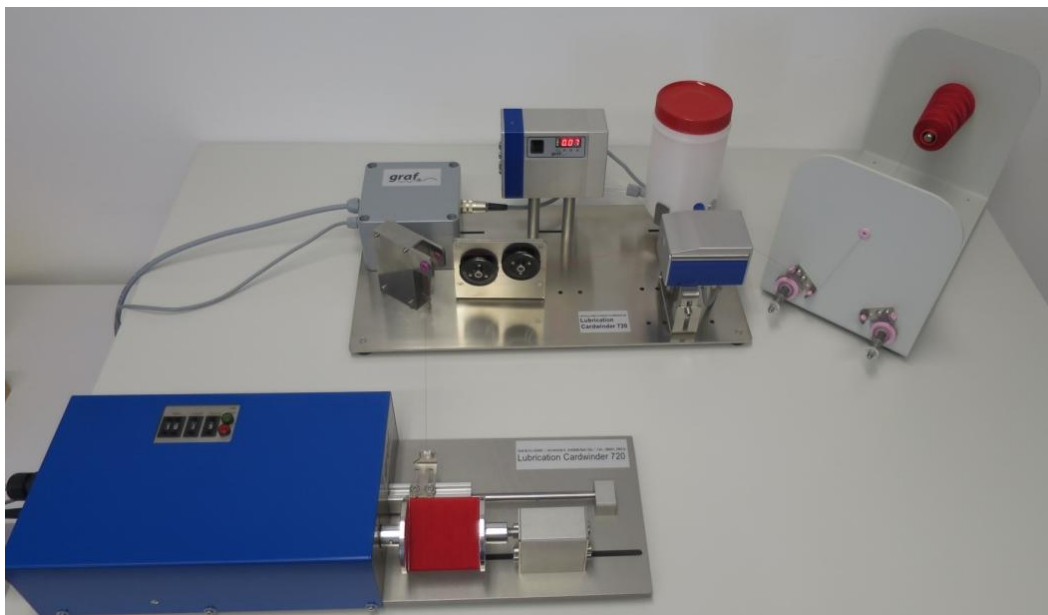




# INSTRUCTION MANUAL



## SL 2 LUBRICATION CARDWINDER 720

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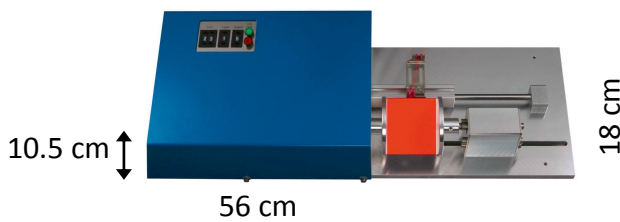
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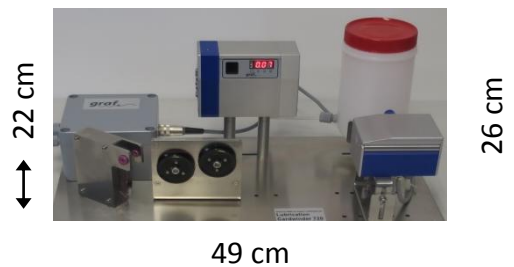
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## Dimensions (approx.)

