detect output yarn breaks.

NOTE 3: by pressing the button for the learning procedure, all feeders lights turn on. If at this moment the button is pressed a second time, all feeders lights turn off and the system is no more active.

The feeder parameters involved in these functions are:

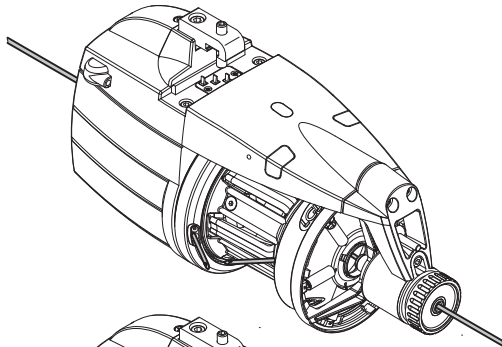
OYB SW Tmr - Kls Cm delay

See table in chapter 6.1 for further explanations.

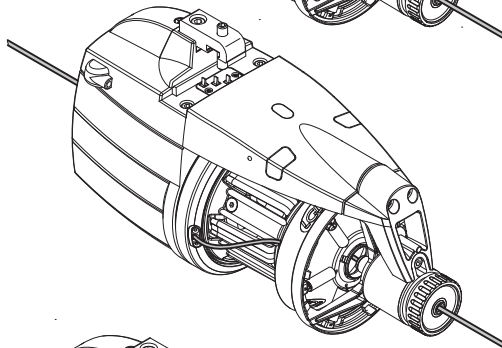
3 - THREADING AND ADJUSTMENTS

3.1 THREADING YARN FEEDER WITH THE TWM TENSION MODULATOR

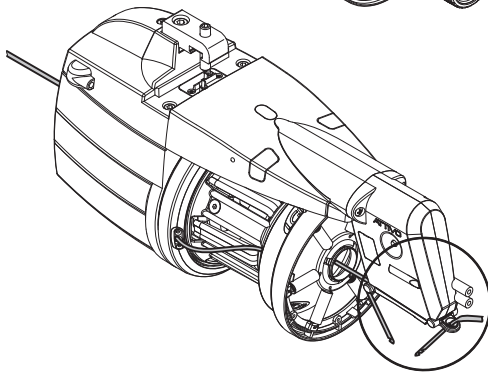
Yarn feeder threading must be carried out when the device is OFF and as illustrated below:



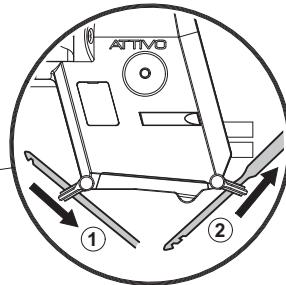
PARTIAL THREADING



COMPLETE THREADING



COMPLETE THREADING
ATTIVO VERSION



To avoid damaging the TWM we recommend use of threaders that are in good condition with no yarn accumulation around the threader-ends. Use of iron needles for threading must absolutely be avoided as they are liable to damage the TWM.

3 - THREADING AND ADJUSTMENTS

3.2 SPEED ADJUSTMENT

The ECOMINI yarn feeder is provided with a microprocessor and an output sensor that enable **automatic speed adjustment** that conforms to machine feeder speed.

No speed adjustment is therefore required by the operator.

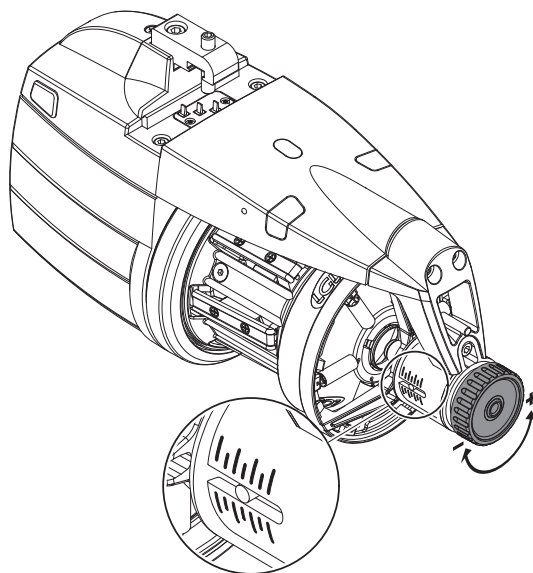
For applications that may require special operational conditions, please consult paragraph 2.4 herein.

3.3 TENSIONING ADJUSTMENT

Adjust tensioning until required yarn tension is reached by acting on the outbound tension modulator (TWM) that is fitted onto the feeder.

Use the adjusting twist-knob to do so.

However, tensioning adjustment is completely automatic in yarn feeders that are equipped with the ATTIVO electronic tensioner.



4 - MAINTENANCE OPERATIONS

4.1 DISMOUNTING THE YARN SPOOL BODY

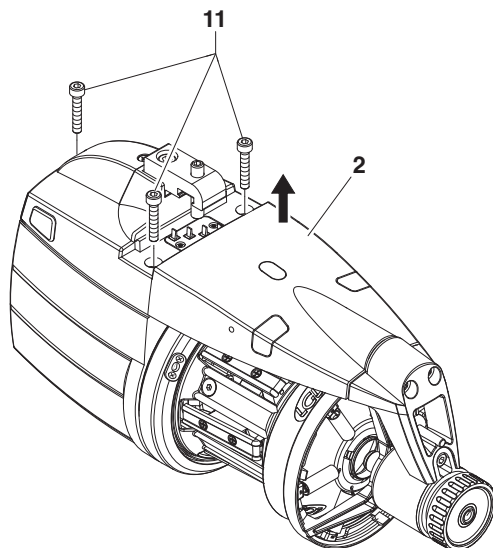
In order to remove the yarn spool body, follow these steps:



1) Power down the yarn feeders by actuating the main switch located on the knitting machine.

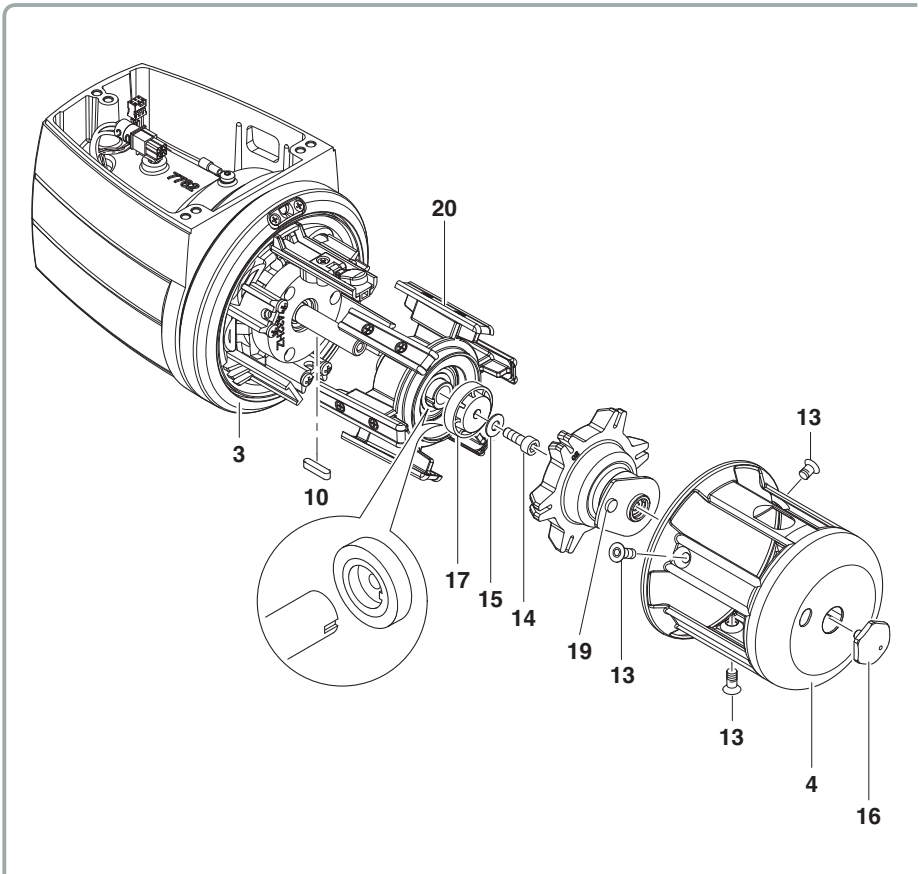
2) Disconnect the feed strip cable and remove the feeder from the machine.

