INSTRUCTION MANUAL

Yarn Length Measuring System YLM-M

CONTENTS

Description

The YLM-M is a thread- or yarn- length
measuring device for controlling the yarn length of cones
or bobbins and for calibration of the internal length
measuring system of a winding machine.

The thread of a supply bobbin will be unwound under
controlled yarn tension and fed to
the winding machine. Thereby this thread
will be fed to a EFS storage feeder through the yarn brake
keeping the thread tension. The thread will be wound up
in parallel layers around the cylindrical winding reel of the
EFS storage feeder. These layers (or rotations) will be counted
by means of the meter counter, that includes a calculator, and the results
will be shown on its display.
or rather the yarn layers on the winding
reel are count. Afterwards an integrated calculator
in the counter evaluate the pulled off yarn length
by using the values of counts of rotations
and breadth of winding reel. This yardage
is shown in the display of the counter .
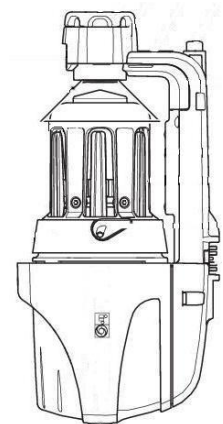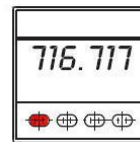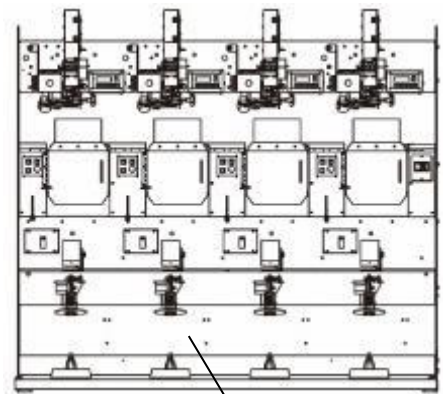
Use of the device:

With this measuring method the
exact length of bigger amount of thread can be measured
with exactly defined tension on winding machines
at normal used speed. So the results are either the
exact yarn length of a cone (meausuring of yarn length of the cone)
or the exact length of a winded bobbin on the winding machine
(calibration of a winding machine).

Enclosed accessories:

Bobbin/cone plate
Battery charger
Threading needles
Main fuse 8A
Different fuses
Yarn wheel for EFS
Different ceramics
Tool for opening the housing, demounting the upper / user plate
Tablet-PC with charger (optional)
Reference cone, winded with 1000,0 m of yarn
Safety glasses

Safety instructions:

General

The yarn length measuring system YLM-M has to be operated only by appropriate staff. Additionally the operators have to be instructed about the details of the device, especially about the danger points and precautions.

The YLM-M is only made for its usage with winding machines or in laboratories. Please don't use the YLM-M in a humid environment like dyeing mills. This is also valid for arias with a risk of fire.

For your own safety while working you must wear safety shoes, hair net, safety glasses and tight-fitting clothing. Because of a higher risk of injury don't wear loose clothes like tie and scarf while working. Take off jewelry, tie your long hair back if needed and put on a hairnet.

Please don't measure wet or extreme humid yarn, or yarn directly after lubrication.

Take care that the wheels of the YLM-M don't overrun your feet. Apply the brake before working with the YLM-M.

In the lower part of the YLM-M you will find the lead batteries. Please take care for the ground clearance of 85mm. Please take care for the roughness of the driveway for avoiding damages.

Please don't move the YLM-M over steep ramps and stairways.

Use the YLM-M only for other purpose as it's described in this Instruction manual.

Please switch off the YLM-M before maintenance and secure it against unauthorized operating. Before opening the housing pull out additionally the main fuse 8A.

Brake EFS / Fournisseur MSF

Be careful in the direct surroundings of the EFS and the MSF. Don't touch the moving parts as they can cause physical injury. Stop EFS and MSF with the drive-button while working on them.

Use EFS and MSF only in good order and condition. Check both for damages once per day. If you find damages, don't start EFS or MSF.

Don't clean them while working.

Safety instructions:

Lead battery

The YLM-M lead batteries.

1. Lead batteries need a special care for minimizing risks and maximizing life time of battery. Incorrect use of the batteries can cause damage of property and life injury.

2. Use only the delivered battery charger.

3. Please don't expose the batteries to temperature over 45°C or under 0°C. An empty battery can freeze at temperatures under 0°C. Never charge a frozen battery; it can cause an immediate damage.

4. Don't let the lead batteries to be deeply discharged.

5. Please care for no mechanical destroying. Swellings and holes can lead to a total stoppage and may cause an explosion or fire

6. Please avoid contact of the battery with water. It can cause a short circuit.

7. If the battery is discharged, it should be charged immediately. The battery should be charged every 4 weeks at least, also if the device is not in use. The battery looses 5-10% of its capacity per month.

8. It is not allowed to short-circuit the battery.

9. For getting the maximum life time of battery, it should never be deeply discharged, overcharged, overheated or overcooled.

Battery charger

1. Please don't expose the battery charger to temperature over 45°C or under 0°C. Never charge the battery at temperature under 0°C. Never charge a frozen battery; it can cause an immediate damage!

2. Please avoid contact of battery charger with water. It can cause a short circuit!

3. The battery charger need some time to be adjusted to room temperature before using and especially after changing the cold temperature in to hot one to protect the device against water condensation and to avoid its damage.

4. Please do not cover the battery charger, and keep it always away from flammable objects.

Establishing and operation the yarn length measuring system YLM-M

NOTE:
Before operation please follow this instruction manual completely.

First take the YLM-M out of the packaging. Move in short ways for testing the wheels, maybe release the brakes.

Put the enclosed bobbin plate onto the bobbin holder.

Among the enclosed parts you will find the main fuse 8A. Fasten it into the holder on the operator panel. Now you can switch on the YLM-M at the main switch on the operator panel.

If the LED battery status lights yellow or red, please use the enclosed battery charger and charge the batteries before working. The maximum charging time is 7 hours.

If you got delivered also tablet-PC (optional), connect it with the YLM-M via USB-cable and then switch on the tablet-PC. In the packaging of the tablet-PC you will find a fast-start-manual, how to use it. We have already installed all necessary programs. The tablet-PC is working without any password.
Put the tablet-PC in the holder on the YLM-M.
Keep the original packaging of the tablet-PC in case the serial number is required.

The YLM-M is now ready for process of measuring.

Operator panel:
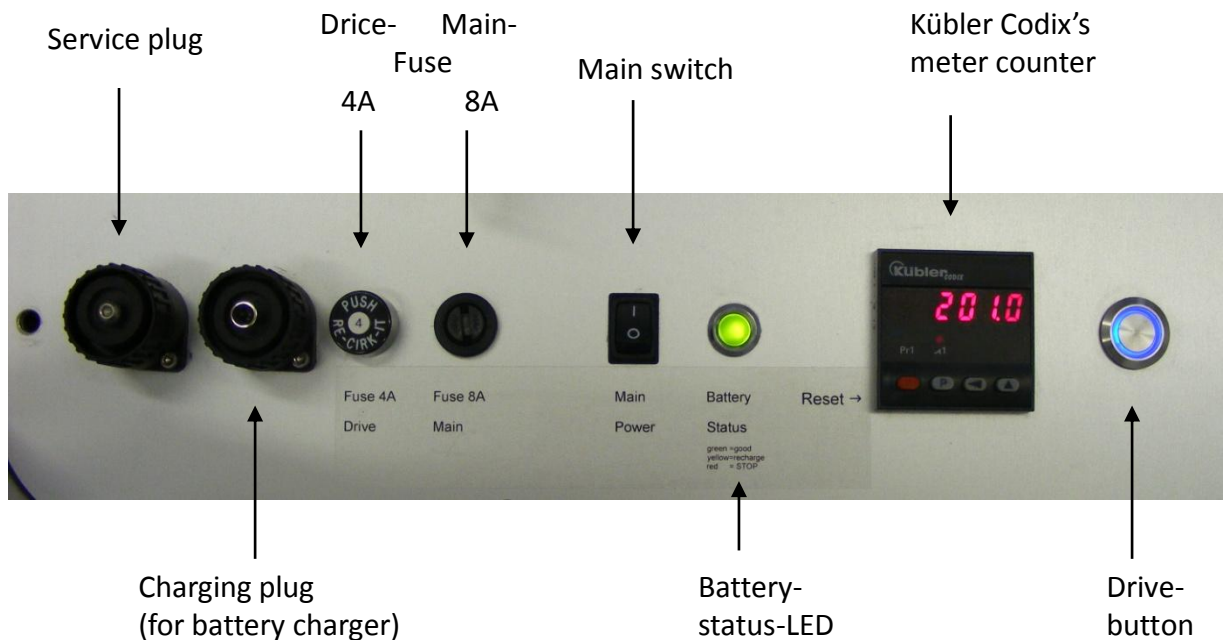
The service plug is for realizing of prospective functions like readout errors from maintenance stuff of our company Graf & Co. GmbH Technologie Service.

If the battery status LED lights green, the battery is more than 30% charged. If it lights yellow, the device will continue its working for approx. 1 hour. Please charge it now. If not, the battery status LED lights red, and a bit later the measuring function is stopped automatically for protecting the battery. The drive-button lights now red and locks every function of the EFS and MSF.