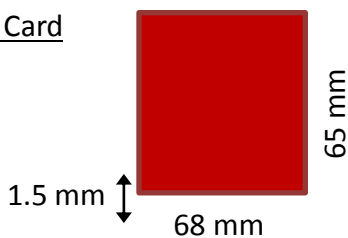
Cardwinder 340



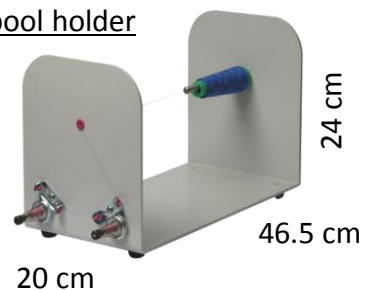
SL 2 Lubrication unit



Sample Card



Yarn spool holder



# 1. Introduction:

## Field of application

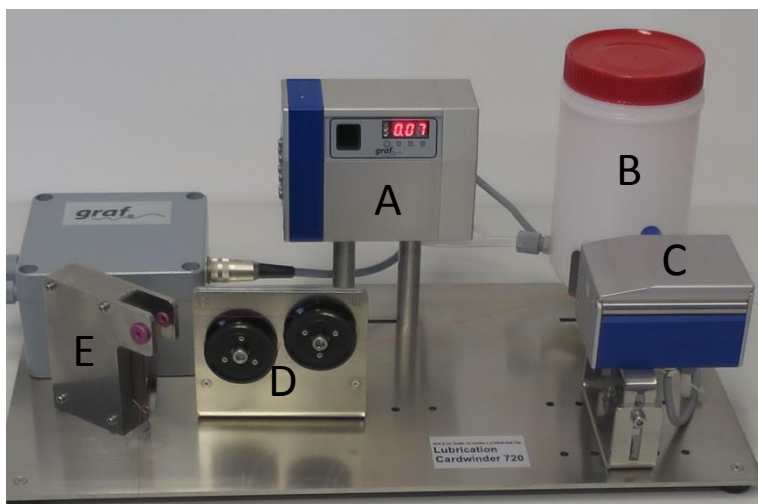
The SL 2 Lubrication Cardwinder 720 is capable of doing both card winding and lubrication in a single process.

With this equipment, the color shade of the thread after applying the lubricant can be established quickly and easily without the necessity of lubrication the thread on a winding machine.

The precisely wound cards can be used for many kinds of testing such as:

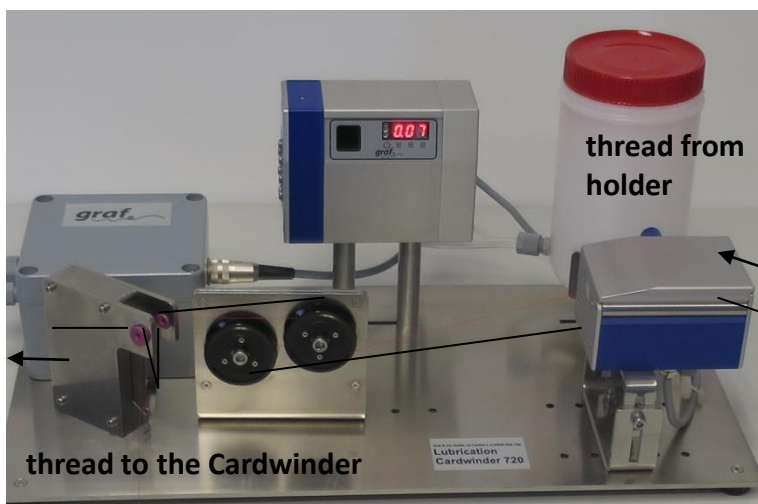
- Sampling
- Colorimetric
- Whiteness measuring
- Trials for UV-Light resistance
- After scouring
- Color cards

## 2. Setting up the SL 2 Lubrication Cardwinder 720:



This picture shows the lubrication unit of the SL 2 Lubrication Cardwinder 720.