3) Unscrew the 3 set screws (**11**) and remove the guard (**2**).



4 - MAINTENANCE OPERATIONS

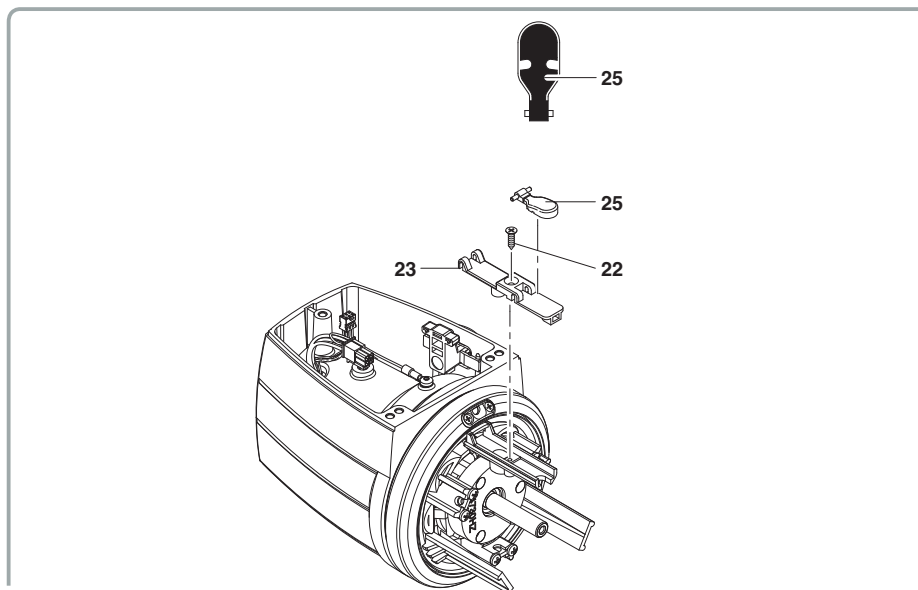
- 4) Unscrew the screw (**16**); unscrew the 3 fastening screws (**13**) that are on the thread winding cone (**4**) and remove the latter.
- 5) Remove the absorber that is fastened to the oscillating hub. The absorber shall be later put back in place taking care to have the notch (**19**) that is on the external disc to match the hole in the cone (**4**).



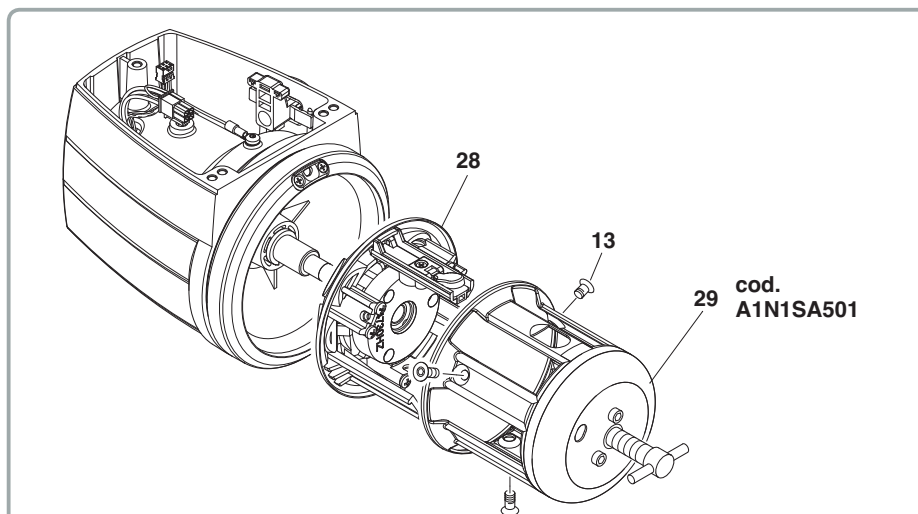
- 6) By holding the flywheel (**3**) steady (**3**), unscrew the screw (**14**) and remove it along with the bellville spring (**15**); remove the protection (**17**) from its location on the bush. The latter shall be fit back in place in the same position, i.e. with the protection reference notch into the bush hollow.
- 7) Remove hub (**20**) by sliding it off the shaft. Remove the tab (**10**) from the shaft.

4 - MAINTENANCE OPERATIONS

- 8) At this point, if necessary, by unscrewing the set screw (22), it is possible to extract the feeler (23) lock and replace the yarn feeler (25).

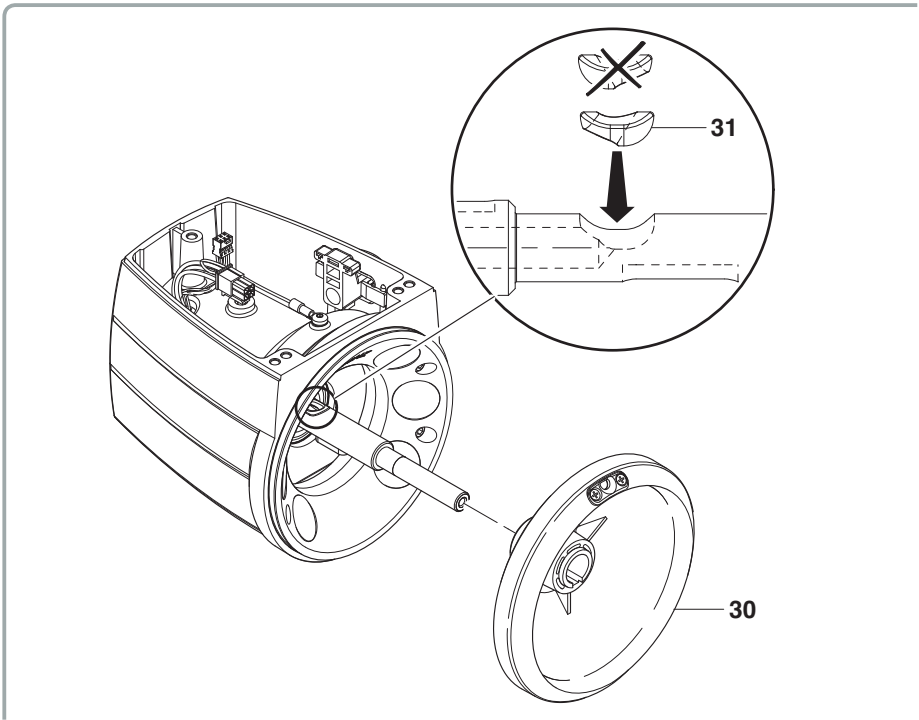


- 9) Removal of the front magnet holder (28) must be carried out using the appropriate tool (29) that needs to be fixed onto the magnet holder being removed, using the three fixing screws (13) belonging to the yarn spool body. Once removed, detach it from the tool used for extraction.



4 - MAINTENANCE OPERATIONS

10) At this point the flywheel (30) can be removed. It is now also easy to replace the ceramic bushing (31) located in the yarn feeder shaft.



