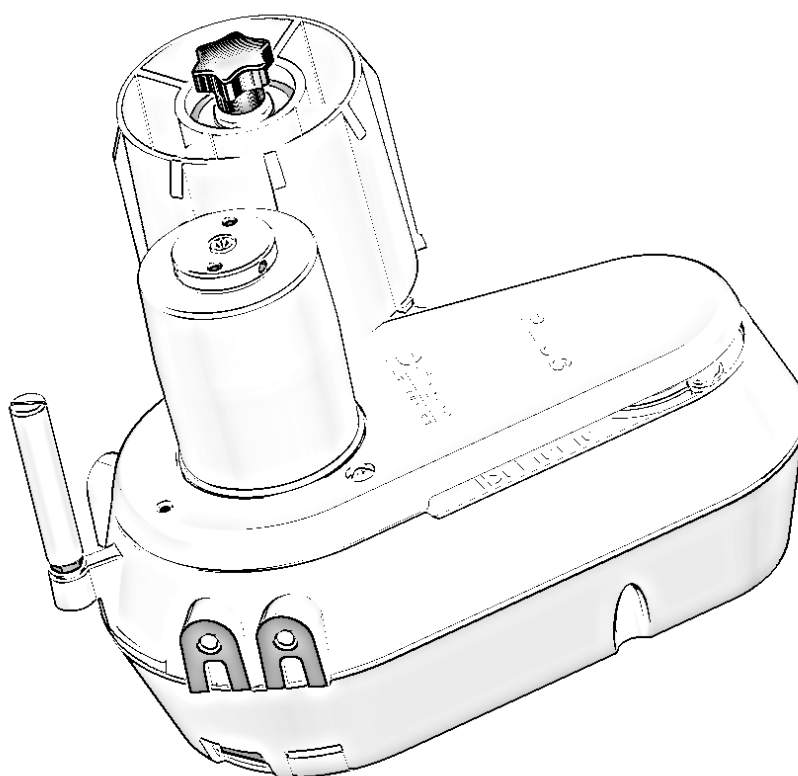




E L E C T R O N I C S

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PLUS

MANUAL FOR USE AND MAINTENANCE



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1 GENERAL INFORMATION

1.1. MANUFACTURER IDENTIFICATION



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25124 Brescia - ITALY
tel.+39 030-2300492 fax.+39 030-2300833
e-mail: dinema@dinema.it

1.2. MARKING

- ▶ Device is produced in compliance with EEC Directives pertinent and applicable when the device is introduced in the market.
- ▶ As device is in compliance with EEC 2004/108/CE Directive, we enclose relevant CE conformity declaration (here attached).

1.3. SAFETY

Device risk analysis described in this manual shows how this device does not present any particular dangerous part for the operator safety.

But it is necessary to remark the presence of rotary moving parts, which could catch garments or hair considering the usual installation position.

Therefore we strongly recommend that any operations must be effected when the device is not working. Anyway strength generated will not probably cause relevant injuries.

1.3.1. TERMS AND DEFINITIONS

Operator: anyone in charge of installation, use, adjustment, maintenance, cleaning and transport of the device. Operator can be distinguished in two main different figures which sometimes can be identified in a single person:

Operator in charge of device management who

- ▶ starts-up and controls the automatic device functioning;
- ▶ implements simple adjustment operations;
- ▶ deletes eventual machine's stops, not caused by breakdown but due to a simple functioning failures;
- ▶ cleans the device.

Operator in charge of the device maintenance who is a skilled technician, able to work on the machine when free from protections and able to adjust, repair mechanical and electric parts.

User: company or person that is legally responsible for the device.

1.3.2. WARNINGS



This manual is an important complement of the product and must be read carefully before effecting any operation.



Be sure that the device is power supplied correctly.



This device must not be used in explosive area.



Any modification or tampering is absolutely forbidden, in particular as far as protections and safety components are concerned.



This device is provided with some moving parts that are necessary for the proper operation of the device. Even if strength generated will not probably cause relevant injuries, in order to reduce bound risks, we strongly recommend that any operations must be effected when the device is not working.



Before effecting cleaning or maintenance operations, be sure that the power supply is off.



This device has been expressly designed and manufactured to supply yarn to the textile machine and it must be used according to this manual. The manufacturer declines any responsibility in case of in case of wrong and inappropriate use, as well as in the case of any use different from what expressly mentioned in this manual.



The manufactures declines any responsibilities also in case device is used by not duly trained personnel, in case of wrong power supply , in case of unauthorized modifications and/or repairs, in case of lack of maintenance or if not original or not specific spare parts are used.



This device must be disposed according to the laws in force in the country where it has been sold.



This manual has to be hold for eventual future references.
In case of assignment of the device, manufacturer has to be informed about name and address of the new owner, to make easier the transmission of eventual manual updating.



The manufacturer reserves the right to modify the product and/or the manual without any previous advice.

1.3.3. PREVENTIVATIVE MEASURES

Storage

Device must be stored in its proper box in a room with temperature included between 0 °C and 50 °C and with non-condensing humidity.

Trasportation

Device is made of sensitive parts. Therefore it must be transported in a packing able to protect its parts (such as the one used by Dinema).

1.3.4. EMPLOYER'S DUTIES

Employer is responsible for distribution of this document to all employees working with this device.

1.3.5. OPERATORS' DUTIES

Operators must follow carefully all instructions given in this manual; moreover they must bring any failure or possible dangerous condition to the attention of the person in charge.

2 GENERAL DESCRIPTION

PLUS device has been studied with the purpose of supplying to a circular knitting machine a precise quantity of yarn to be used, not depending from external factors.

For particular way of functioning of mechanical parts, PLUS is suitable for supplying to the circular knitting machines Lycra® yarn and all kind of elastomer bare yarns.