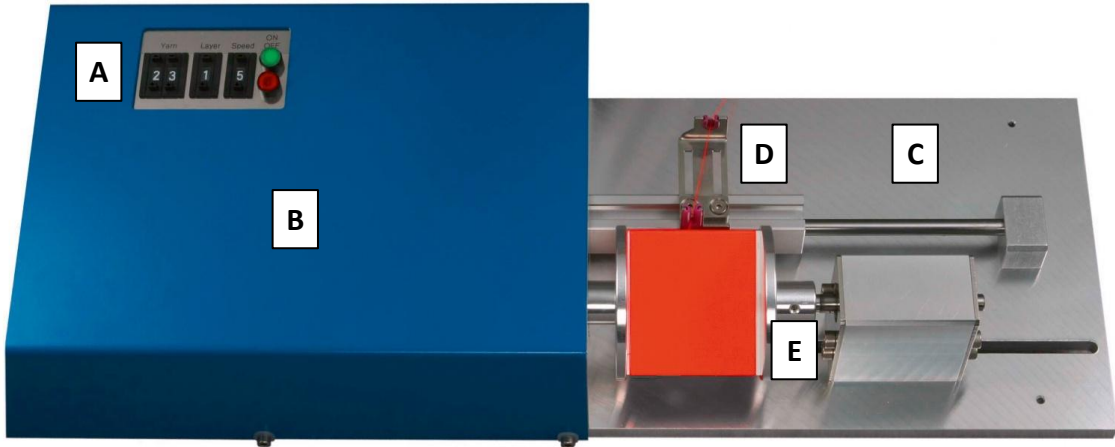
It consists of a dosing unit (A), a lubricant storage tank (B), an applicator (C), two mass wheels (D) and a spring damper (E).



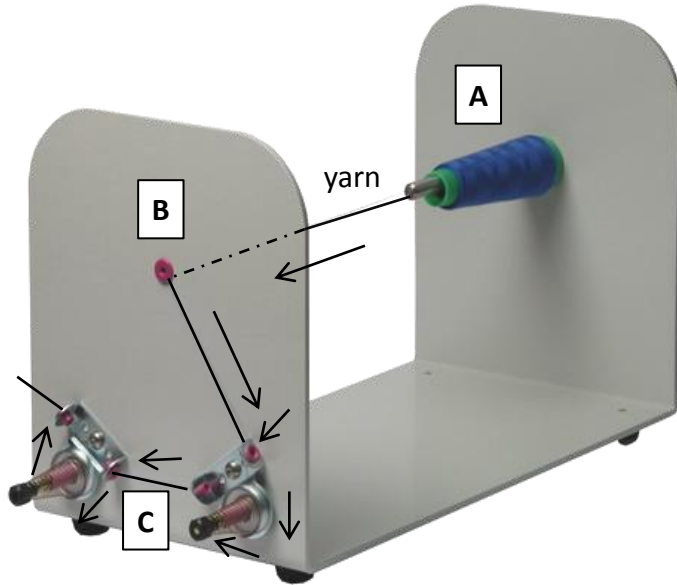
On this picture you can see the path of the thread. Details concerning the applicator, the mass wheel and the spring damper are described below.

### 3. Explanation of the Cardwinder 340 Components

The Cardwinder 340 consists of the following components:



- A Control Input Panel
- B Cover / Drive Motor inside
- C Base plate
- D Thread Guide
- E Card Holder