4.2 REPLACEMENT OF THE MAIN ELECTRONIC CONTROL BOARD

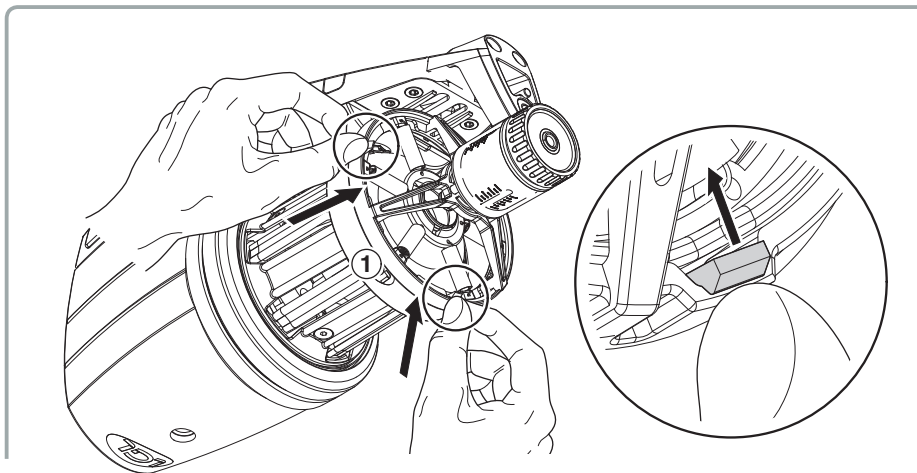
The main electronic control board can only be replaced by a regularly authorised L.G.L. service and repair centre.

5 - COMPONENT REPLACEMENT

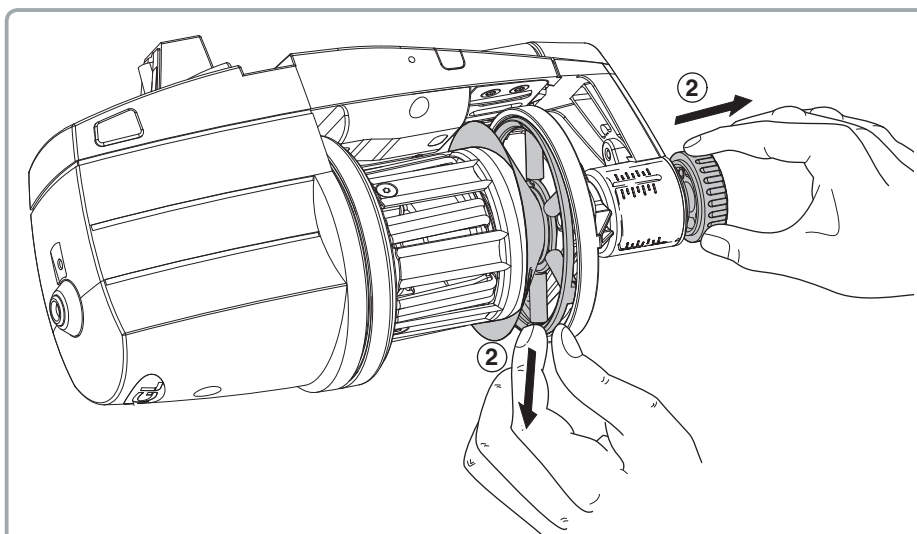
5.1 REPLACEMENT OF THE TWM TENSIONER

To remove the TWM tension modulator, proceed as follows:

- 1) Release the TWM tension modulator from the support ring by pressing on the retaining lugs.

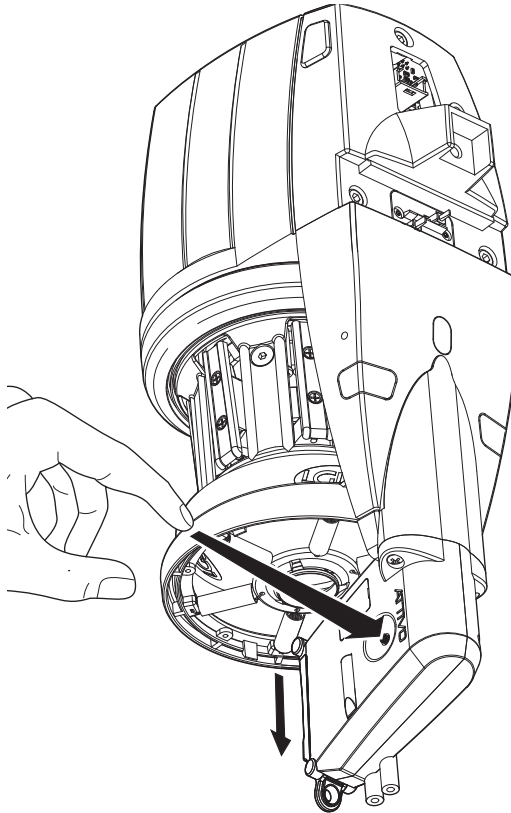


- 2) Pull the knob with one hand and at the same time remove the TWM tension modulator.



5 - COMPONENT REPLACEMENT

- 3) If the ATTIVO brake is provided, press the release button. The lights will begin to flash fast. The TWM brake opens. It is only possible to act on the TWM unit when the flashing changes from fast to slow

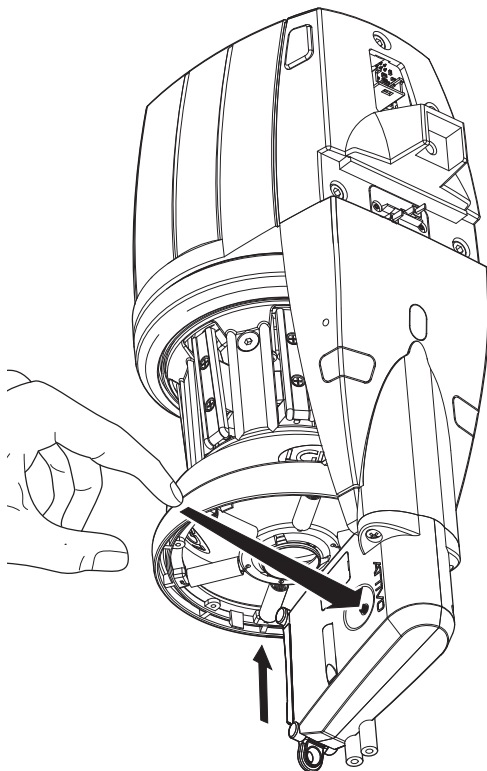


- 4) Pay attention to the way the springs are fitted to the TWM unit support: the spring hook must be fitted facing outwards from the TWM unit in order to prevent contact with the cone section and thus damage it.



5 - COMPONENT REPLACEMENT

- 5) If the ATTIVO brake is provided, when the new TWM unit has been installed, press the release button. The lights will change from slow flashing to fast flashing. The brake will then return to its previous working position.