Remaining working hours:	LED green:	min. 1h to 8h
	LED yellow:	approx. 1h
	LED red:	approx. 10min

The time specifications are approximately data. They are depending on the battery. They are valid to continuous working at full speed.

At starting the main switch, the battery status LED is on. The internal control electronic and the meter-counter are now powered.

The main fuse 8A retains the battery-main-electric circuit. If necessary, you will find spare fuse in the accessories. Please check, why it is broken. Maybe here is a bigger problem. Please contact us.

With pressing the drive-button you start the EFS and the MSF, they are protected by the additional drive-fuse 4A. The fuse can be reset by pressing the white button on the fuse.

The control electronic contains additional own fuses. You will find spare fuses in the accessories.

Yarn filter:

Uster yarn
cutter

Reset button Uster (red)

Yarn tension
sensor

Yarn brake for
loop yarn feed
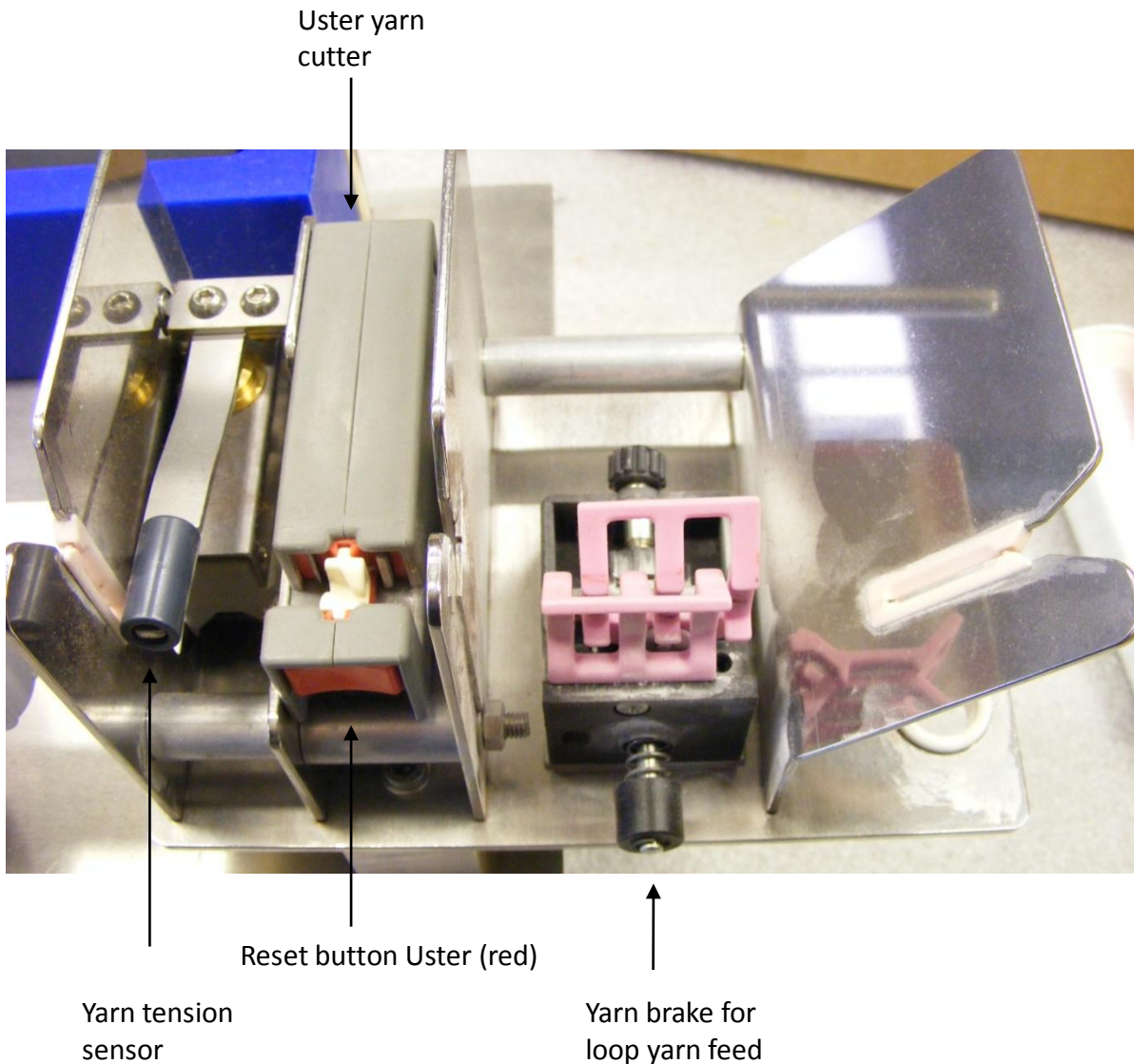
The function of the yarn filter is to protect the EFS and the MSF because it provides yarn without knots or loops.

The yarn brake is preset is on approx. 5 cN; the ceramics on the brake are just in touch with the yarn. The yarn will not be stopped or slowed down, it will be only guided.
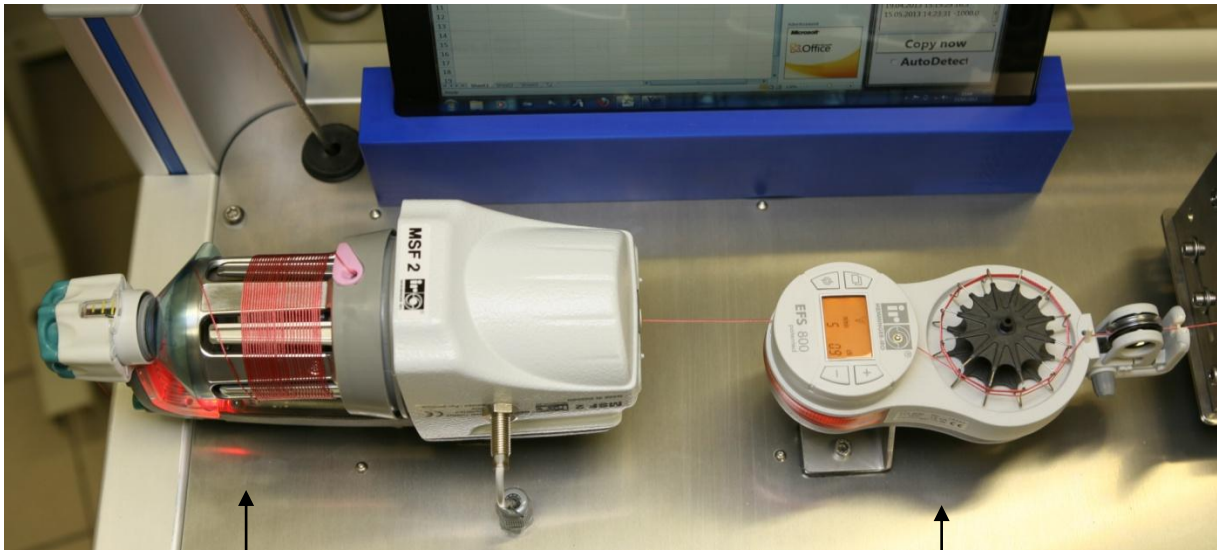
The yarn tension sensor releases at a tension of 300 cN the Uster yarn cutter, which cuts the yarn, if there is any knot or loop.

The Uster yarn cutter has to be reset by hand with pressing its red reset-button.
The yarn tension sensor and the Uster yarn cutter are just working, when the drive-button lights blue.

Operater board:

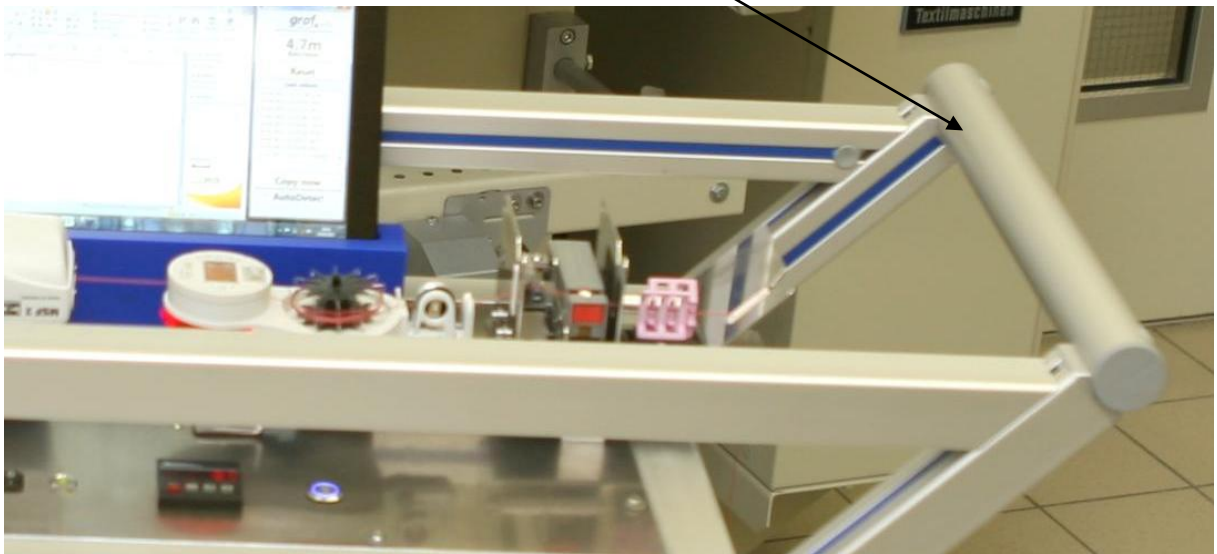Holder for tablet-PC

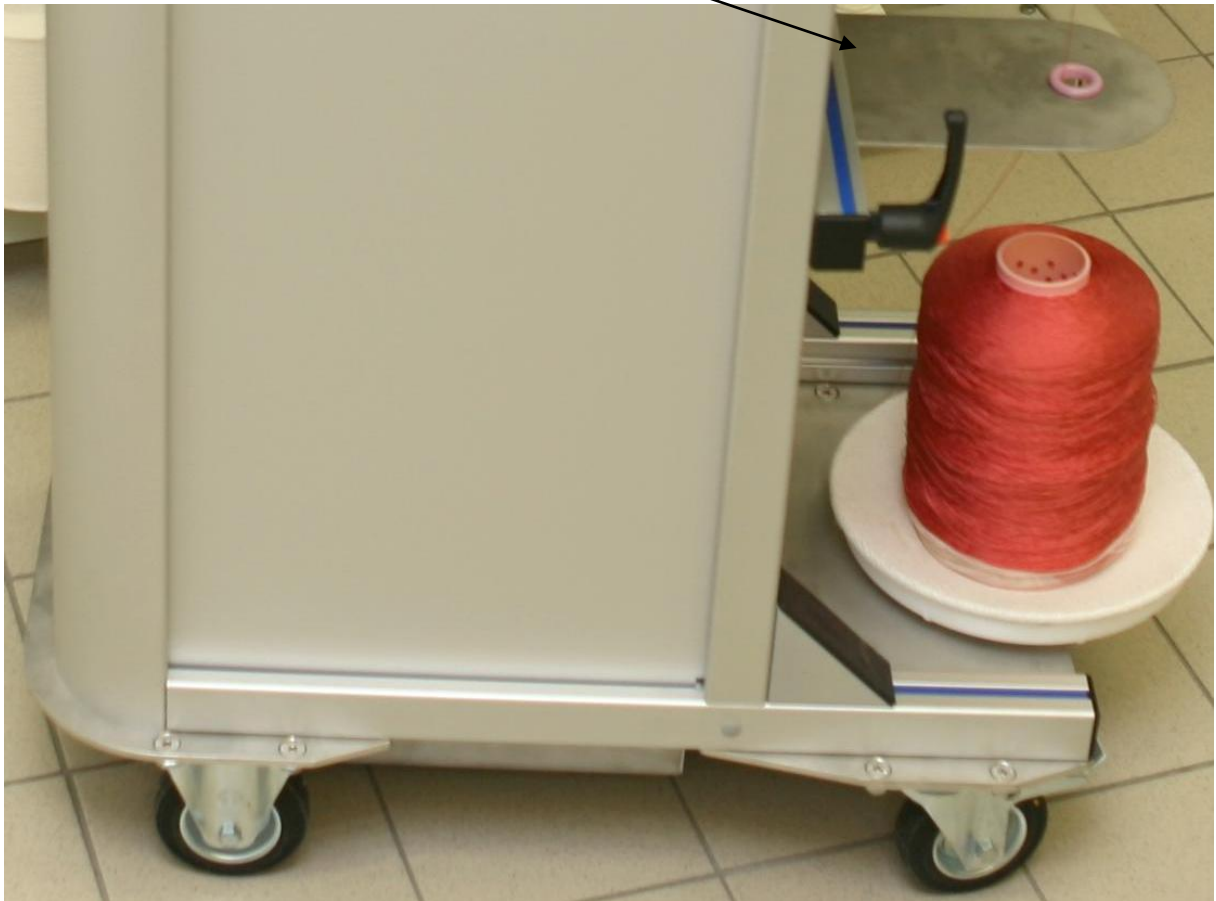Fournisseur MSF   Brake EFS

Inside MSF the measuring is taking place. At EFS you have to set the yarn tension as defined in DIN 2060, see page 20.
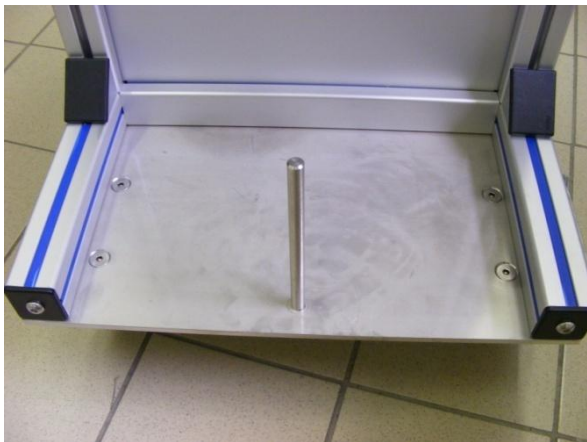
Handle to move the device
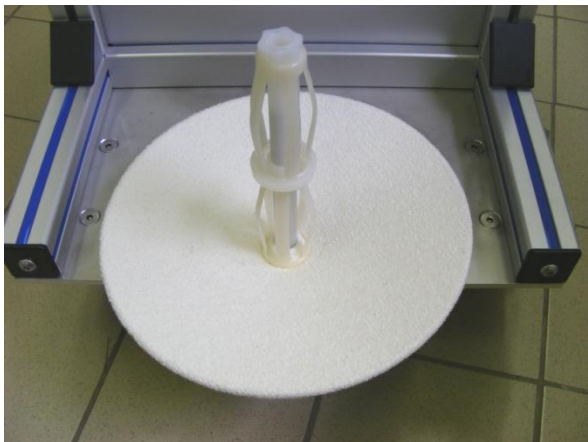
Bobbin/ cone support:

Balloon plate adjustable height

Front castors

Rear steering castors with brake

Holder for bobbin/cone

Bobbin/ cone plate

Battery charger:

Connect the charger to 230V~. On the backside of the charger you find the On/Off switch. Press it and the red "Power"-LED on front side is on.

Connect the 4-pin-connector to the charging plug on the operator panel for charging the YLM-M.