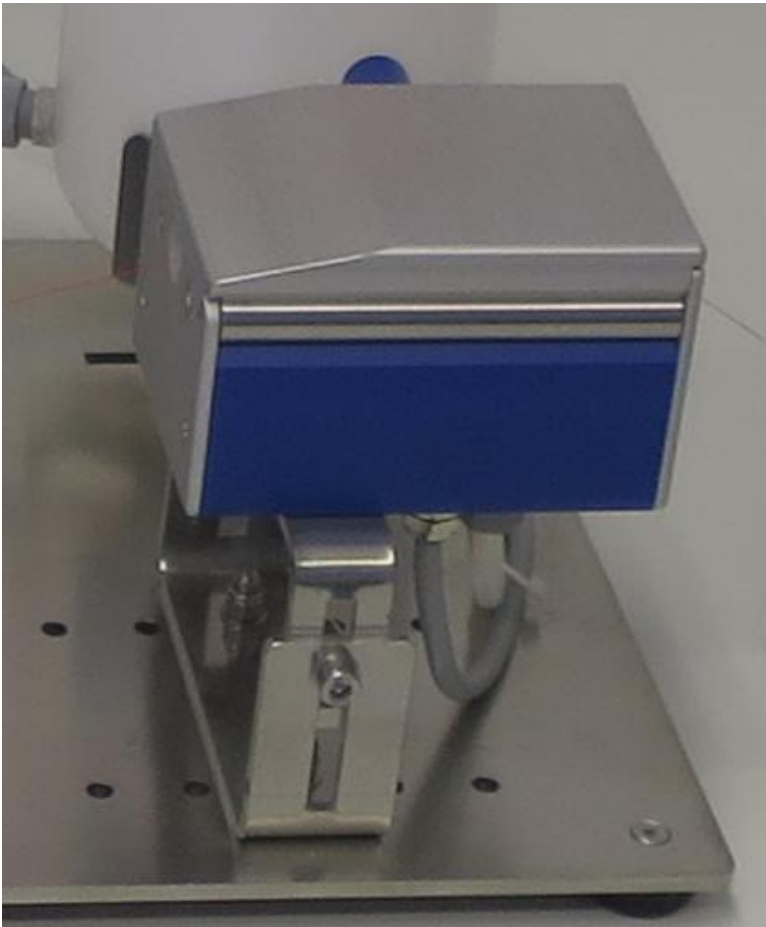


- A Yarn spool
- B Ceramic eyelet
- C Tension devices

The tension devices have to be adjusted according to the yarn count and to the card material.

- A too low yarn tension makes an irregular and uneven winding surface on the card.
- A too high yarn tension can cause the card to be bent after winding.

## 4. Threading:



Open the door of the applicator, insert the thread carefully and close it again.

Take care that the sponges are inserted before using the system.

This picture shows the thread correctly inserted into the applicator.

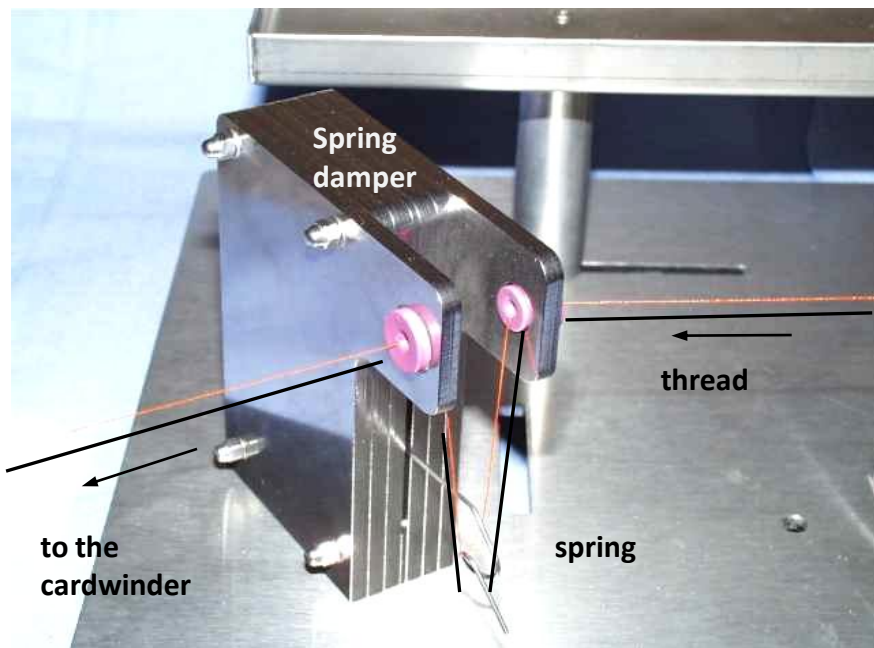
With the adjusting screws, the position and the angle of the applicator can be adjusted.

Normally, you don't need to adjust the applicator, because it is already fixed correctly.



The thread must be wound around the mass wheels as shown on the picture.