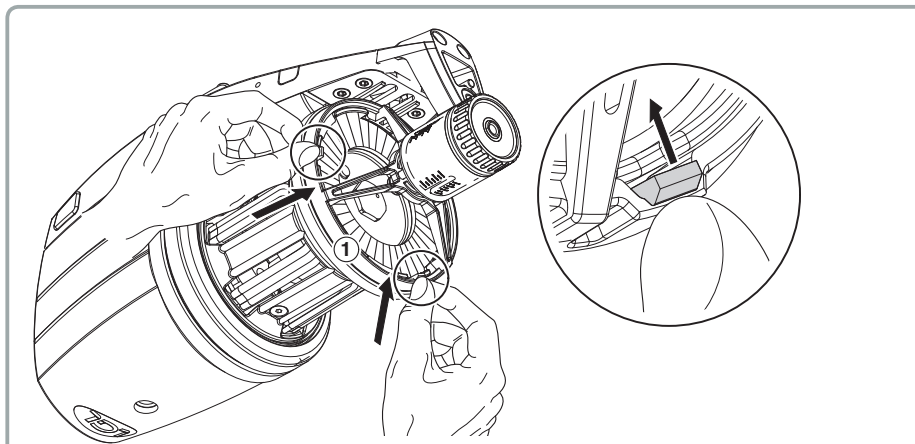


5 - COMPONENT REPLACEMENT

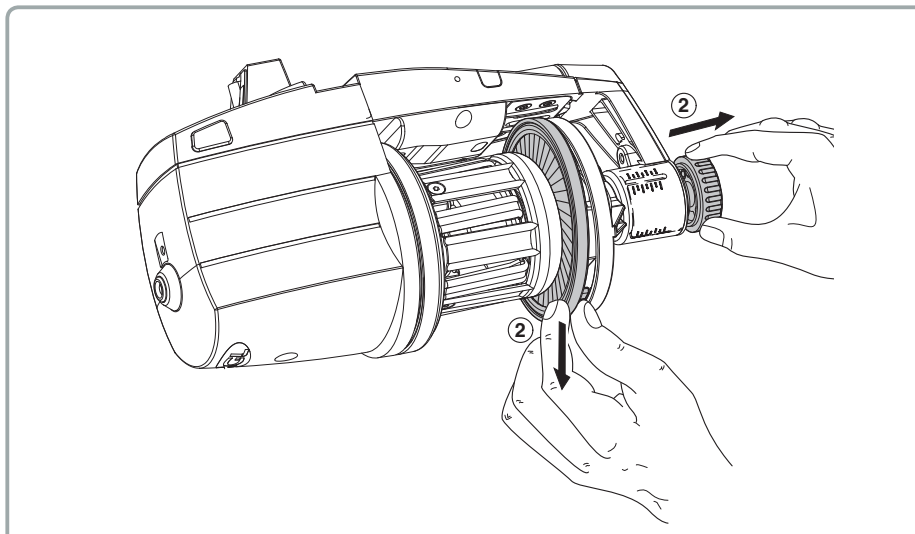
5.2 REPLACEMENT OF THE BRISTLE BRUSH

The operating procedures for replacing the bristle brush are as follows:

- 1) Release the bristle brush from the support ring by pressing on the retaining lugs.

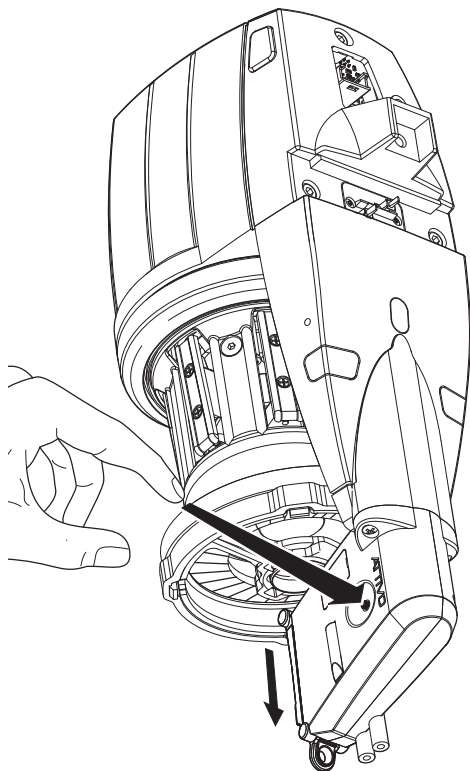


- 2) Pull the knob with one hand and simultaneously remove the bristle brush.



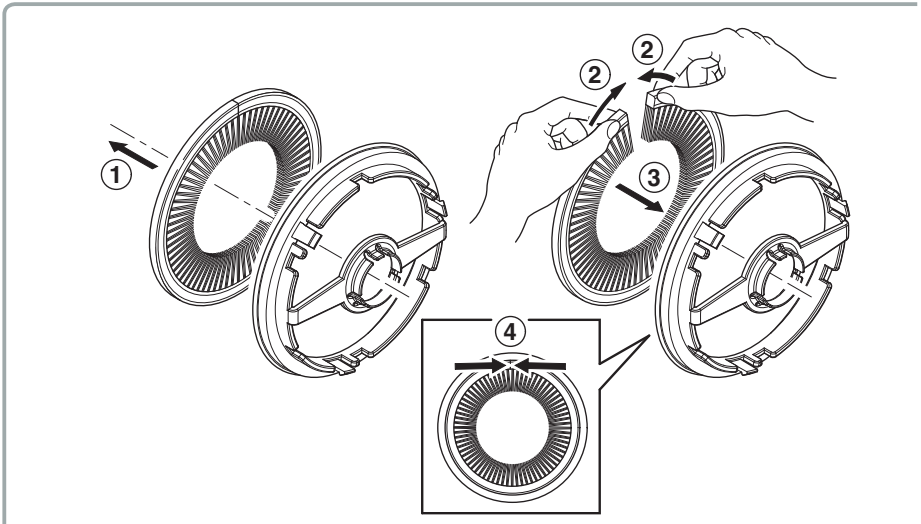
5 - COMPONENT REPLACEMENT

- 3) If the ATTIVO brake is provided, press the release button. The lights will start flashing quickly. The bristle brush unit will open. You are allowed to operate the bristle brush unit when the latter shifts from fast blinking to slow flashing.

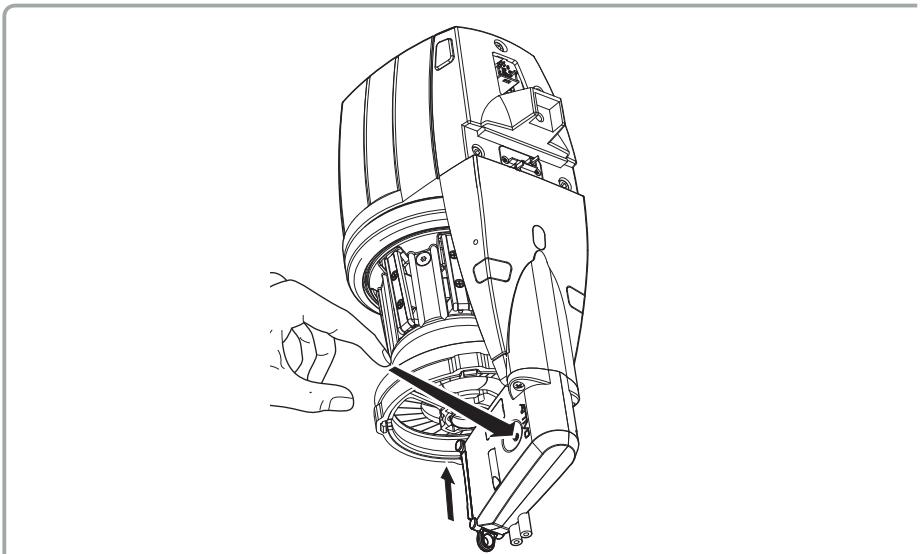


5 - COMPONENT REPLACEMENT

- 4) Pull the brush to be replaced out of the holder. Insert the new brush by pressing it into its support. Ensure that the ends of the bristles are joined when they are fitted into the ring.



- 5) If the ATTIVO brake is provided, once the new bristle brush unit has been fitted, press the release button. The indicator lights will change their flashing frequency from slow to fast. Then the bristle brush unit will resume its previous working position.