During charging the yellow „Laden"-LED is on. When charging process is finished, the green "Voll"-LED is on. Now you can switch off the charger and disconnect it from YLM-M and 230V~
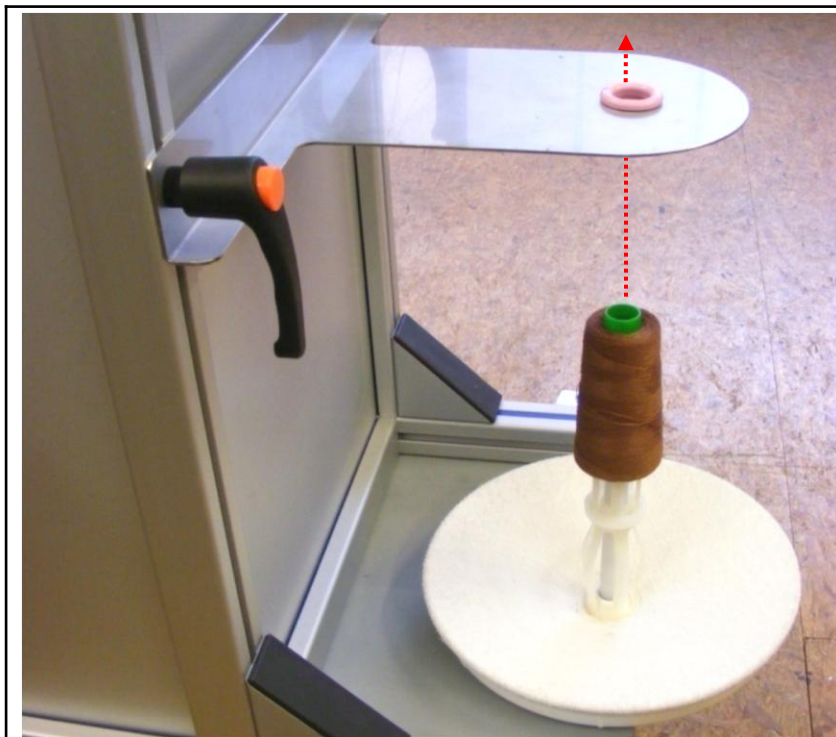
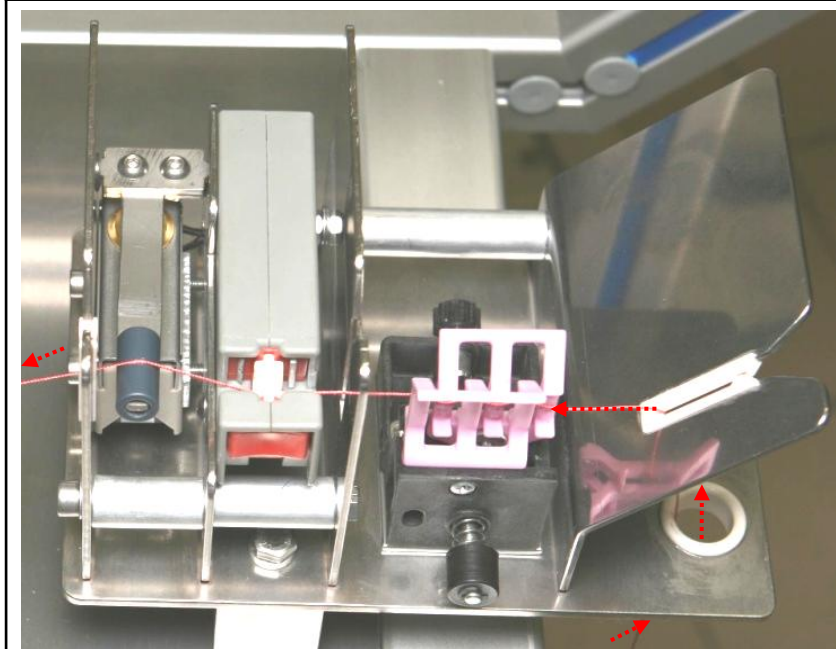The maximum charging time is approximately 7 hours.
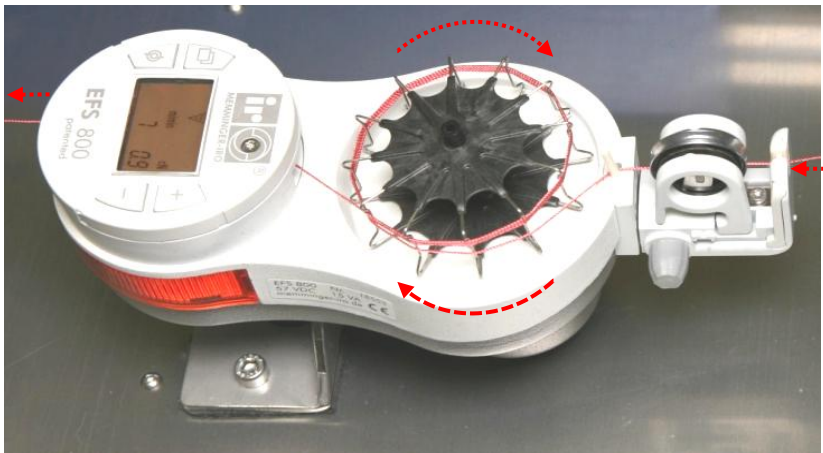
Measure instructions:
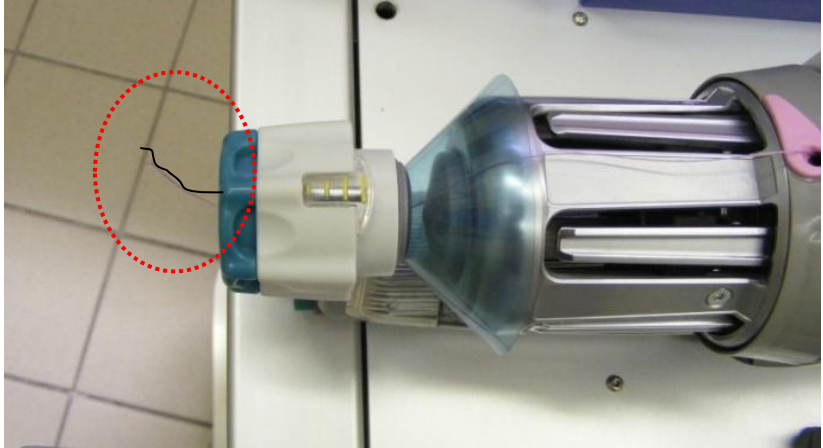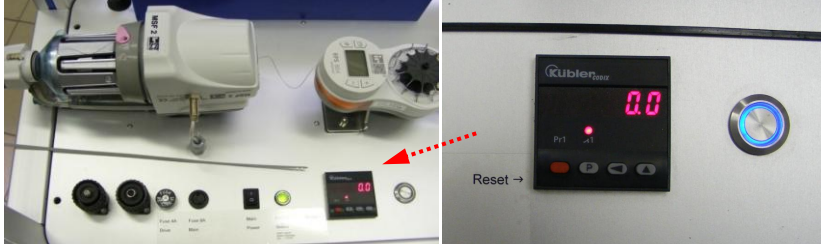
1. Measuring of the length of yarn on a cone

This method provides correct yardage of a cone.

Put the yarn cone on the bobbin/ cone plate or directly on the bobbin/cone holder, depending on size of a cone.
Now pull the yarn through the balloon plate ceramic.

Thread the yarn carefully and slowly through the yarn filter. Take care, that the yarn goes through each ceramic and doesn't lay on it.

	Pull the yarn through the EFS, see instructions page 32
	Thread the yarn through the MSF, using enclosed threading needle, see instructions page 27
	Pull out just a few centimeter of the yarn
	Reset the meter counter to „0" by pressing the red button on this counter or use "Reset" on the display of the tablet-PC.
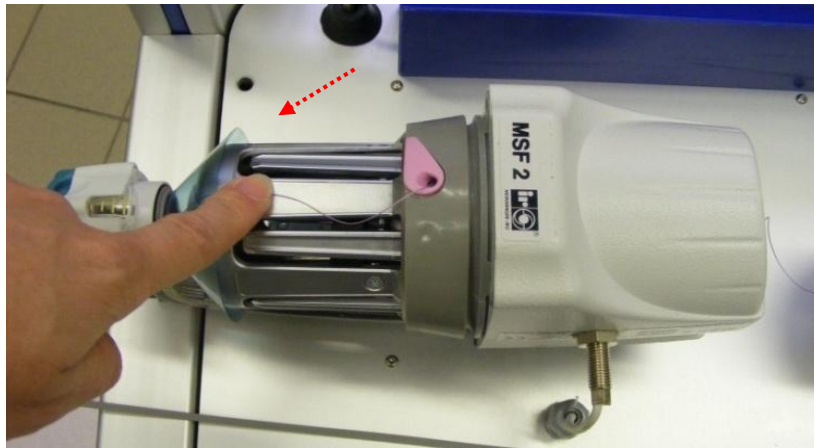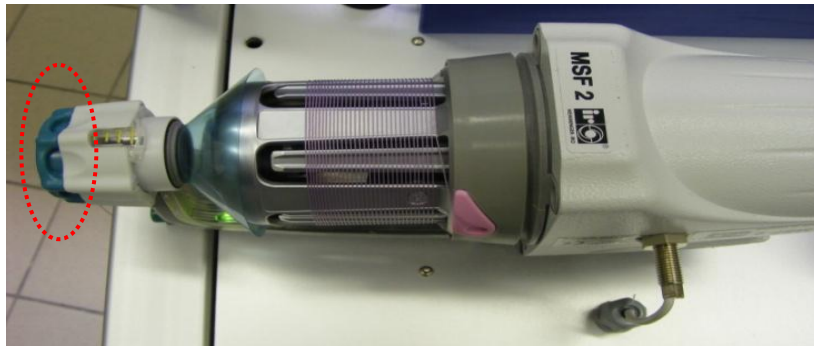
|	
	Hold the yarn on winding reel, see instructions page 27.
	Hold the yarn on outlet eyelet before pressing the drive button.
	ATTENTION: **The measuring of the yarn length starts as soon as you press the drive-button**
	First 20 cm of the yarn will not be measured (see Description on the page 26) and could be added afterwards to the measured value of the yarn length.

Now feed the yarn to winding machine under the preset tension, that can be regulated with a tension selector knob of the MSF.
This tension doesn't influence the length measuring on theYLM-M.

Meanwhile the measuring is running

If the cone with yarn is nearly empty, stop the winding machine and wind carefully and slowly remaining yarn from the cone by stop-and-go pressing of the Start button of the winding machine. In such a way you avoid measuring faults due to overfeeding of the MSF.
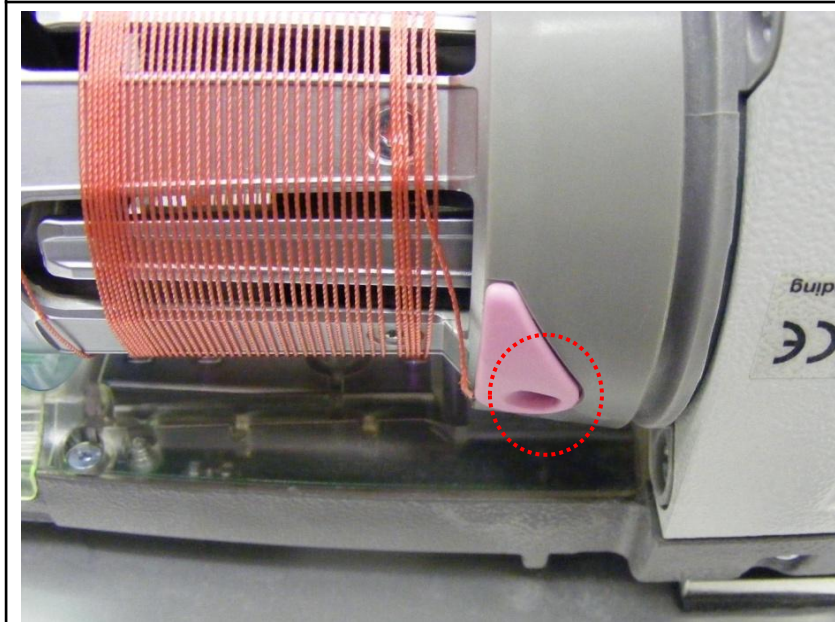
The measuring process stops as soon as the yarn comes out of the ceramic of the MSF.
Attention:
If necessary, wind the last few meters by hand. **But, please, press the drive-button before in order to stop the device and to prevent an injury.**
The measuring is still in process.
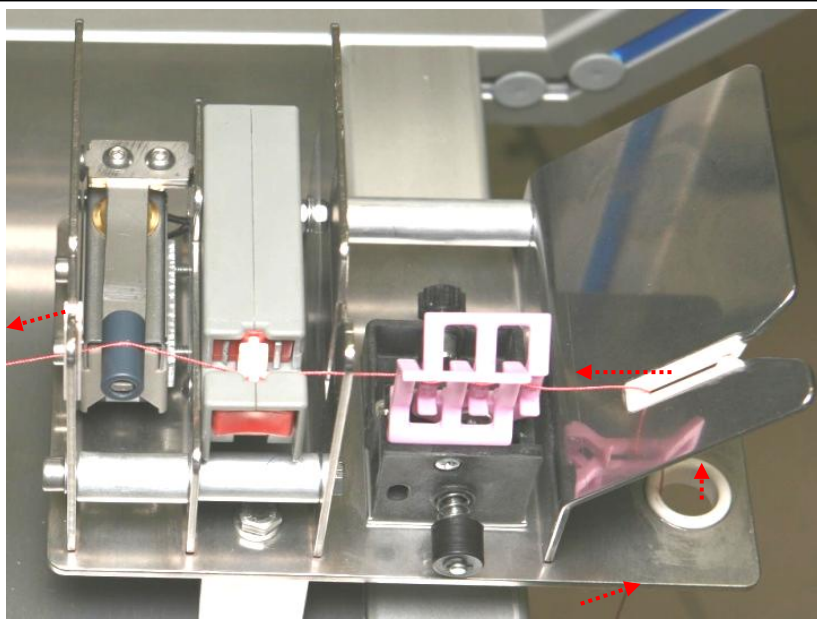
Measure instructions:

2. Calibration of a winding machine

The length measuring for calibrating of a winding machine starts and ends at the plastic tube on the winding machine.
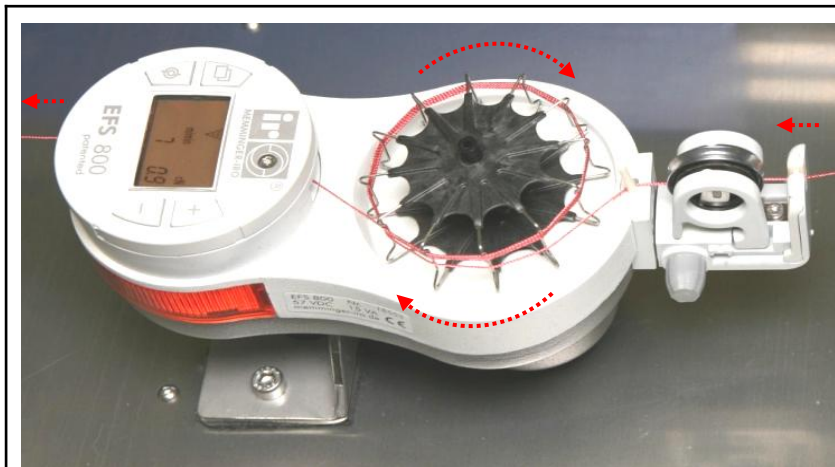

Put the bobbin on the bobbin/ cone plate.

Now feed the yarn through the balloon plate ceramic.

Thread the yarn carefully and slowly through the yarn filter. Take care, that the yarn goes through each ceramic and doesn't lay on it.
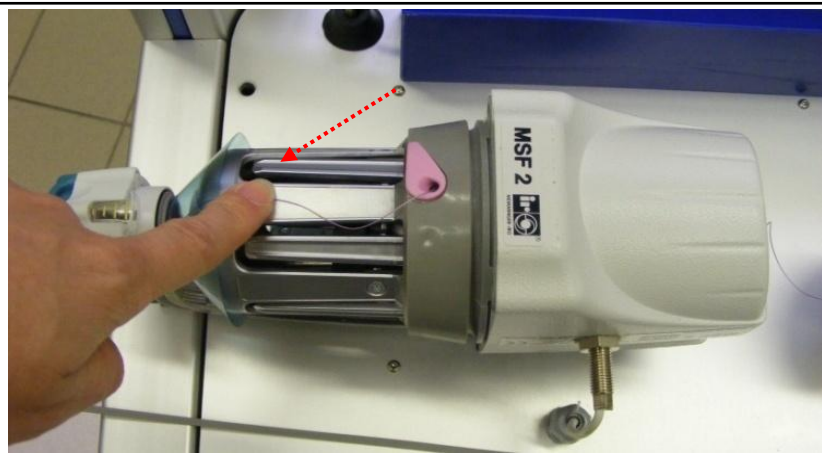
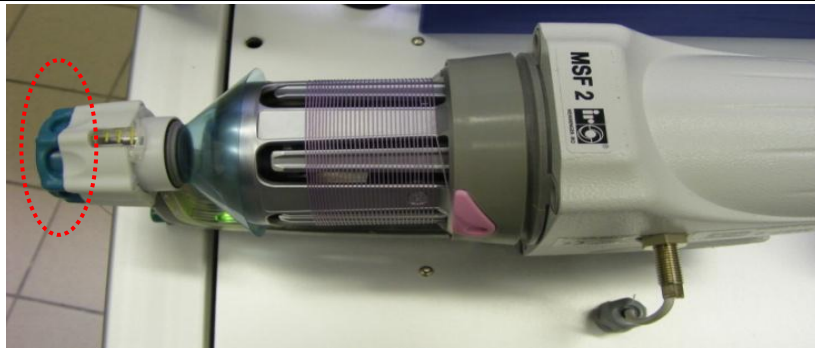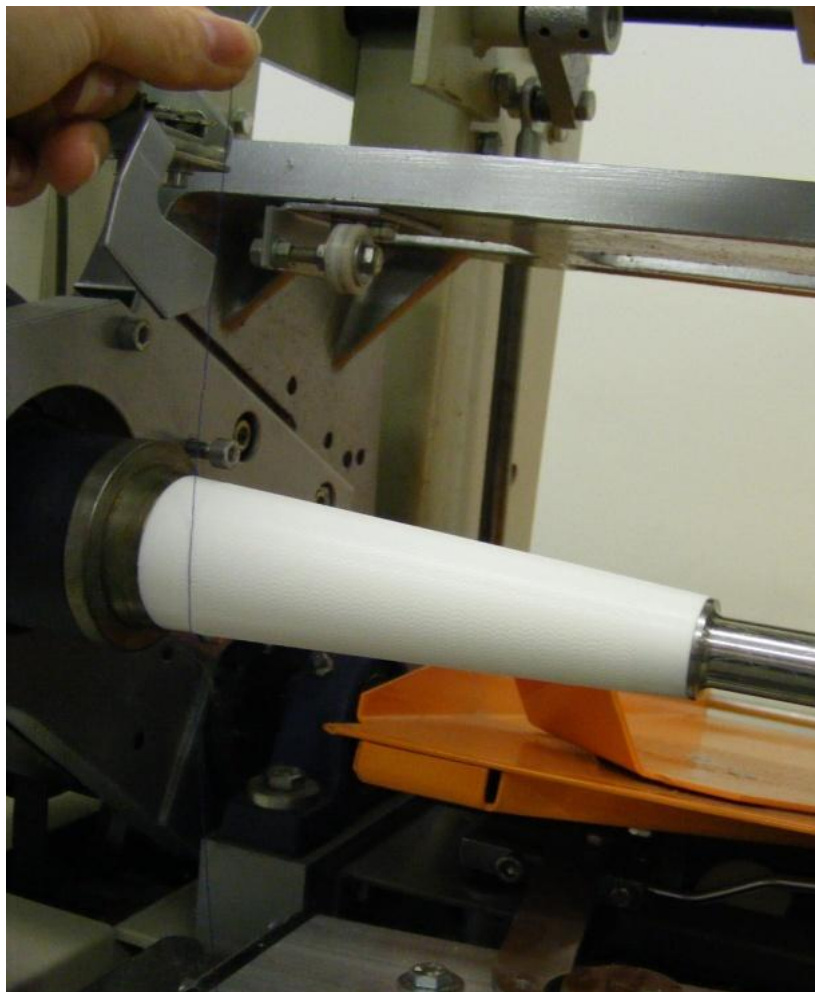|	
	Pull the yarn through the EFS, see instructions page 32
	Thread the yarn through the MSF, using enclosed threading needle, see instructions page 27
	Pull out just a few centimeter of the yarn
	Hold the yarn on winding reel, see instructions page 27.

|	
	Hold the yarn on outlet eyelet before pressing the drive button.
	Press the drive-button
	Now feed the yarn through the winding machine on to the plastic tube. The yarn can be fed through a lubrication system on the winding machine, too. If necessary, reduce the yarn tension by pressing the tension selector knob on the MSF
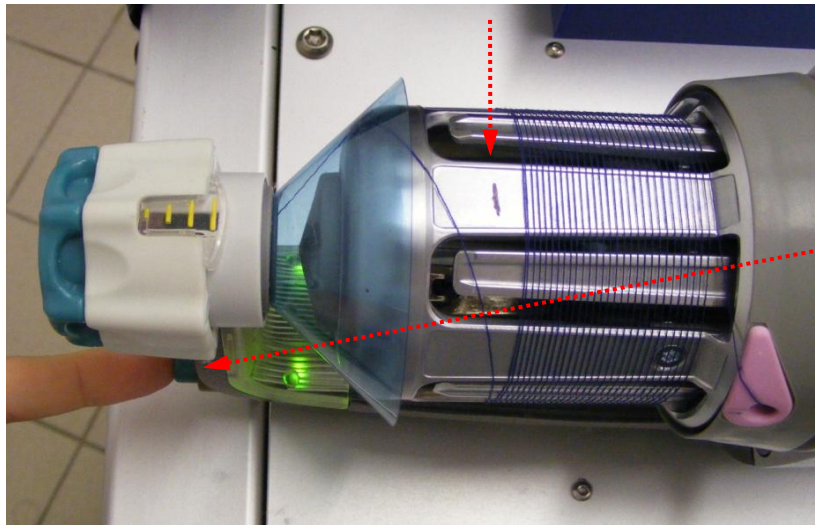
Now press the button at the MSF for fill the winding reel with the yarn until the marking is reached

Reset the meter counter to „0" by pressing the red button on this counter or use "Reset" on the display of the tablet-PC.