The mass wheels in combination with the spring damper are necessary to eliminate the irregular movement of the thread caused by winding it on a flat card. To ensure a constant and even uptake of lubricant on the thread, those devices are necessary.



After the mass wheels, the thread must pass the spring damper exactly as shown on this picture.

While winding, the spring is moving up and down very quickly. This eliminates the irregular movement of the thread.

After passing the spring damper, the thread must be guided directly to the Cardwinder.

## Calculation of settings

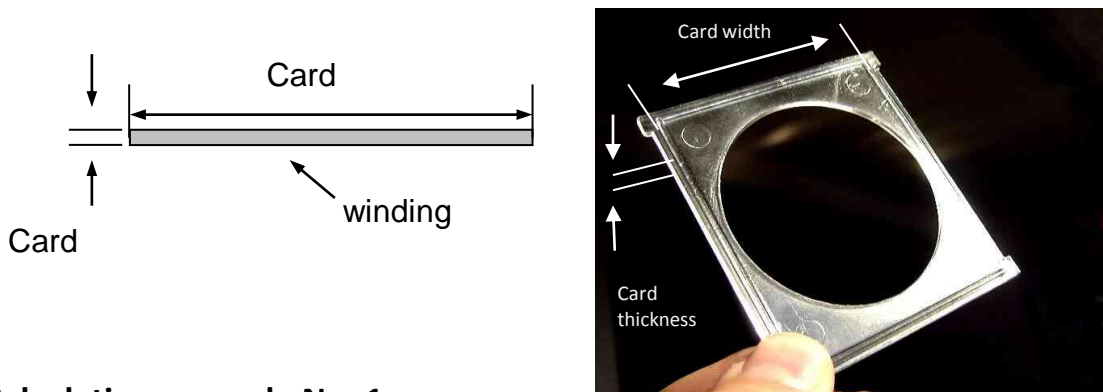
To calculate the lubricant quantity setting for the dosing unit, please use the following formula:

$$setting \left[ \frac{g}{min} \right] = \frac{threadspeed \left[ \frac{m}{min} \right] \cdot uptake [\%]}{Nm_{eff} \cdot lub \ activity [\%]}$$

where:

$$threadspeed \left[ \frac{m}{min} \right] = (cardwidth [mm] + cardthickness [mm]) \cdot 2,22 \frac{m}{mm \cdot min}$$

The card width (width of the winding card) and the card thickness (thickness of the winding card) depend of the physical dimensions in mm of the cards you use.



### Calculation example No. 1:

The size of the cards you use are for example:

Card width: 62 mm  
Card thickness: 2 mm

The length of the card and the winding width are not important.

The other parameters for example are chosen as follows:

uptake: 3.0 % (=quantity of lubricant you want to add on the thread).  
Nm eff: 35 m/g (=count of the thread you use)  
lub activity: 100 % (=solid matter of the lubricant you use e.g. hot melt lub)

So thread speed is:

$$threadspeed \left[ \frac{m}{min} \right] = (62mm + 2mm) \cdot 2,22 \frac{m}{mm \cdot min} = 142 \frac{m}{min}$$

This value of 142 m/min only depends on your card size!

It does not depend on the winding speed of the Cardwinder, because the quantity of lubricant metered by the dosing pump is proportional to the winding speed due to a speed connection of both devices.

The value of 142 m/min together with the other parameters has to be set into the first formula:

$$setting \left[ \frac{g}{min} \right] = \frac{142 \frac{m}{min} \cdot 3,0\%}{35 \frac{m}{g} \cdot 100\%} = 0,12 \frac{g}{min}$$

So the correct setting for the dosing unit in this example is **0.12 g/min**, independent of the winding speed of the Cardwinder.

## Calculation example No. 2:

The size of the cards you use are for example:

Card width: 60 mm  
Card thickness: 2.2 mm

The length of the card and the winding width are not important.