6 - ATTIVO

6.1 ATTIVO ELECTRONIC TENSIONER

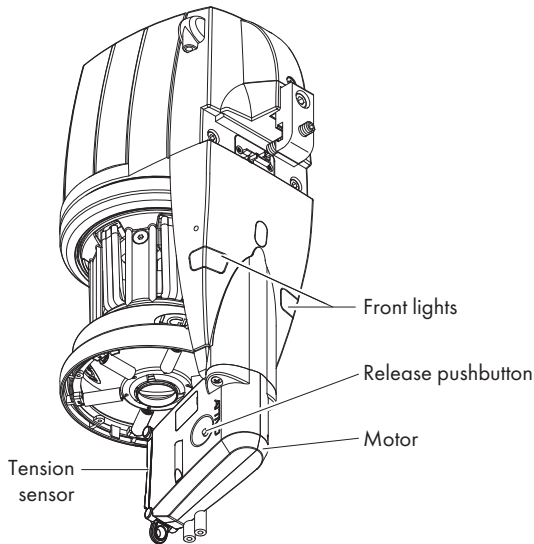
ATTIVO is an electronic system that has been purposely conceived to hold yarn tension constant and programmable. The output sensor provides a real-time measurement of the output tension and an electric motor uses this value to adjust the position of the TWM tensioner. Thus, all tension-related issues, e.g. yarns that change in features on the same bobbin, differences in yarn waxing, differences in yarn tension in full and empty bobbins and so on, can be solved.

The desired tension can be set via a PC or tablet.

The involved parameters are:

- T des. dgr: to set the desired tension;
- T read dgr: to read the current tension (in order to understand whether the tension sensor is operating in a proper manner).

NOTE: if the desired tension cannot be obtained during normal operation, the front indicator lights will start blinking.



6 - ATTIVO

In addition to the two tension parameters, there are other parameters that may be relevant:

Parameter	Default setting	Description	Notes
KLSCm Delay	86	To speed up the feeder's response time, in case of output yarn breakage (faster KLS response time)	To be set from 20 to 100. If it is too low, false stops are potential problems. If the value is decreased, the KLS response time also decreases, if the value is increased, the KLS response time increases.
ENBrk OpAlr	0	If = 1, if the ATTIVO brake is open, the feeder stops the machine	
EnOffstp	0	If = 1, if the ON/OFF switch is in the OFF position, the feeder stops the machine	If ENOFF STP is = 1, the Offset is as follows: <ol style="list-style-type: none"> 1. Thread the yarn into the feeder. 2. Remove the yarn from the load cell. 3. Switch off the feeder. The feeder and the brake lights will go on. 4. Press the OFFSET button and hold it pressed until the ATTIVO light goes out. 5. Switch on the feeder. The feeder lights will go out and the ATTIVO indicator light will flash once. This means the offset has been successfully carried out.

6 - ATTIVO

Parameter	Default setting	Description	Notes
SM Man pos	150	Useful in the event of breakage of the tension cell, for manual adjustment of yarn voltage. Use: Set TDes=0 Press the ATTIVO opening button. When the Attivo unit is fully open, press the button once again to close it. The brake closes 150 motor steps.	
Tens TmOut	40 (secondi)	If the set tension is not reached within Tens TmOut, the feeders will stop the machine (Tmtrerr)	
OYB SW Tmr	0 (KLS disabilitato)	Time interval between two subsequent windings. (ms=OYB SWTmr \times 50). Trigger value for KLS.	Check for the correct value: if the machine increases speed the value must decrease. If the machine decreases speed, the value must increase.
AutSync Tim	0	If it is =0, yarn consumption is in cm/rev If it is \neq 0, yarn consumption is in cm/AutSyncTim seconds (up to 15)	AutSyncTim=0 for seamless and large diameter (where the rev signal is provided). AutSyncTim=1 for tights.

6 - ATTIVO

Parameter	Default setting	Description	Notes
Real speed		Feeder speed in revs per minute	Max 4900 revs. per min Yarn consumption in m/min= actual speed x 16.3
Rot s/z Src	1	1 = direction of rotation set by dip switch DS1 0 = direction of rotation read by parameter Rot s/z	
Rot s/z	0	0 = Z rotation 1 = S rotation	Only significant if Rot s/z Src
Sens FTC Src	1	1 = Photocell sensitivity set by dip switch2 0 = photocell sensitivity read by parameter "Sens FTC"	
Sens Ftc	1	1 = standard 0 = fine yarns < 40den	Only significant if Sens Ftc Src = 0
T Des Dgr	40 (grams)	Set tension	
T Read Dgr		Read tension	

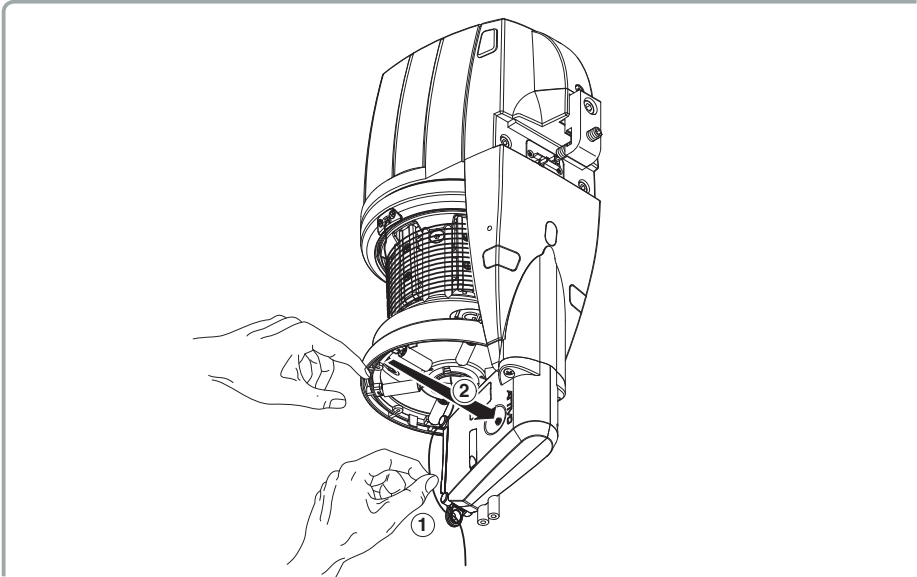
6 - ATTIVO

6.2 OFFSET

Upon first installation of this device, you need to enable the tension sensor to acquire the OFFSET function (mechanical error zero function).

Follow the procedure below:

- Remove the yarn from the tension feeder.
- Switch off the feeder.
- Press the release button and hold it pressed until the device light turns on.
- Switch on the feeder.
- Light will turn off and OFFSET is obtained.



NOTE 1: The OFFSET procedure may have to be repeated even after the equipment has been inoperative for some time.

NOTE 2: The OFFSET procedure must be performed each time a feeder that was in stock or a feeder back from a repair is installed on the machine.

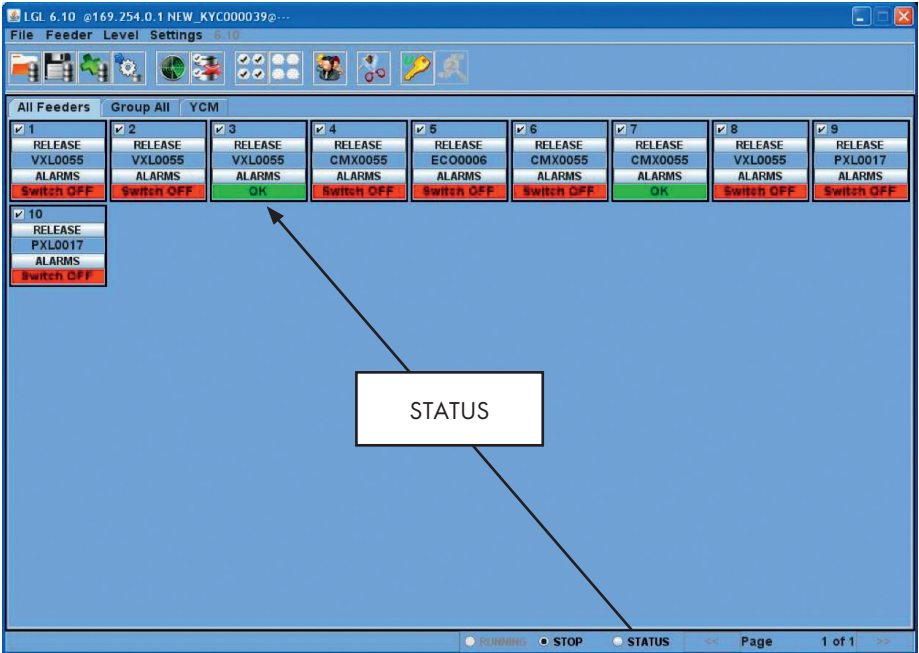
NOTE 3: Below OFFSET procedure in case "ENOFFSTP" parameter is 1.