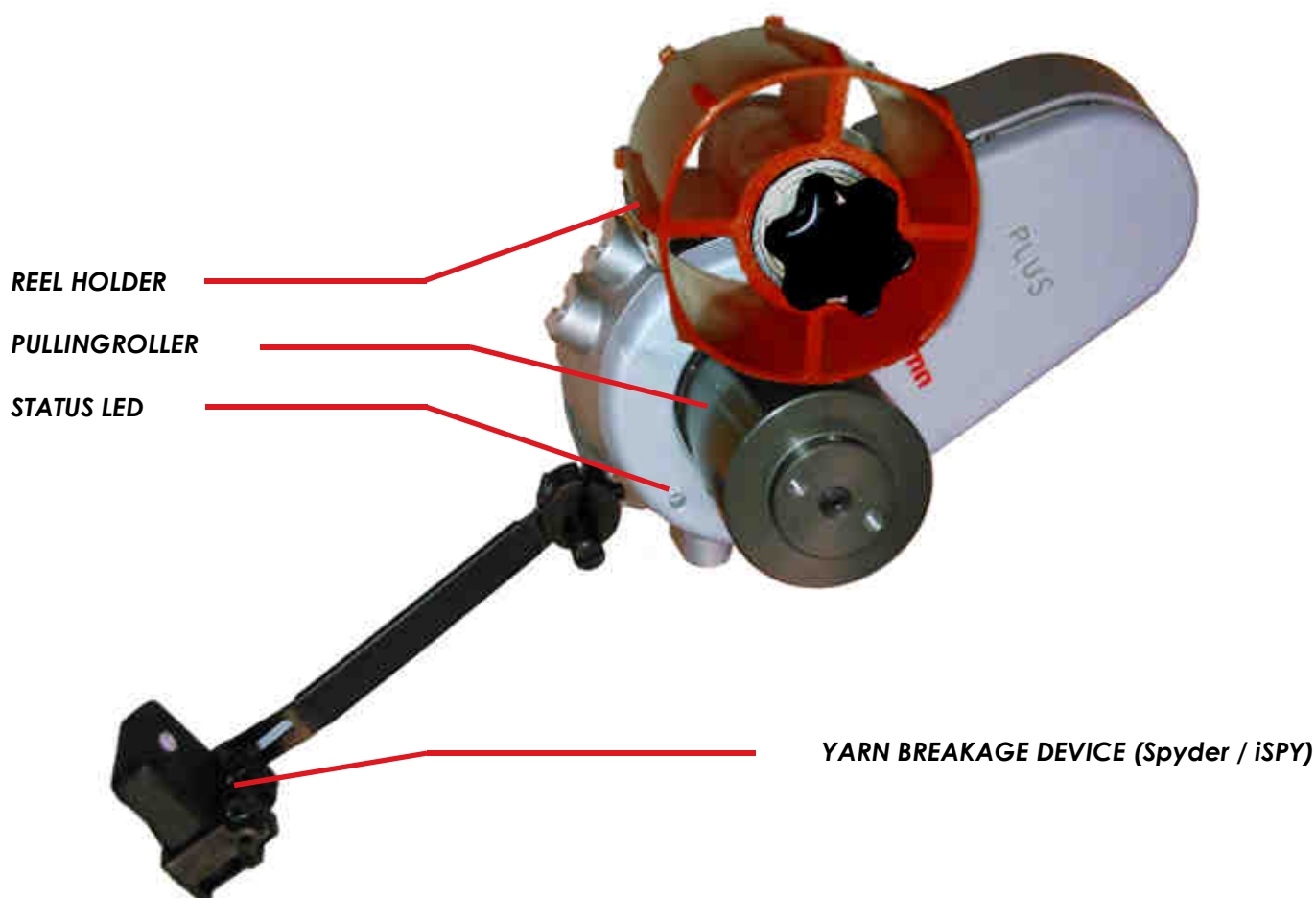
In order to supply yarn to the circular knitting machine, device uses both a mechanical part and an electronic part. Mechanical part is composed of a brushless motor on which we fixed a coaxial roller (pulling roller) which drags the reel of elastomer yarn by friction.

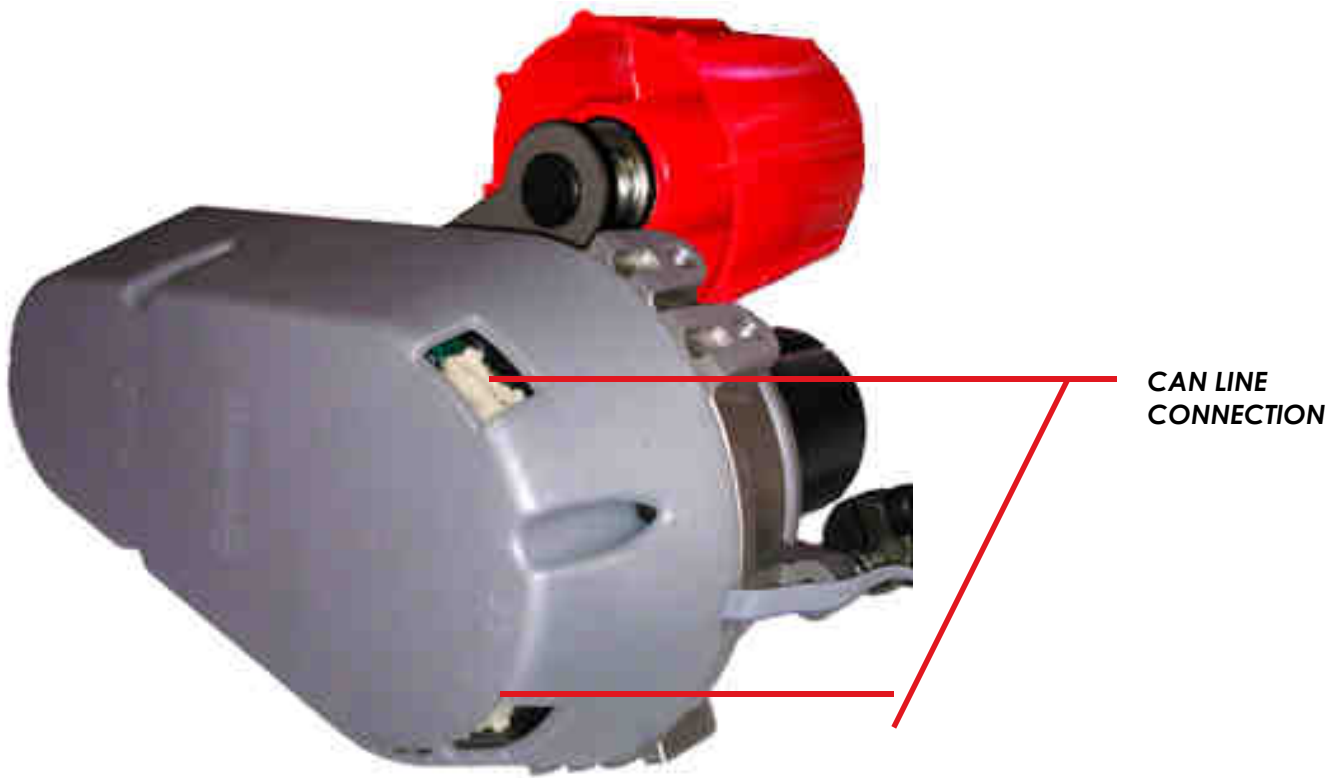
The quantity of unwinding yarn supplied to the needles depends on rotation speed of the pulling roller.