ATTENTION:
The length measuring has just started
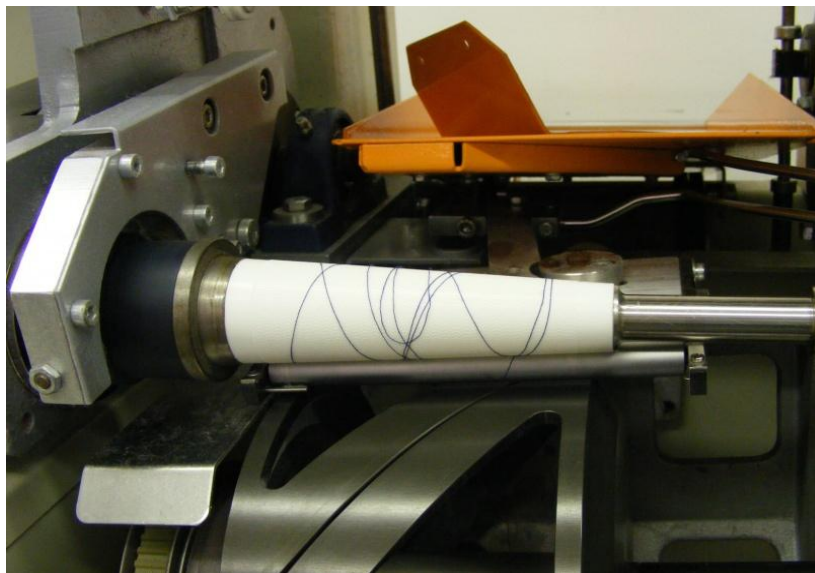
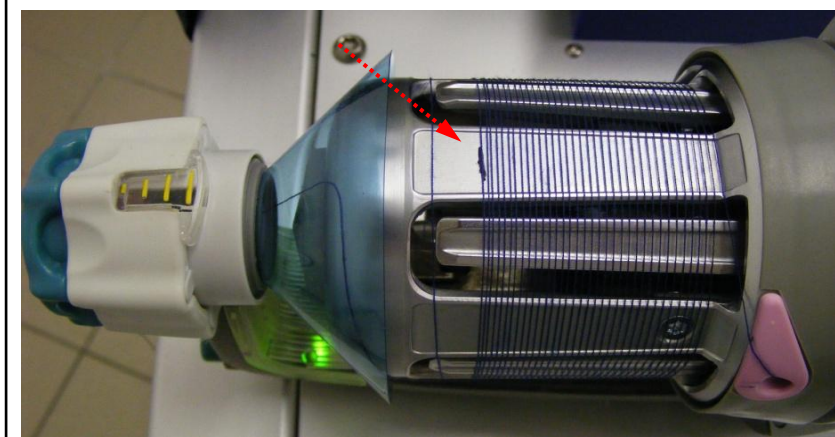Wind the yarn around the plastic tube on the winding machine

	Switch on the winding machine
	If the meter counter of the winding machine stops, than....
	... check, whether the winding reel of the MSF is filled with the yarn up to the marking. If needed press its on/off-button in order that the yarn layers reach this marking
	The value on the meter counter of the YLM-M is the exact winded yarn length on the plastic tube with the yarn on the winding machine. With this information you can calibrate your winding machine.

Check of the YLM-M

Use the enclosed reference cone with 1000,0 m of the yarn (see page 11ff).
The Kübler Codix's meter counter has to show 1000,0 m after measuring.
Tolerance of ± 0,9 m is possible.
Preset on EFS: working yarn tension: 20cN
                                                             reduced yarn tension: 5cN

Calculation of the working yarn tension for preset on EFS
(Extract from DIN EN ISO 2060)

A preset of 0,5 cN ± 0,1 cN / tex on EFS is valid.

I f yarn titer / yarn count (tex) is not known, please use the following formula:

$$Tt_c = \frac{m_c * 1000}{L}$$

Tt_c	yarn titer, in tex
m_c *	weight of yarn sample / test string
L	length of yarn sample / test string

Additional conversion factors, if other yarn counts are specified

Yarn count in tex * 9,0	yarn count Denier
1000,0 / Tex-unit	metric count (meter per gram)
496055,0 / Tex-unit	Yard per Pound
310,0 / Tex-unit	american wool string number (100yd runs)
1938,0 / Tex-unit	wool count (Yorkshire-Strings (256 yd hanks))
590,5 / Tex-unit	english cotton-number (840 yd hanks)
885,8 / Tex-unit	english worsted count (560 yd hanks)
1654 Tex-unit	linen number (300 yd leas)
1654 Tex-unit	wool number (300 yd cuts/lb)
4961 Tex-unit	american rockwood number (100 yd hanks)

Sample calculation for working yarn tension:

Nm 32   ->   31,25 tex   ->   preset on EFS: 16cN

Nm 32/2 -> 62,5 tex   ->   preset on EFS: 31cN

Measuring tolerance:

The measuring tolerance is lower than $\pm$ 50 cm $\pm$ 0,1% of the yarn-measuring length at norm climate with a pes/pes 28/2, dyed.

With other yarns a similar tolerance can be considered.

Possible measuring faults:

- Changeable surrounding temperature
- MSF is skipping. Measuring fault: undefined values, measuring is invalid
- Overfeeding of the MSF. Measuring undefined
- Missing pulses from sensor, for example at damage
- Excessive speed, the MSF is running out of yarn

Miscellaneous:

Every thread should be measured just once, because of stretching during winding. It shows at next measuring more length.

Tablet-PC, program and data transfer

NOTE:
Please read first the enclosed fast-start-guidance of the tablet-PC.