- Remove the yarn from the tension feeder.
- Switch off the feeder. The device light turns on.
- Press the release button and hold it pressed until the device light turns off.
- Switch on the feeder.
- Light will turn on and OFFSET is obtained.

7 - ALARMS

7.1 FEEDERS ALARMS

By clicking on the STATUS button located on each feeder it is possible to ask feeders about their status. If a feeder has its lights ON or blinking, it means the feeder is in alarm condition. At the same time the feeder is sending an information about the alarm. By clicking on the STATUS button it is possible to display the alarm reason.



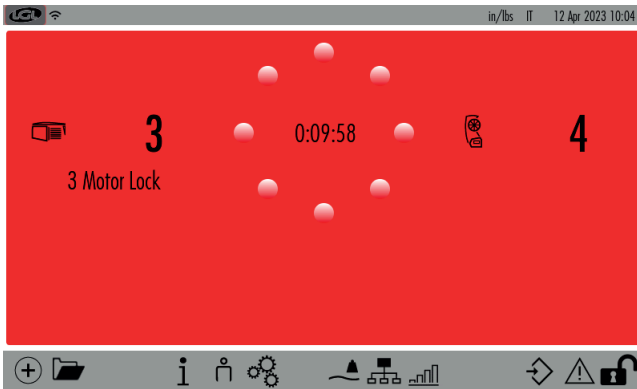
In this example feeder number 3 is OK.

STATUS TAB located at the bottom of the screen: alarm monitoring in continuous mode. This feature is necessary if the computer is far from the machine, in order to be able to have information on possible alarms without being at the machine. In case an alarm takes place while the machine is running and the STATUS tab is selected, the feeder will stop the machine and a big writing will come out on the display as in the following picture:

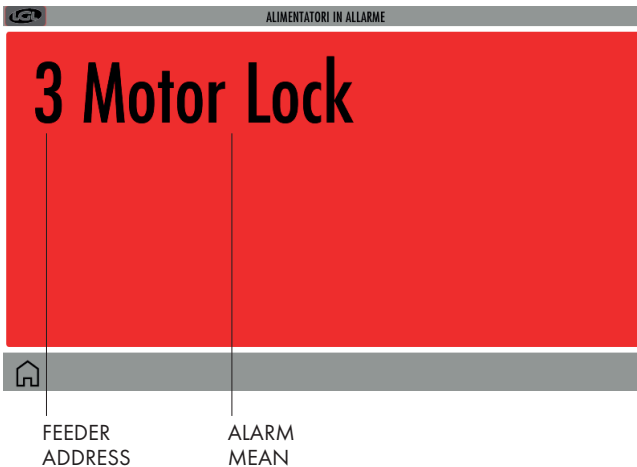
7 - ALARMS

Feeder n°:	Status:
1	Switch OFF
2	Switch OFF
4	Switch OFF
5	Switch OFF
6	Switch OFF
8	Switch OFF

Feeders alarms on KYC touch



If one feeder goes in alarm, the screen changes as follow:



7 - ALARMS

In case feeders are OK, nothing will be shown on the display. Here below a list of the possible alarms:

ALARM	MEANING	ACTIONS
AC PWRFAIL (AC only, gray flat cable)	phase number 2 (blue) and /or phase number 3 (yellow) are missing	Check input voltage and feeder connection on the flat cable.
YARN BREAK	Yarn broken before the feeder	Repair the yarn. If the yarn is not broken: 1. Clean the input photocell and its shiny part on the drum with a dry cloth. Rotate the drum by hand to access the shiny part (see section 1.7). 2. If the yarn is very thin (<20 Den), increase the sensitivity of the photocells. By tablet, PC, or KYC, display the "Sens FTC Src" and "Sens FTC" parameters and set "Sens FTC Src"=0 "Sens FTC"=0 If you do not have communication devices, move Dip Switch 2 on the feeder (see section 2.4).
MOTOR LOCK	Yarn entangled somewhere between the bobbin and the feeder	Check yarn passage between bobbin and feeder.
HIGH TEMPERATURE	Too high temperature on the feeder electronic	1. Reduce input tension on the yarn 2. Check that the flywheel turn freely. In case disassemble spool body and remove dust and/or yarn residual.
TIME ERROR	the feeder takes too much time to wind up the yarn on the spool body at the start up	Stop the yarn on the spool body with one finger to help yarn reserve filling procedure. This alarm may also be reported as PREWINDERRR.

7 - ALARMS

ALARM	MEANING	ACTIONS
VB MOT FAIL	DC voltage on the motor too low	Check connections on the power transformer primary voltage winding.
AC1PWRFAIL (AC only, gray flat cable)	phase number 1 (black) is missing	Check input voltage and feeder connection on the flat cable.
SWITCH OFF	ON OFF switch in position OFF	Switch ON the feeder (see also EN OFF STP parameter).
TENSMTRERR	The feeder can't reach the preset tension value within a preset time (see also TensTMOut parameter in chapter 6)	<p>Check the following:</p> <ol style="list-style-type: none"> 1. The yarn is passing on the load cell, 2. The TWM brake and springs are suitable to reach the desired tension 3. OFFSET of the load cell 4. If the brake is fully closed and the desired tension ("Tdes. Dgr") is higher than the voltage read ("T read dgr"), the TWM brake and springs may not be able to achieve the desired tension. Springs with thicker wire must be installed (see spare parts table). 5. Check that the sensor that measures the tension on the yarn is not damaged. By removing the yarn from the sensor, "T read dgr" = 0 and pressing the sensor in the direction of the yarn, the parameter should increase. If the sensor is broken, you can operate even while waiting for a replacement part: <ul style="list-style-type: none"> • Set "Tdes. Dgr" = 0 • Press the ATTIVO opening button. • When ATTIVO is fully open, press again to close. The brake closes 150 motor steps. • Adjust the "SM Man Pos" parameter (from 0 to 360) to open or close the brake based on the desired tension on the yarn. The higher the value, the higher the tension.

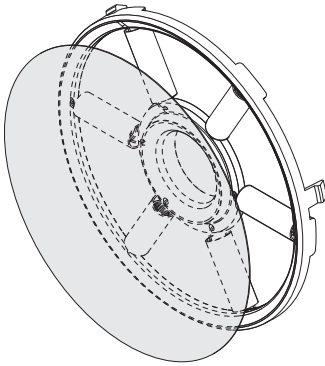
7 - ALARMS

ALARM	MEANING	ACTIONS
OYB ERROR	yarn broken after the feeder (or yarn consumption too low)	<p>Repair the yarn.</p> <p>If the yarn is not broken:</p> <ol style="list-style-type: none"> 1. Recalibrate the KLS system (large-diameter knitting machines): see chapter 2.6. 2. Clean the output photocell and its shiny part on the drum with a dry cloth. Rotate the drum by hand to access the shiny part (see section 1.7). 3. If the yarn is very fine (<20 Den), increase the sensitivity of the photocells. Via tablet, PC, or KYC, display the "Sens FTC Src" and "Sens FTC" parameters and set "Sens FTC Src"=0 "Sens FTC"=0 If you do not have communication devices, move Dip Switch 2 on the power supply (see section 2.4). 4. Check the connections to the machine, RUN signal, and inverter signal.
ELBRK OPEN	brake open (ATTIVO).	Close it by pressing the related button located on the ATTIVO blk support
PREWINDERR	Only during winding up phase of the spool body, during the start up or after a yarn break	<ol style="list-style-type: none"> 1. Appears while the yarn is being wound onto the drum after power is turned on, to prevent the machine from starting before the winding is complete. The feeder sends an alarm to the machine but does not turn on the lights. 2. If the yarn reserve is not wound within 20 seconds after power is turned on, the feeder stops and signals this alarm (lights on). In this case, hold the yarn on the drum with your finger to help the winding process. This alarm may also be reported as TIME ERROR.
I2T ERROR	I2T protection	<ol style="list-style-type: none"> 1. Reduce input tension on the yarn 2. Check that the flywheel turn freely. In case disassemble spool body and remove dust and/or yarn residual.