Plus can be controlled and programmed on machine board through interface.

Thanks to the presence of yarn breakage device (Spyder) PLUS allows to check the yarn integrity and signal the yarn breakage.

2.1. HARDWARE STRUCTURE





2.2. CONNECTABLE MACHINES

PLUS, can be used on circular knitting machines.

For detailed information on connectable machines, for configuration and connection instructions please contact Dinema S.p.A.

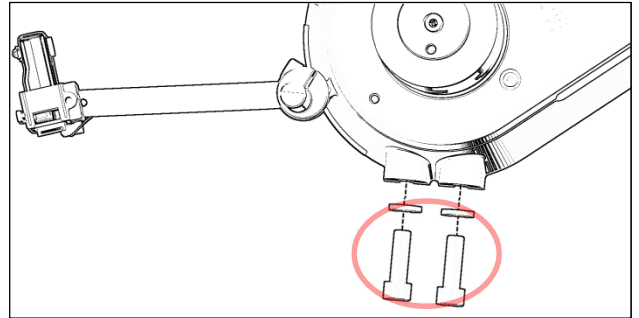


Pay attention to the mark printed on the plastic sheath in order to identify the CAN cable.

3 INSTALLATION

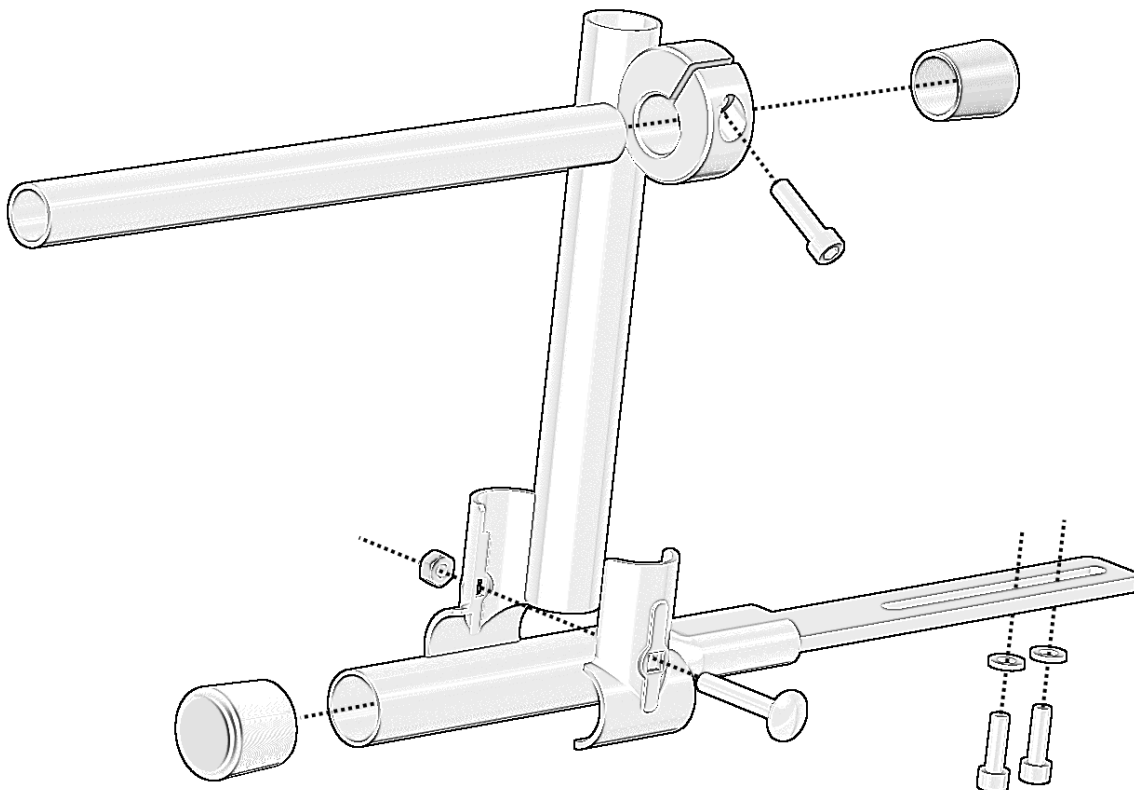
3.1. ANCHORAGE

PLUS can be directly installed on machine rack reel.
For fixing it it will be necessary to use the M6 allen screws included in the device package.