The other parameters for example are chosen as follows:

uptake: 2.5 % (=quantity of lubricant you want to add on the thread).  
Nm eff: 14 m/g (=count of the thread you use)  
lub activity: 50 % (=solid matter of the lubricant you use e.g. hot melt lub)

So thread speed is:

$$threadspeed[\frac{m}{min}] = (60mm + 2.2mm) \cdot 2,22 \frac{m}{mm \cdot min} = 138 \frac{m}{min}$$

This value of 142 m/min only depends on your card size!

It does not depend on the winding speed of the Cardwinder, because the quantity of lubricant metered by the dosing pump is proportional to the winding speed due to a speed connection of both devices.

The value of 142 m/min together with the other parameters has to be set into the first formula:

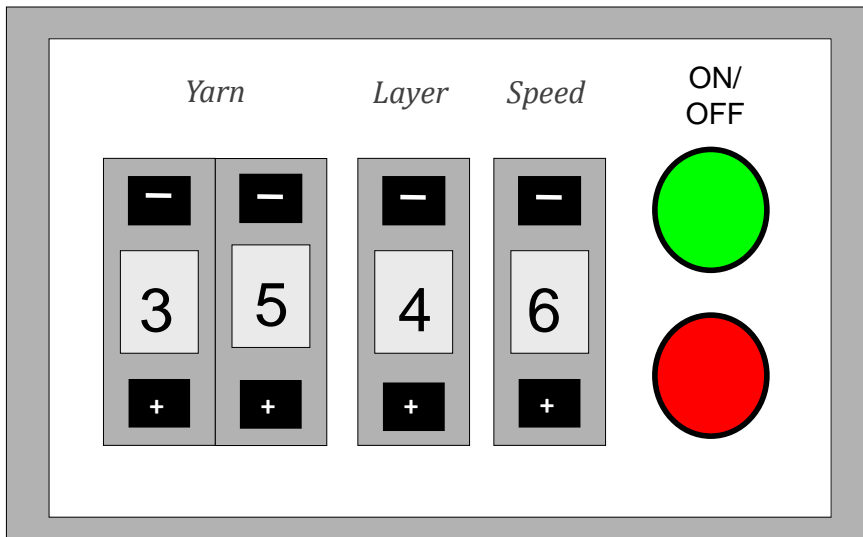
$$setting[\frac{g}{min}] = \frac{138 \frac{m}{min} \cdot 2,5\%}{14 \frac{m}{g} \cdot 50\%} = 0,49 \frac{g}{min}$$

So the correct setting for the dosing unit in this example is **0.49 g/min**, independent of the winding speed of the Cardwinder.

All other information concerning the Cardwinder itself, is provided in the Cardwinder Manual.



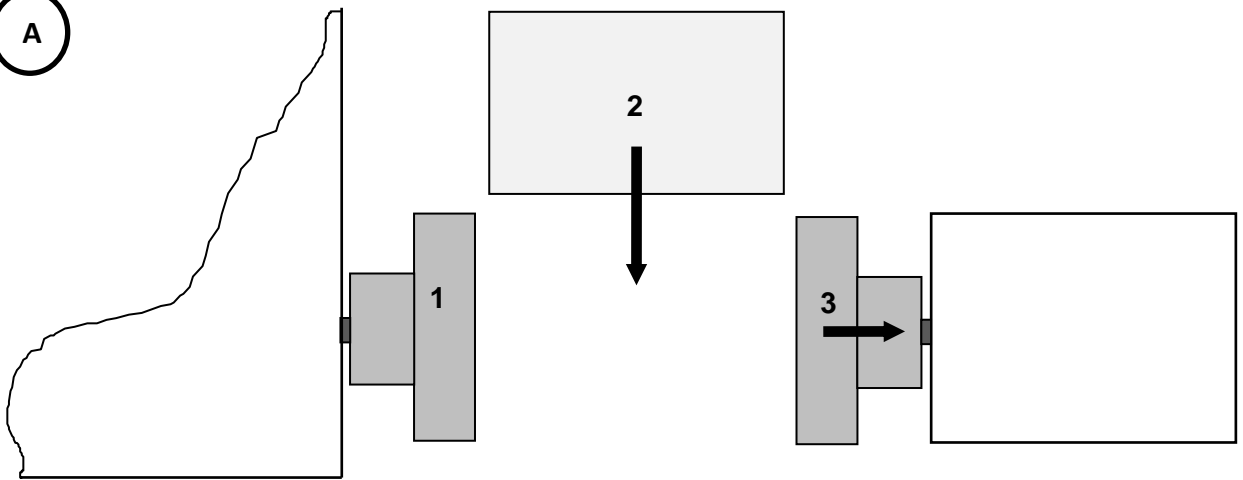
## 5. Adjustment of the winding parameters