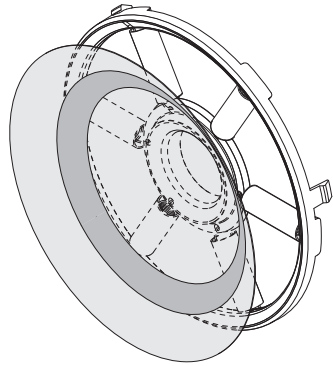
8 - APPLICATION RANGE

8.1 TWM TENSION MODULATOR APPLICATION RANGES

TYPE OF YARN	SPRINGS	YARN RANGE
Woollen yarns	0.4	From 100 Nm to 15 Nm
Cotton and viscose fibre yarns	0.4	From 120 Ne to 10 Ne
High-twist, crêpe and silk yarns	0.3	From 20 Den to 120 Den
High-twist, crêpe and silk yarns	0.4	From 100 Den to 250 Den
Viscose and synthetic fibre yarns	0.3	From 10 Den to 120 Den
Viscose and synthetic fibre yarns	0.4	From 100 Den to 250 Den



TWM TYPE K

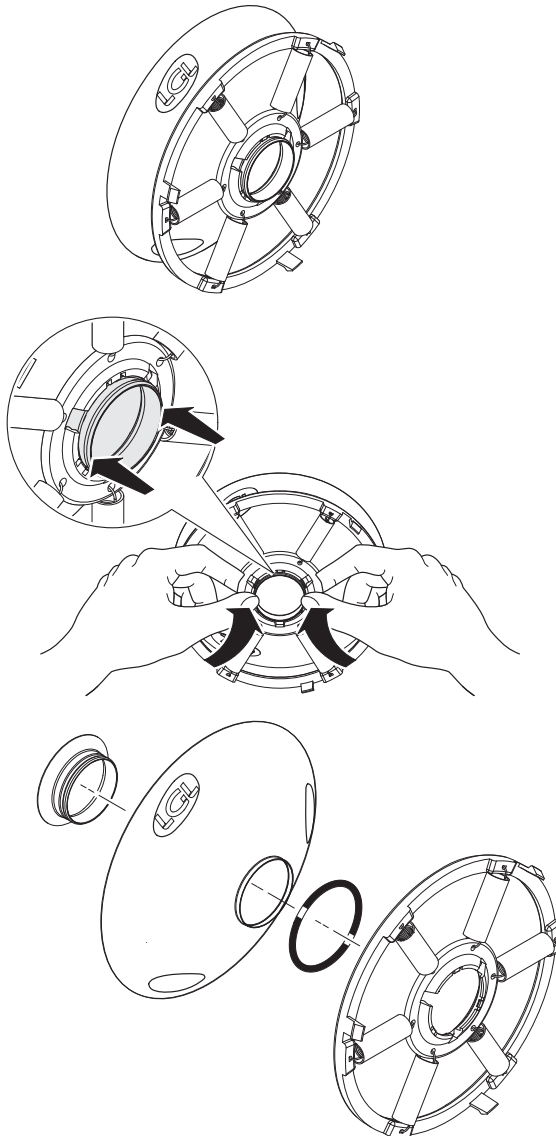


TWM TYPE KL

- For tensioning strength exceeding 10 grams, use of **TWM KL** is recommended.

8 - APPLICATION RANGE

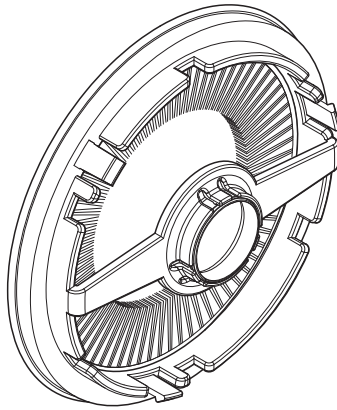
It is possible to replace the truncated cone, the disk unit, the o-ring and chrome ring of the TWM.



8 - APPLICATION RANGE

8.2 BRISTLE BRUSH APPLICATION RANGES

TYPE OF YARN	YARN RANGE
Cotton and viscose fibre yarns	From 100 Ne to 10 Ne
High-twist, crêpe and silk yarns	From 40 Den to 250 Den
Lurex	
Lamè	



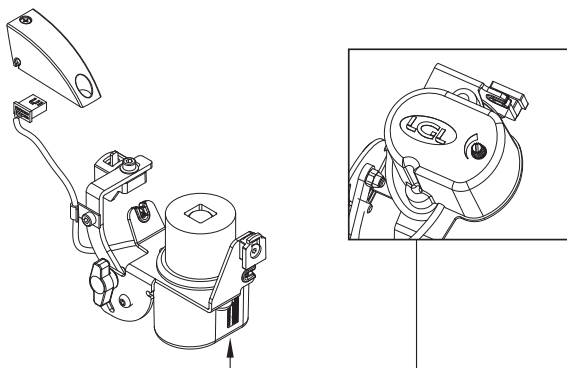
9 - MOTORIZED WAXING MACHINE

9.1 BASIC OPERATION

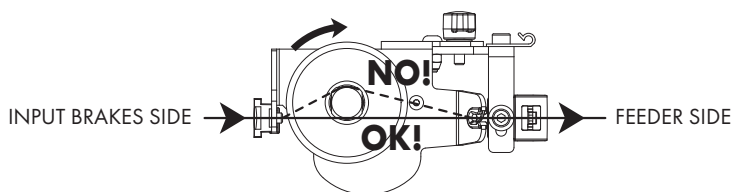
The waxing Unit rotates when the yarn feeder which it's connected operates.

When the feeder is stopped, the waxer is also stopped.

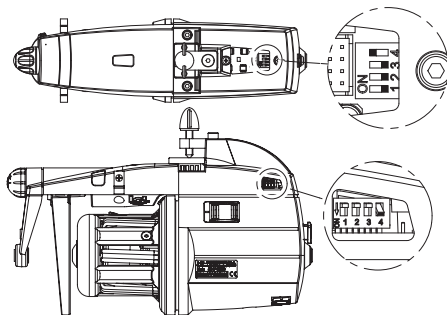
The waxing Unit's rotation speed is adjustable; turning the potentiometer clockwise increases the speed.



SENSE OF ROTATION AND DIRECTION OF THE YARN



N.B.: if the feeder is equipped with address, remove connector A1C2SA250-15HZ from feeder and install kit address A1C3SA175HZ-XXX enclosed in the motorized waxing unit, which is programmed with the address of removed connector A1C2SA250-15HZ.