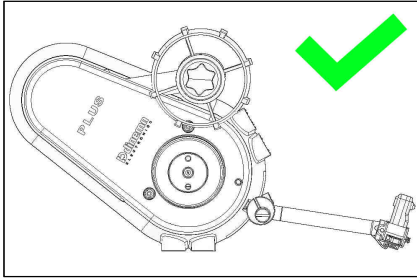
3.2. FIXING KIT

A specific fixing kit for (Lonati rack reel) could be bought separately, see the picture below.

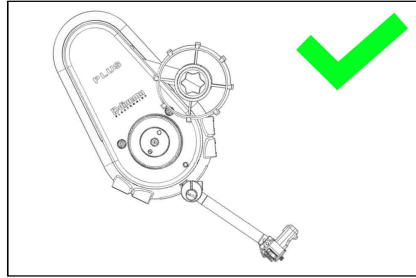


3.3. INCLINATION

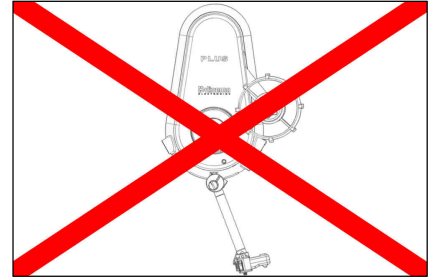
PLUS must be installed with such an inclination not causing too much reel pressure on pulling roller, otherwise correct functioning is not assured.
Below pictures show allowed and not allowed inclination.



Best inclination



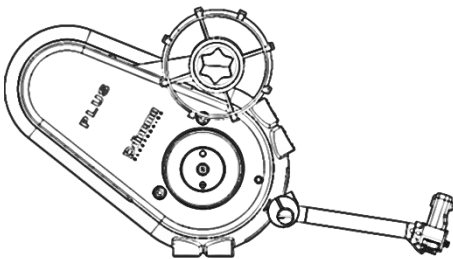
Allowed inclination



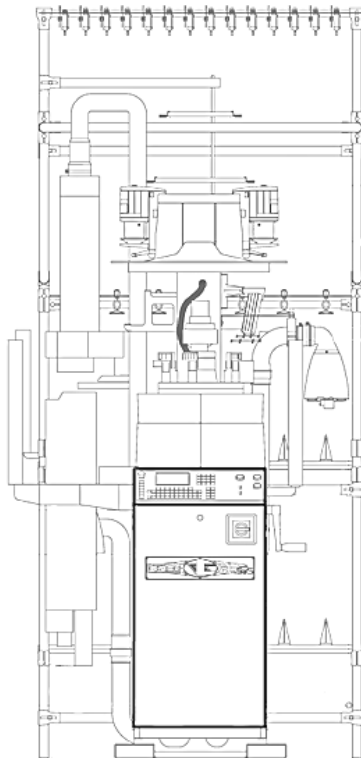
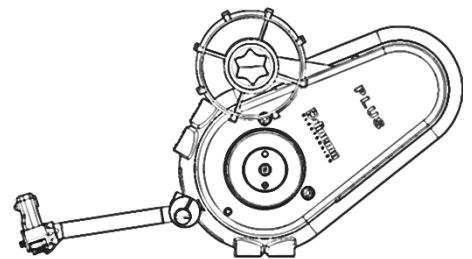
Not allowed inclination
(PLUS does not work properly)

3.4. "RIGHT" AND "LEFT" CONFIGURATION

Left
configuration



right
configuration



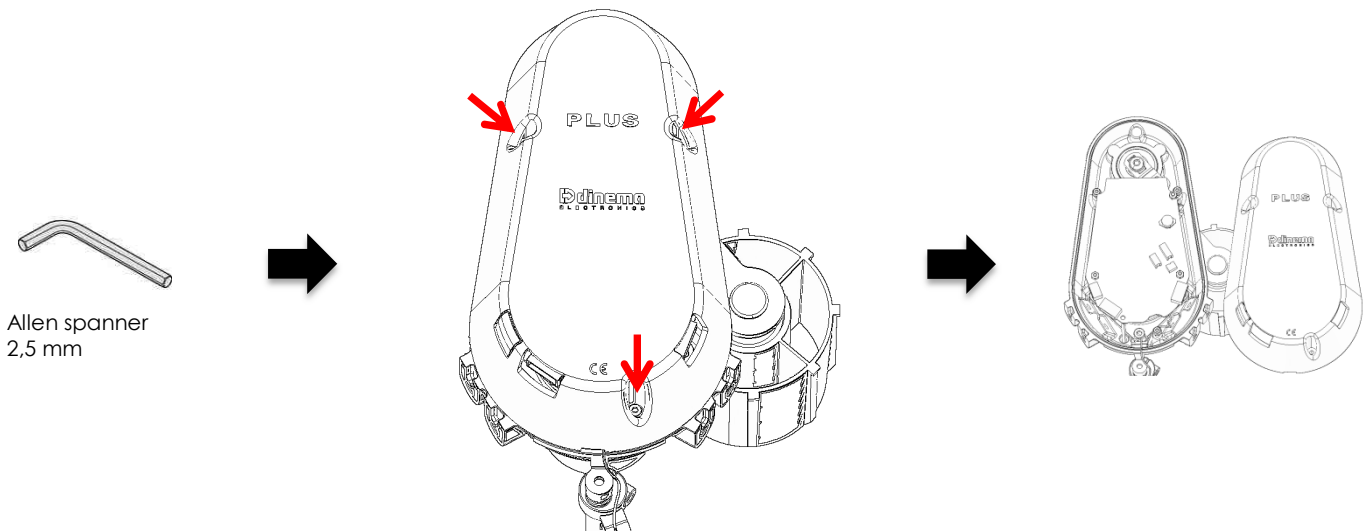
As per aside technical drawings, PLUS can be configured both in right and left configuration (from the textile machine front view)

While placing purchase order it is necessary to specify your request and PLUS will be supplied pre-configured right or left, but with a careful procedure the device configuration could be changed afterwards.