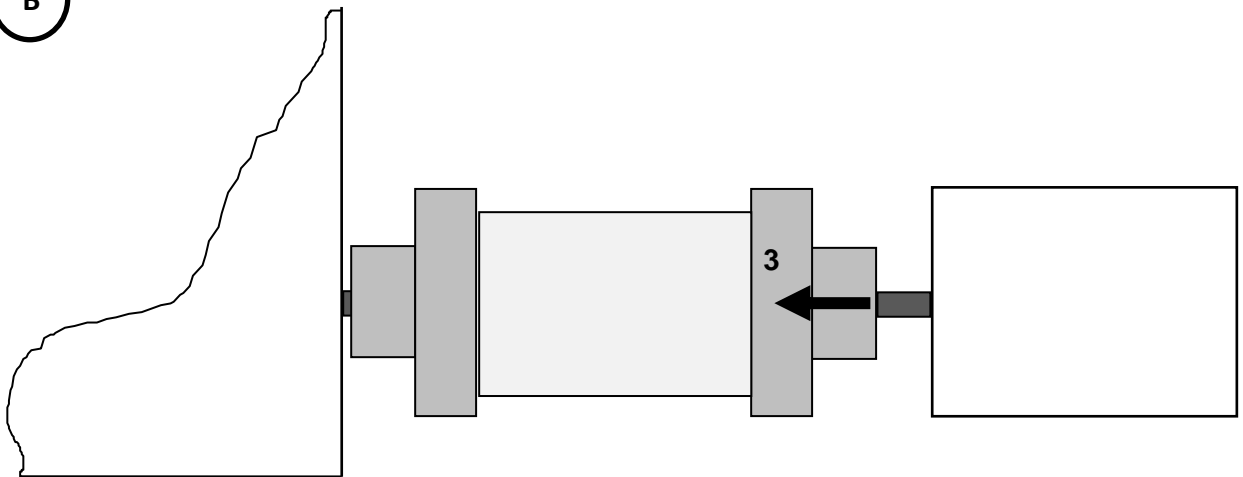
<p><b>ON</b> (green button)</p>	<p>By pressing this green button, the winding is started, the button lights up green while winding. When the winding has finished, the device stops automatically and the green lamp is off.</p>
<p><b>OFF</b> (red button)</p>	<p>By pressing this red button, the winding is interrupted immediately. By pressing while the device is not winding, the traversing slide goes to the opposite located end position. A red lamp lights up when the motor of the spindle is overloaded, for example when the tension of the thread is too high.</p>
<p><b>Yarn</b> traversing</p>	<p>Selector key to adjust the traversing per revolution. (0.01 – 0.99 mm/r) With this key the traversing can be regulated according to the yarn diameter exactly so that a very compact and regular winding can be achieved.</p>
<p><b>Layer</b> number of layers</p>	<p>Selector key to adjust the number of the layers (1 – 9 layers). Adjustment 0: touch control by pressing the green button.</p>
<p><b>Speed</b> Winding speed</p>	<p>Selector key for regulation of the spindle speed 300 – 2700 revolutions / min. in steps of 300 rev. / min.</p>

## 6. Gripping of the card:

A



B



**A** Push back the running wheel (3) and put in the card (2) in the guiding groove of the driving wheel (1)

**B** Place the guiding groove of the running wheel (3) upon the card (3)

Take out the card in reverse direction

**Attention:** Before winding, take care that the card is completely and straight fixed in the two guiding grooves (see figure B) .