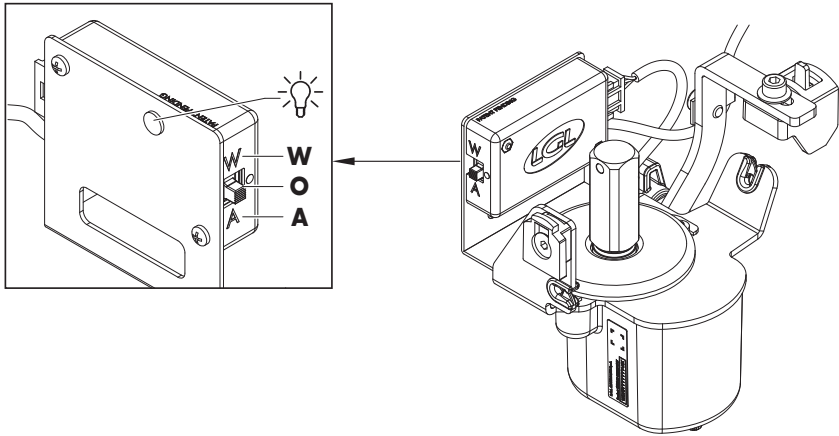


REMARK FOR FITTER:

In case of absence of termination A1C1SA1348HZ at the end of flat cables, activate TERMINATION (DS4 pos. ON) on the last feeder before the end of the cable.

9 - MOTORIZED WAXING MACHINE

9.2 WAXING MACHINE WITH LOW PARAFFIN SENSOR



W = Warning: When the wax runs out, the yarn feeder emits a quick flash every half second, while the light on the waxing unit emits one flash per revolution. The machine continues to operate.

A = Alarm: When the wax runs out, the yarn feeder activates an alarm and stops the machine. The light on the waxing unit emits a short flash when the alarm is triggered.

O = Intermediate position = OFF: The waxing unit is off and does not rotate.

10 - CONVERSION TABLE

10.1 CONVERSION TABLE FOR THE VARIOUS YARN COUNT SYSTEMS

Nm	Ne	tex	den	Dtex	Ne _L	Nm	Ne	tex	den	Dtex	Ne _L
18.000	10,63	56	500	550	29,76	48.000	28,35	21	187	208	79,37
18.140	10,71	56	496	551	30	48.380	28,57	21	186	206	80
19.350	11,43	52	465	516	32	50.000	29,53	20	180	200	82,68
20.000	11,81	50	450	500	33,07	50.800	30	20	177	197	84
20.320	12	50	443	492	33,60	54.190	32	18	166	184	89,6
21.170	12,50	48	425	472	35	54.430	32,14	18	165	183	90
22.500	13,29	44	400	440	37,20	60.000	35,43	17	150	167	99,21
23.710	14	42	380	420	39,20	60.480	35,71	17	149	166	100
24.190	14,29	42	372	413	40	60.960	36	16	147	165	100,8
25.710	15,19	38	350	390	42,52	64.350	38	16	140	156	106,4
27.090	16	36	332	369	44,80	67.730	40	15	132	147	112
27.210	16,07	36	331	367	45	70.000	41,34	14	129	143	115,7
30.000	17,72	34	300	335	49,61	74.510	44	13	121	134	123,2
30.240	17,86	34	297	330	50	75.000	44,29	13	120	133	124
30.480	18	32	295	328	50,40	80.000	47,24	12,5	112	125	132,3
32.000	18,90	32	280	310	52,91	81.280	48	12,5	110	122	134,4
33.260	19,64	30	270	300	55	84.670	50	12	106	118	140
33.870	20	30	266	295	56	90.000	53,15	11	100	110	148,8
34.000	20,08	30	265	294	56,22	101.600	60	10	88	97	168
36.000	21,26	28	250	280	59,53	118.500	70	8,4	76	84	196
36.290	21,43	28	248	275	60	120.000	70,86	8,4	75	84	198,4
39.310	23,21	25	229	254	65	135.500	80	7,2	66	73	224
40.000	23,62	25	225	250	66,14	150.000	88,58	6,8	60	67	248
40.640	24	25	221	246	67,20	152.400	90	6,4	59	64	252
42.330	25	24	212	235	70	169.300	100	6	53	58	280
44.030	26	23	204	227	72,80	186.300	110	5,2	48	53	-
45.000	26,57	22	200	220	74,41	203.200	120	5	44	49	-
47.410	28	21	189	210	78,40						

11 - TROUBLE SHOOTING

11.1 DURING INSTALLATION

- If the yarn feeder will not work once it has been fitted onto the machine, (i.e. the orange lights won't light up and the motor won't run), check to see that the flat strip power cable has been connected correctly (par. 2.1, 2.2 refers). Try loosening and reconnecting the feeder back onto the power cable once again. If it doesn't start up, try moving the fixing point on the power cable 1 cm away to the side.
If, after having tried the above options the feeder still doesn't start up, it must be replaced due to a probable failure of the main control board.

11.2 DURING OPERATION

- If after having functioned correctly, the feeder's orange signal lights won't light up when the machine stops, check to see whether the lights are still working correctly.
- If any failure by the feeder were not caused by incorrect installation or by connection errors, there probably is a failure in the main control board.
In these cases the yarn feeder must be replaced and the repair operations must be carried out by regularly authorised L.G.L. personnel.

12 - APPLICATION RANGE

If stripping and scrapping of the machine is required, relative rating plates and all related documents must be destroyed or cancelled. If the machine is to be scrapped by third parties, only authorised centres are to be used for any waste recovery or disposal of the ensuing materials.

If the machine is to be scrapped directly by the user, it is important that the materials are split according to their category and then disposed of separately through specialised centres.

All metal parts, the electrical motor, rubber parts and all the parts made out of synthetic materials must be separated for recycling. Scrapping must at all times be carried out in full conformity with prevailing laws in the country of use wherefore any liability for non compliance with any local requirement lies solely with the last proprietor of the machine and/ or any appointed nominee.

L.G.L. Electronics will not be held liable for any damage or injury whatsoever arising from reuse of any one of the machine components for operations or assemblies that do not in any way conform to the original use the machine was intended for.



DECLARATION OF INCORPORATION

(pursuant to annex II, point B of Directive 2006/42/EC)

The manufacturer **L.G.L. Electronics S.p.A.**, Via Ugo Foscolo, 156 - Gandino (BG)

e-mail: lg@lgl.it Tel: +39 035 733 408

Declares, under his own exclusive responsibility, that the partly completed machine

Model	ECOMINI
Denomination	Yarn Feeder with separate coils
Serial Numbers	From: xxxx to: xxxx From: xxxx to: xxxx
Year of construction	20xx

The model, serial number and year of construction are shown on the plate of the partly completed machine.

It complies with the relevant provisions of Directive 2006/42/EC and subsequent amendments and additions, implemented in Italy by Legislative Decree 17/2010 – Machinery Directive.

Essential Safety Requirements applied and respected are: 1.1.1, 1.1.6, 1.1.7, 1.1.8, 1.2.1, 1.2.2, 1.3.2, 1.3.4, 1.3.5, 1.3.7, 1.3.8, 1.3.9, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.5.3, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.10, 1.5.11, 1.5.12, 1.5.13, 1.5.14, 1.5.15, 1.5.16, 1.6.2, 1.6.4, 1.6.5, 1.7.2, 1.7.4

It also complies with the following directives and harmonised standards:

- > Directive 2014/30/EU on electromagnetic compatibility
- > Directive 2014/35/EU on low voltage electrical equipment
- > EN 12100:2010 Machine safety – General design principles, risk assessment and risk reduction
- > CEI EN 60204 - Safety of machinery - Electrical equipment of machines.

Following reasoned request from a National Authority, the Manufacturer undertakes to provide information pertaining to the partly completed machine.

Name and address of the person authorised to produce the relevant technical documentation:
CEO in L.G.L. Electronics S.p.A., Via Ugo Foscolo, 156 - Gandino (BG) – Italia.

The partly completed machine must not be commissioned until the final machine in which it is to be incorporated has been declared compliant (if necessary) with the provisions of directive 2006/42/EC.

Gandino (BG), 07/01/2026

CEO: PIETRO ZENONI



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L.G.L. Electronics S.p.A. reserve the right to alter in any moment
one or more specifications of his machines for any technical or
commercial reason without prior notice and without any obligation
to supply these modifications to the machines, already installed.