Here below the procedure in detail for the modification from "right" to "left" configuration (in order to change configuration from "left" to "right", procedure to be followed is the exact opposite of the one here below).

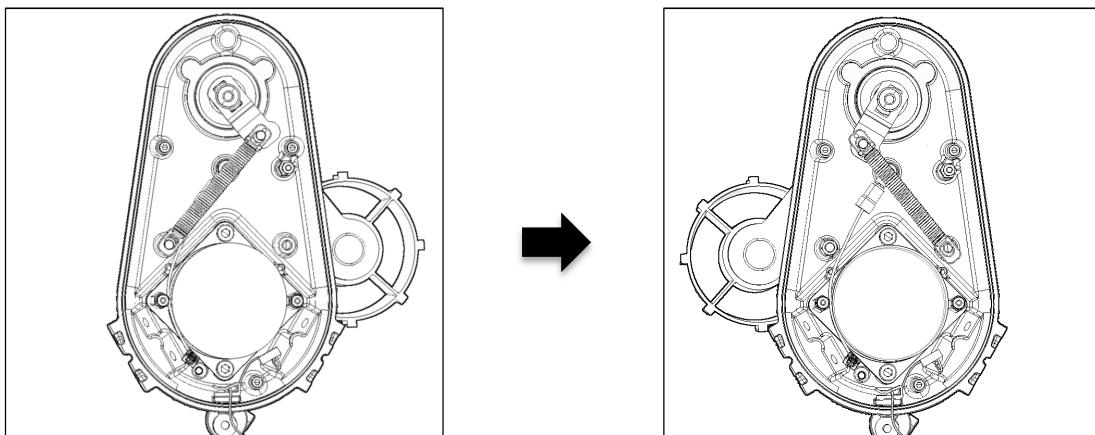
STEP -1-

By using an **allen spanner of 2,5 mm** unscrew back cover screws and **remove the cover** itself.




STEP -2-

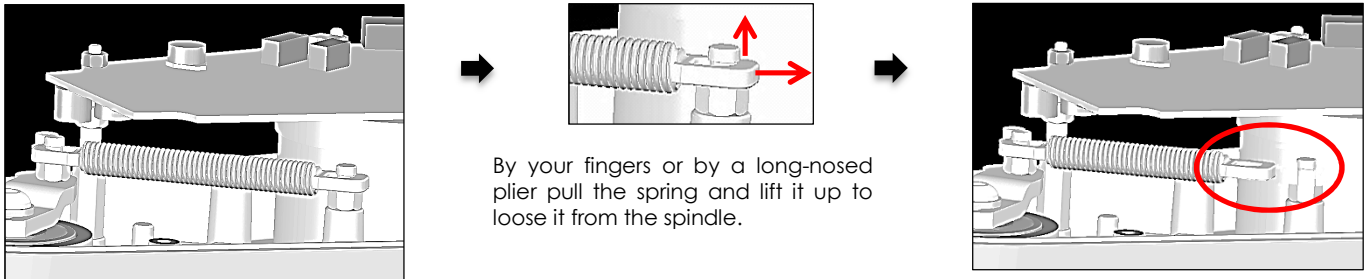
Main modification procedure of PLUS configuration consists in moving the "reel spring" as shown below.



Above drawing do not include electronic board. In this way it will be easy to see the spring position in "right" configuration, and in "left" configuration **Do not remove the electronic board.**

Please remove "reel spring".
If not possible manually use a "long-nosed" plier.


 **N.B.** During this phase fingers and possible tools, can get in touch with the electronic board and their components. In order not to damage those components we strongly recommend to pay great attention during the following phases.

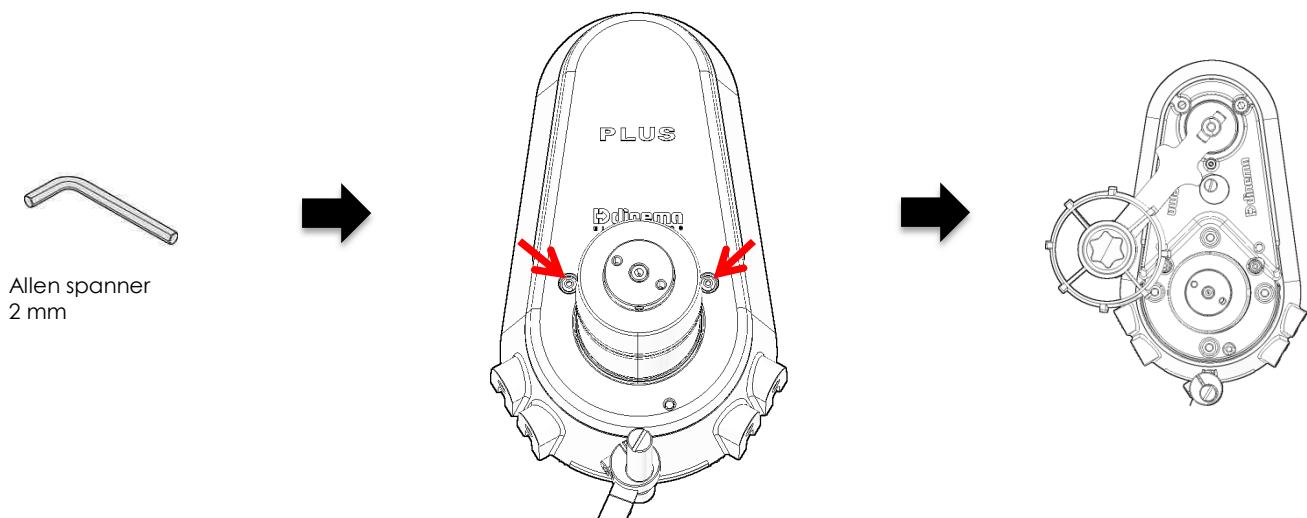


Now it will be possible to remove the spring.