If you get the tablet-PC from us, it is complete configured for your use; you just have to start it. But first start the YLM-M on main switch and connect the USB-cable to the tablet-PC.
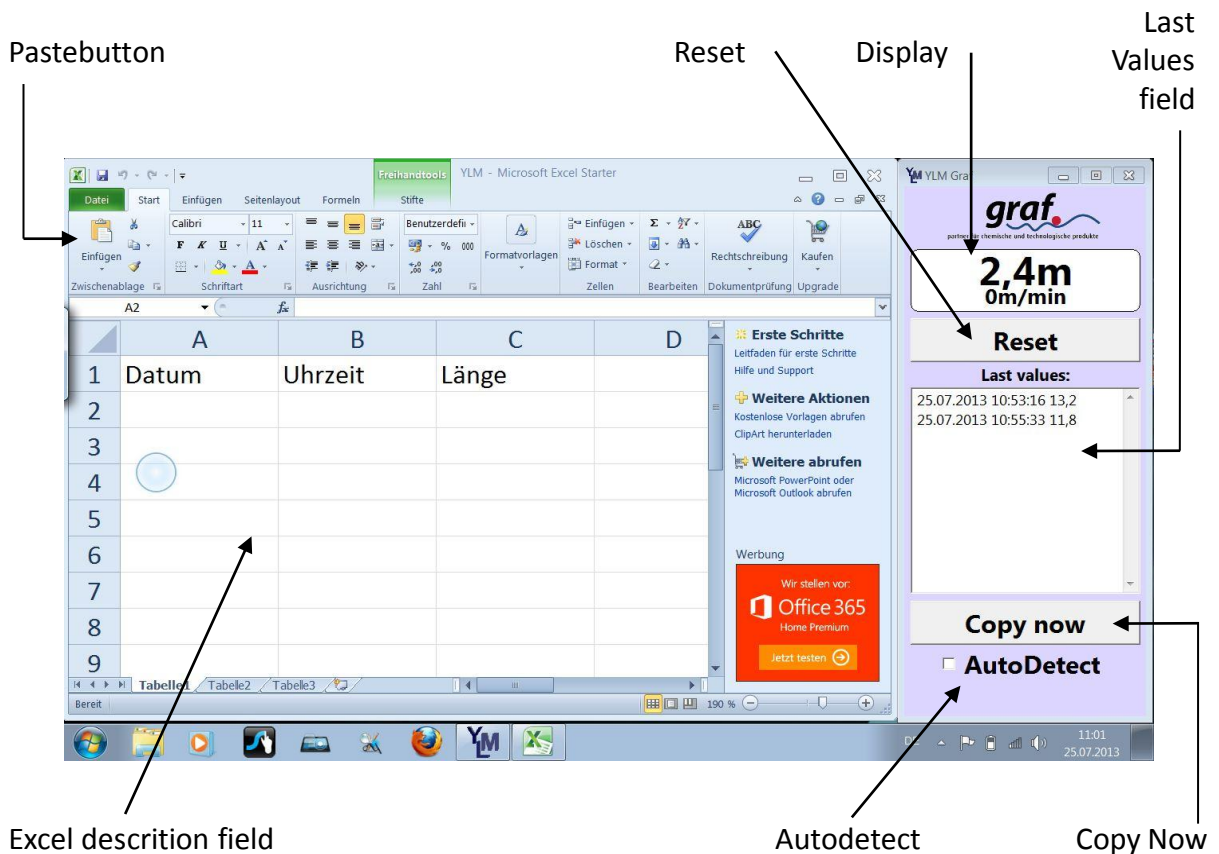
By starting of the tablet-PC the both programs, that necessary for measuring and data evaluation, are starting automatically.
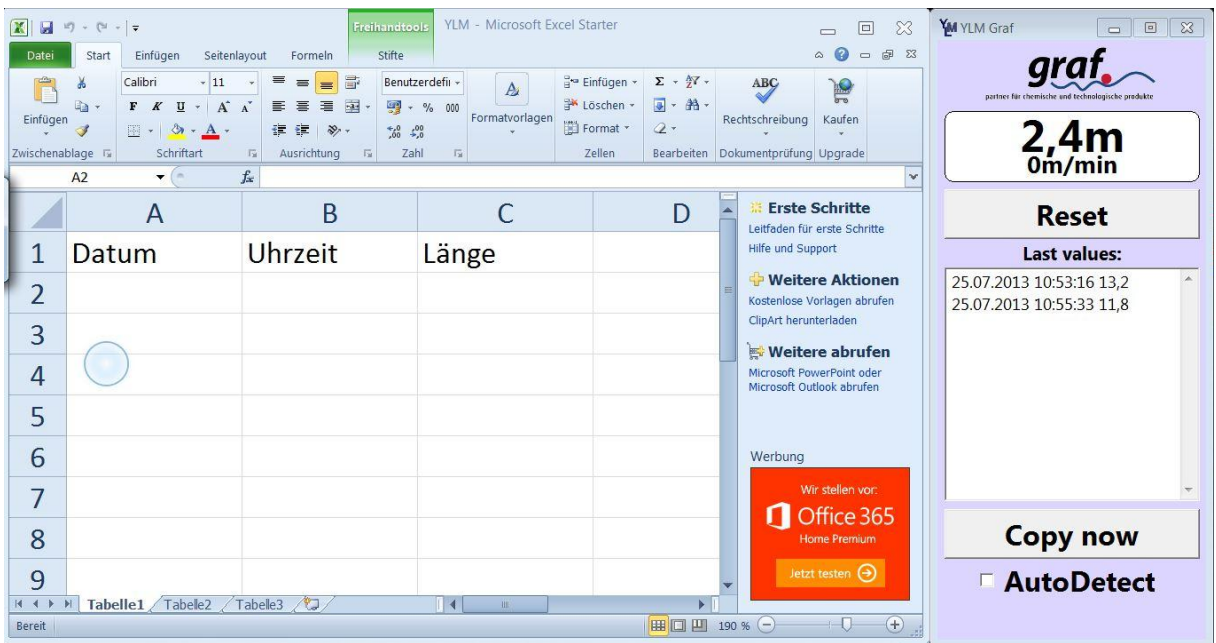
If not, you will find them on the desktop:
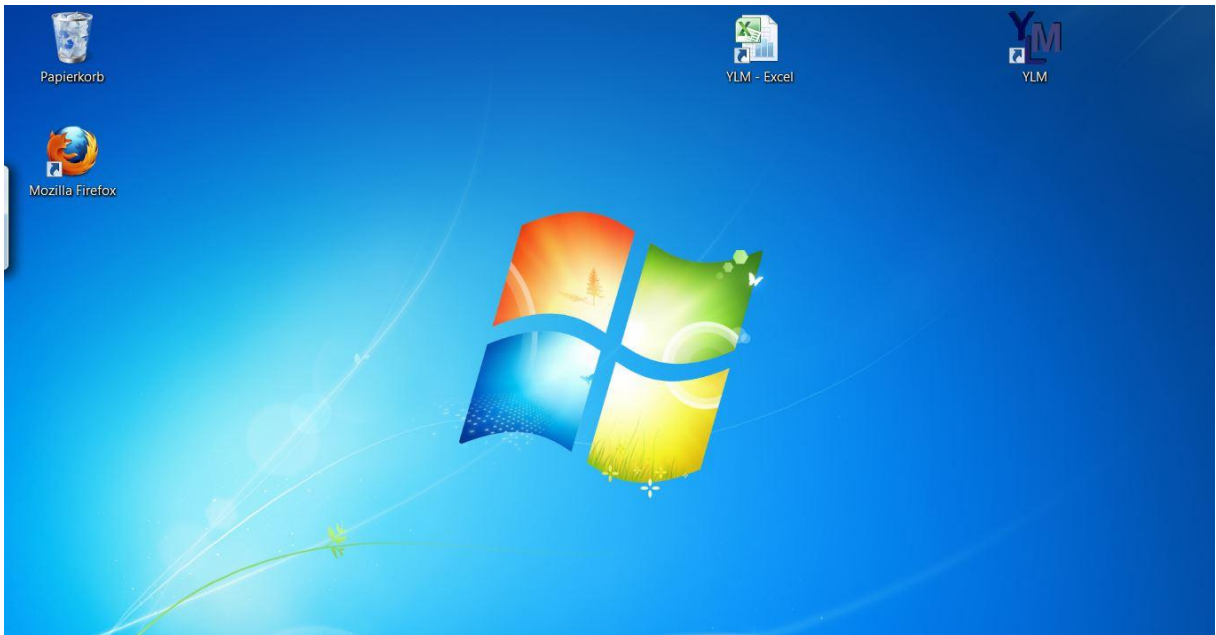
Description of programs:

Pastebutton   Reset   Display   Last Values field

Excel descrition field   Autodetect   Copy Now

With the program start the Kübler Codix's meter counter sends its value promptly to t the display on the right side.

With command „Copy now", the display value is copied in the „last values"- field in the program and also in Windows clipboard. After that, it can be filled in the excel description field by using the paste-button.
With that you transfer date, time and yarn length in side-by-side fields. Before doing that, tip on the field in which the first value should filled in (below "Datum")

The Reset-Button in the program is the same as the Reset-button on the meter-counter Kübler Codix. You can reset the measuring value at both to "0".

The „last values"-field is a description field. The content of the field can be changed or erased by keyboard. It works similar to simple text editors like notepad.

All data of the „last values"-field are stored internal and are available again at the restart of program or tablet-PC, unless they are erased before restart.

Auto detect - function:

This function copies automatically the current measuring value (from minimum length 10m) at a stop of yarn in the "last values"-field and resets the counter value to "0". If the yarn runs again, the measuring starts new. You just have to copy the received values in the excel description field.

One possible use is the finish winding of a 10.000m-bobbin to 10 pieces of 1.000m-cones. If there is no yarn break, you will get automatically 10 values without any further operating. So you get the 10 Values of the 10 cones.

Possible error messages:

1. Device not found / searching for YLM-device -> USB not connected
2. Device switched off -> meter counter is switched off

If the YLM-M is started at the main switch and the USB-cable is connected to the tablet-PC before starting the tablet-PC, you won't get any error messages.
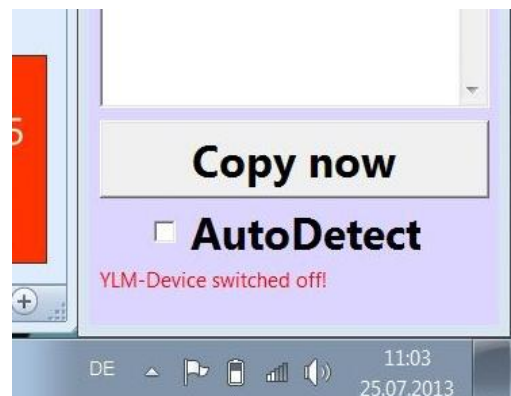
Nevertheless, if you get any error messages, please restart first the tablet-PC and disconnect and reconnect the USB-cable. If necessary please contact us: service@graf-chemie.com