## 7. Regulation of the yarn tension device:

By turning the adjusting wheel of the yarn tension device, the yarn tension may be regulated during winding.

The regulation depends on the yarn count and the kind of surface.

The yarn tension device has to be adjusted resulting in an evenly wound yarn card.

If the yarn tension is regulated too slightly, maybe the yarn can be stripped from the ready-wound sample card, or the winding is too weak and inexact. In this case the yarn tension has to be regulated stronger.

If, however, the yarn tension is regulated too strong, the edges of the card are stressed too much and become bent, in the worse case they are even buckled (above all when using thin cardboard). Then the yarn tension has to be regulated more slightly.

**Remark:** The optimal regulation of the yarn tension can only be made by trials.

## 8. Electrical data

Parameter	Value	Unit
Current supply voltage	220 – 240	VAC
Current supply voltage	110 – 120 (*)	VAC
Power consumption (max.)	100	W
Winding speed	300 – 2700	rev. / min.
Traversing of thread	0.01 – 0.99	mm / rev.
Thread traversing accuracy (max)	2	%
Number of layers	1 – 9	layers

(\*) for use at 110 – 120 VAC an external main power adapter has to be used.

## 9. Technical data

Parameter		Value	Unit
Lubrication Cardwinder 720 (Art.-No. T5-0131)	Total weight	approx. 35	kg
	Winding speed	300 - 2700	rpm
	Traversing of thread	0.01 – 0.99	mm / rev.
	Number of layers	1 - 9	layers
	Thread traversing accuracy (max)	2	%
	Card size	65 x 68 x 1.5	mm
	Operating Temperature (n.c.)**	5 - 45	°C
	Storage Temperature (n.c.)**	0 - 55	°C
	Environmental Air Humidity (n.c.)**	5 - 85	% RH
Yarn Spool Holder (Art.-No. T5-0116)	Total height	240	mm
	Total depth	465	mm
	Total breadth	200	mm
	Total weight	5.6	kg

\*\* n.c. = non – condensing

## 10. Safety Regulations

The following safety notes are general regulations that have to be cared while setting up and operation the Cardwinder 340 and its Components.

Otherwise, there is a high risk of damaging the device and of personal injury.



### CAUTION:

- **The Lubrication Cardwinder 720 is designed to be used in a laboratory or production environment. Do not use the Lubrication Cardwinder 720 in a humid environment like dyehouses etc.**
- **Do not wind wet or extremely humid yarns**
- **Do not operate the Lubrication Cardwinder 720 with wet hands**
- **Do not touch the Card Holders or the Card while the Lubrication Cardwinder 720 is winding**
- **Before connecting the Power Supply, check if the Mains Power Supply Voltage is within the range of 100 – 240V AC / 50-60Hz**
- **Before connecting the Power Supply, check if the Mains Power Supply is equipped with a proper Mains Fuse**
- **Check the Mains Supply Cable frequently for damage**
- **Do not crimp the Mains Supply Cable and the Cable between the Lubrication Cardwinder 720 and the Power Supply**
- **Do not cut the Mains Supply Cable and the Cable between the Lubrication Cardwinder 720 and the Power Supply**
- **In excessive use, the Drive Motor of the Lubrication Cardwinder 720 may heat up to 70°C. Do not touch the drive motor in order to avoid personal injury due to high temperatures**
- **Do not set up and use the Lubrication Cardwinder 720 close to flammable objects**
- **Do not set up and use the Lubrication Cardwinder 720 close to hot devices**
- **Do not use the Lubrication Cardwinder 720 for other applications than card winding**