STEP -3-

By using an **allen spanner of 2 mm** unscrew front cover screws and **remove the cover**.

 **N.B.** In order to avoid electronic board and components damages it is necessary to put **PLUS** in the back cover, cover will be used as device support.



STEP -4-

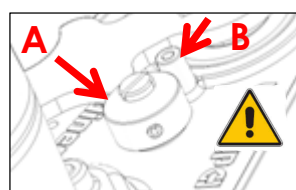
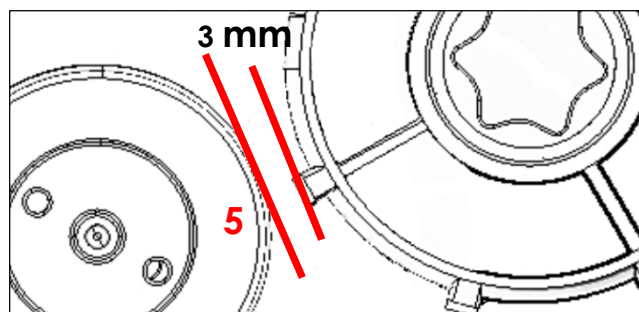
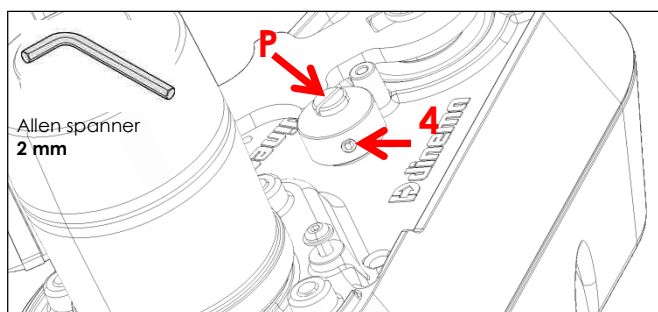
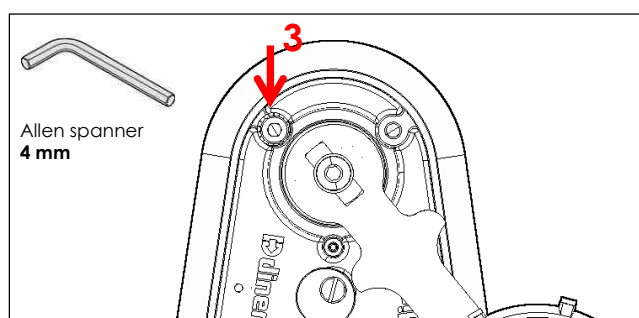
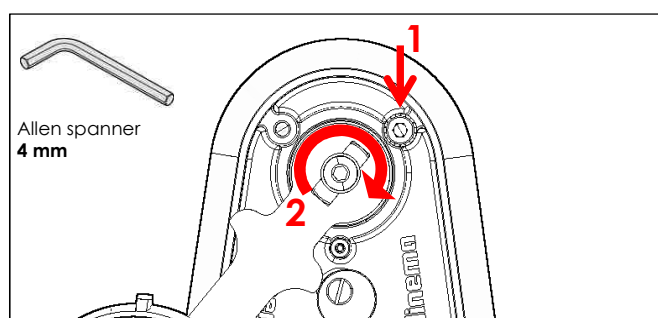
By using an **allen spanner of 4mm** unscrew the **blocking screw** of "reel tighten" arm (1), turn the "reel tighten" arm (2) and screw the blocking screw in the new position (3).

In order to set minimum distance of **3mm** between the tow roller and the reel teeth (5) it will be necessary to unscrew through an **allen spanner of 2mm eccentric pin screw** eccentric (4).

Once the correct position, giving the requested distance between roller and reel, has been reached the eccentric screw will have to be screw up.



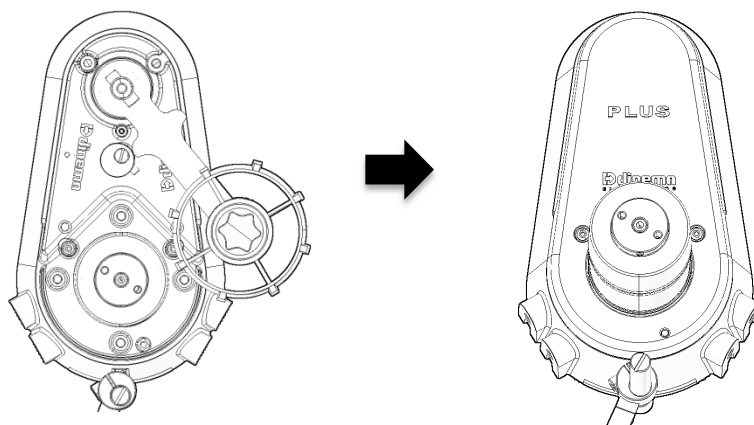
N.B. do not act on eccentric pin (P).



WARNING!! eccentric (A) must be placed in a way to avoid contact with the "spindle" (B) PLUS will be constantly in "end of reel" alarm.

STEP -5-

Replace the front cover with relevant screws.



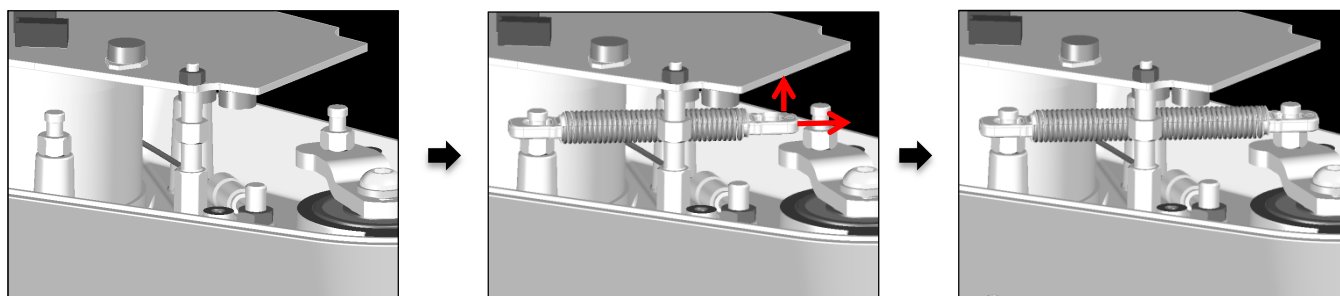
STEP -6-

Proceed with replacing of "tighten reel" spring.

If necessary in case this operation will be difficult by hand use a long-nosed plier.



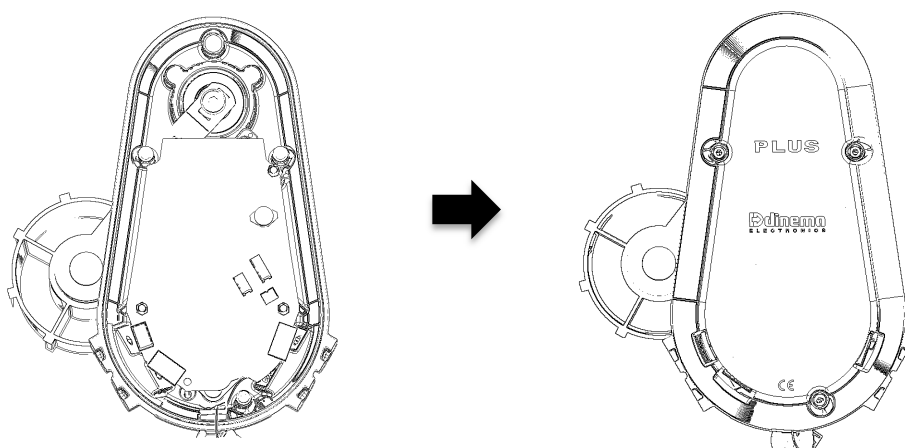
N.B. During this phase fingers and possible tools can get in touch with the electronic board and their components. In order not to damage those components, we strongly recommend you to effect the following phases with great care.



By your fingers or by a long-nosed plier pull the spring and insert relevant hook into the spindle.

STEP -7-

Replace back cover with relevant screws.



3.5. ELECTRIC CONNECTION

PLUS device must be connected to "CAN" line through dedicated cable.

If knitting circular machine is equipped with a "chain" cable for "CAN" line connection.

If knitting circular machine is not equipped with "CAN" line it will be possible to equip it with an electronic board allowing to convert signals coming from "BUS" to serial "CAN" protocol directly.

The following table shows how to set CAN connectors on PLUS.

PIN NO.	SIGNAL	min voltage	Max voltage	NOTE
1	24V	21.6 Vdc	26.4 Vdc	Nominal 24V
2	24V	21.6 Vdc	26.4 Vdc	Nominal 24V
3	CANH	-	-	High level can voltage (input/output)
4	CANL	-	-	Low level can voltage (input/output)
5	GND	-	-	
6	GND	-	-	



For further details/information please contact Dinema S.p.A. or Lonati S.p.A.

3.6. HOW TO PLACE YARN REEL



In order to set the yarn reel in the correct position, it is enough to move manually the “reel holder” from the “pulling roller” by overcoming the spring strength.

Set back the yarn reel on the “reel holder” and push it again the closer to the pulling roller.

As shown in the previous picture it will be necessary to get the yarn through the yarn breakage device (SPYDER) assembled on PLUS device.

3.7. YARN REEL DISTANCE ADJUSTMENT

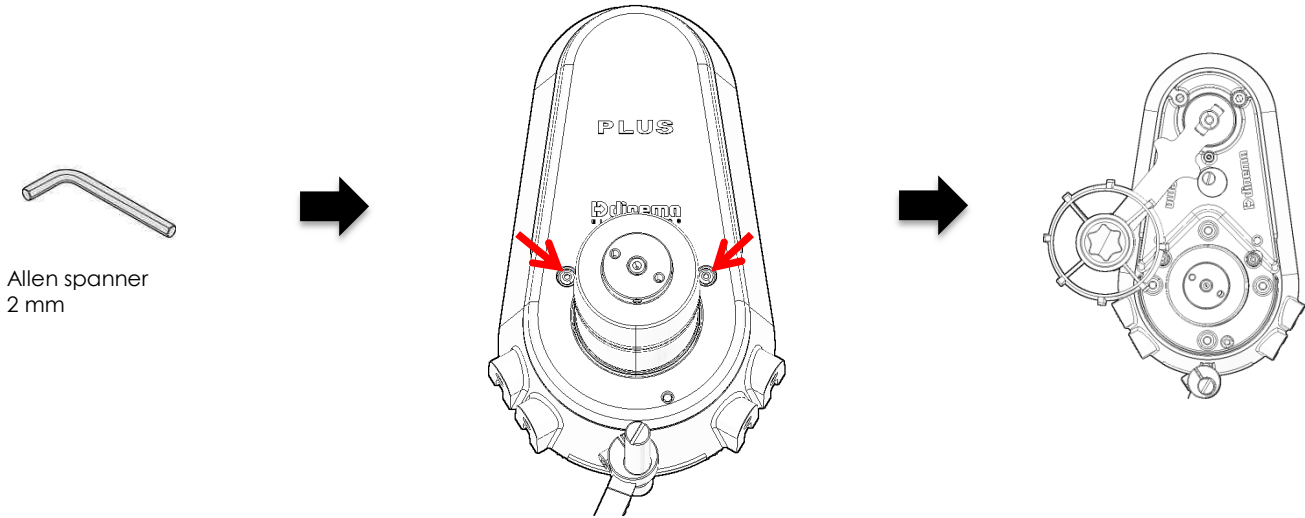
PLUS device allows to adjust the minimum distance between reel and pulling roller.

This adjustment is very important because while the reel reaches the minimum set distance, PLUS device goes to alarm status (see 3.9) and machine display shows yarn reel exhaustion

As already described at 3.4 STEP 4, usually this distance must be set at about 3mm, but could be modified as you like.

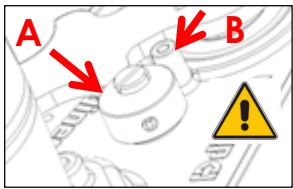
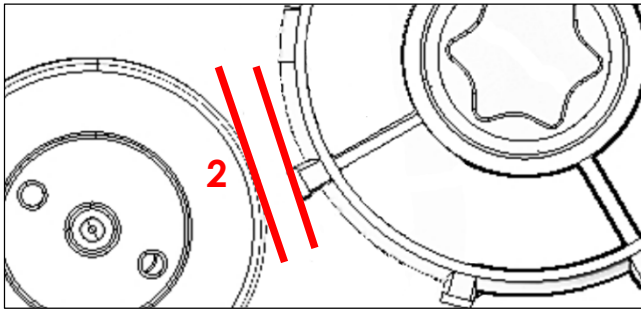
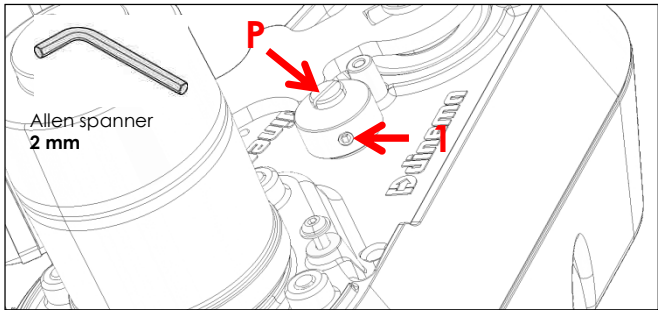
Here below how to modify this parameter:

By using an **allen spanner of 2 mm** unscrew front cover screws and **remove the cover itself**.



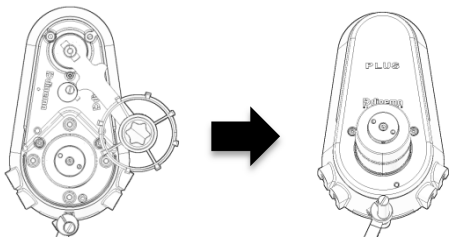
By using an **allen spanner of 2mm** unscrew the blocking screw of **eccentric pin (1)**,
Once the correct position, giving the requested distance between roller and reel **(2)**, has been reached
the eccentric screw will have to be screw up.

! N.B. Do not act on eccentric pin (P).



WARNING!! eccentric (A) must be placed in a way to avoid contact with the "spindle" (B) PLUS will be constantly in "end of reel" alarm.

Replace the front cover with the screws.



3.8. SOFTWARE CONFIGURATION

For software configuration of the machine on which PLUS devices will be installed, it will be necessary to pay attention to the configuration menu of the circular knitting machine itself.



In case configuration menu will not be updated and will not include PLUS option, it will be necessary to load "PYF" configuration.

3.9. STATUS LED

Status LED gives information about operating condition of PLUS device.

LED can be green or red and information changes according to the LED blinking frequency.

Table below clarifying the meaning:

Blinking frequency		
Quick blinking Twice per second	Software updating in progress	Alarm
Medium blinking Once per second	PLUS on (not necessary running)	---
Slow blinking 1" on 1" off	PLUS off	---

4 COMMON ERRORS

Alarm condition is signaled by status led (red "quick" blinking).

Common errors (such as: yarn breakage, reel end, obstructed move, and so on) are "described" on circular knitting machine display.



For further details and or information please contact Dinema S.p.A. or Lonati S.p.A.

5 WORKING CONDITIONS

See here below all specific technical features of PLUS device

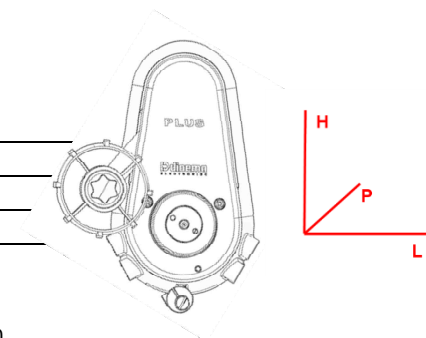
DIMENSIONS

Height (H): mm 210

Depth (P): mm 165

Width (L): mm 160

Weight: g 1850



TEMPERATURE RANGE

Working temperature: 0 ÷ 35 °C @ 70% humidity without condensation

Storage: -20 ÷ 50 °C @ 90% humidity without condensation

POWER SUPPLY

Working power 24 Vdc

Frequency 47 ÷ 63 Hz

Min voltage with 4000 turns/m: 2A

Max voltage with 4000 turns/m: 4A

PERFORMANCES

max rotation speed (settled through software): 4000 turns/m

ALTITUDE

0 - 2000 m

For further information concerning working conditions, please refer to CEI-EN 60204-1, standard.

6 DISPOSAL



WARNING: to avoid any possible negative effect on environment and in order to promote materials recycling, this device must be disposed according to the regulations in force in the country in which it has been sold.