Fournisseur MSF
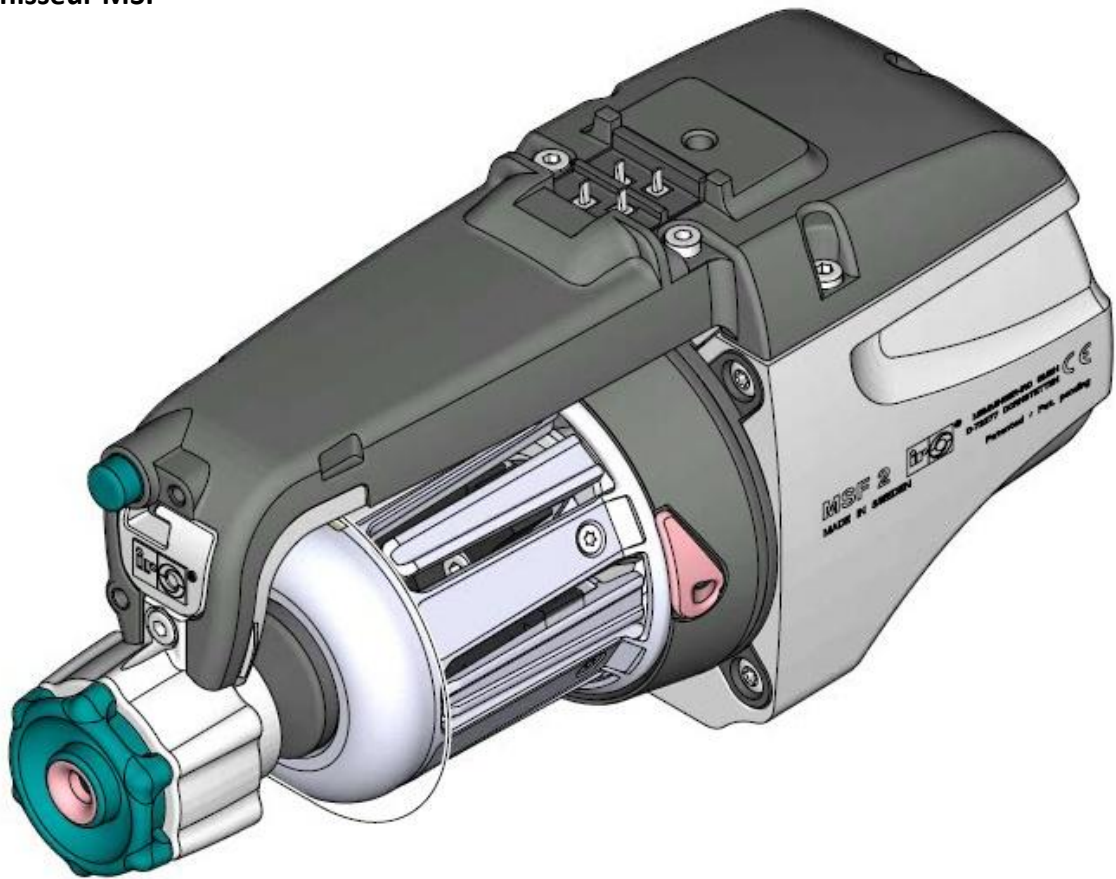
Function:

The reeling device within the winding reel transports and separates the yarn windings making it possible to process even the most difficult yarns.

The conical magnetic tensioner ensures a constant yarn tension at the output.

The high-performance, brushless DC motor is microprocessor controlled. Sensors on the winding reel monitor and calculate the average yarn usage rate and adjust the motor speed to the yarn usage accordingly.

An additional sensor is measuring the rotations and sends these data to the counter, which is changing into running meter, shown on its display.

Unit components:

1 - Outlet eyelet
2 - Tension selector knob
3 - Tensioner
4 - Cover
5 - ON/OFF button
6 - Light cover lens
7 - Sensors
8 - Reflector
9 - Ceramic eyelet
10 - Contact pins
11 - Inlet eyelet
12 - Winding plate
13 - Winding reel
14 - Tension cone
15 - Yarn tension scale
16 - Threading needle
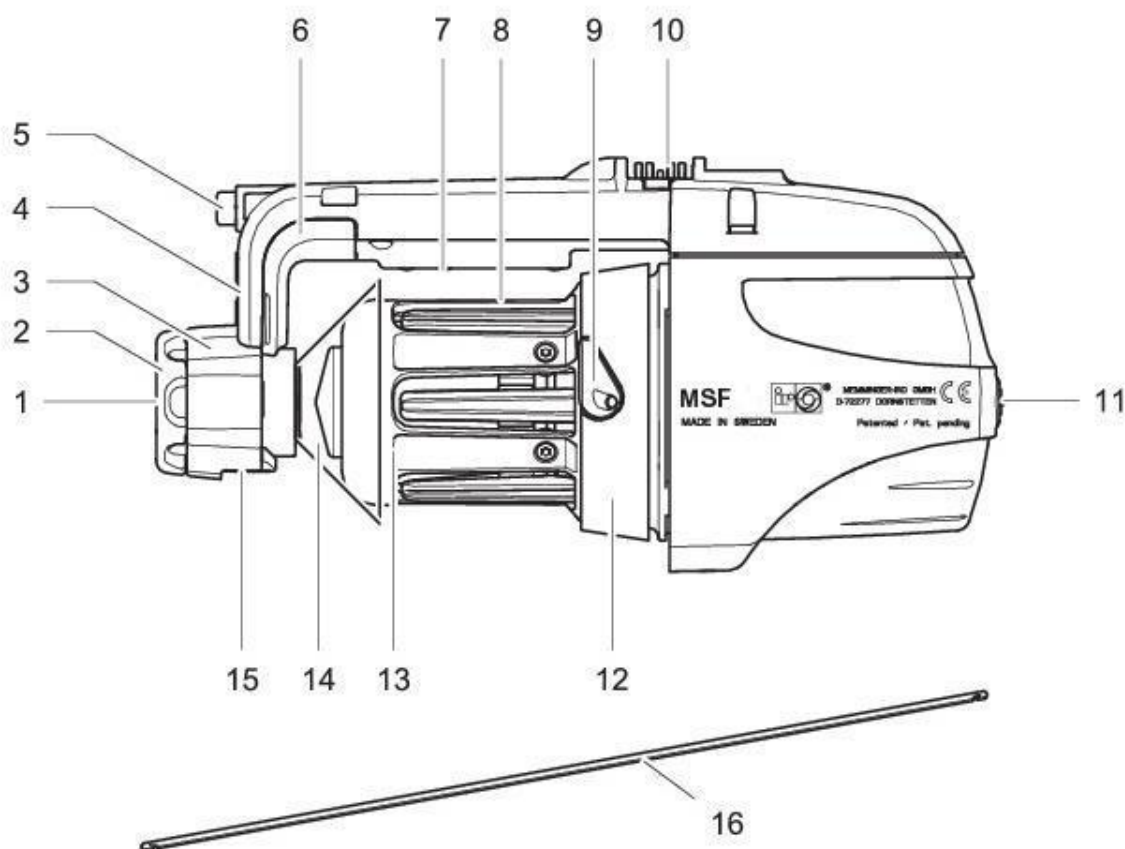
Thread insertion:

Switching on
- Press the ON/OFF button (3) once.
- The unit will check if there are enough yarn windings on the winding reel. If there are not enough, the missing windings will be wound onto the winding reel automatically. The red LED (1) lights up during this function.
- When the unit is ready for operation, the green LED (2) lights up.
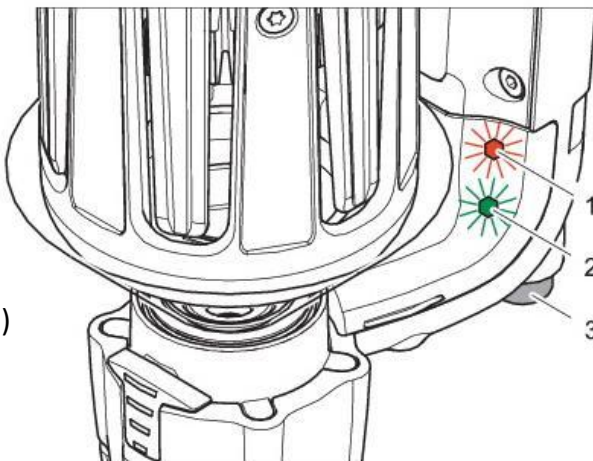
Switching off
Press and hold down the ON/OFF button for at least two seconds. The green LED will switch off.

Threading
- Insert the threading needle (5) through the ceramic eyelet (8) on the winding plate (7) until the threading needle comes out through the inlet eyelet (6).
- Pull the yarn (4) through the unit using the threading needle.
- Push the threading needle from below through the tensioner (11) until you can see the threading needle between the winding reel (9) and the tension cone (10).
- Pull the yarn (4) through the unit using the threading needle.
- Press the ON/OFF button (3).
- The unit will automatically wind the yarn onto the winding reel.
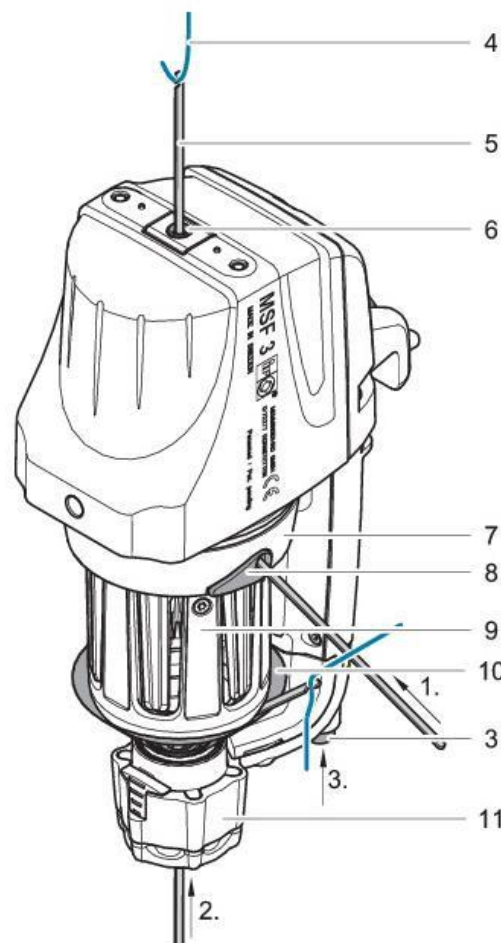
Note!
At low yarn tensions it is possible that no yarn will be fed out.
Move the stationary piece of yarn away from the winding reel as shown.
The unit will then wind the yarn onto the winding reel.
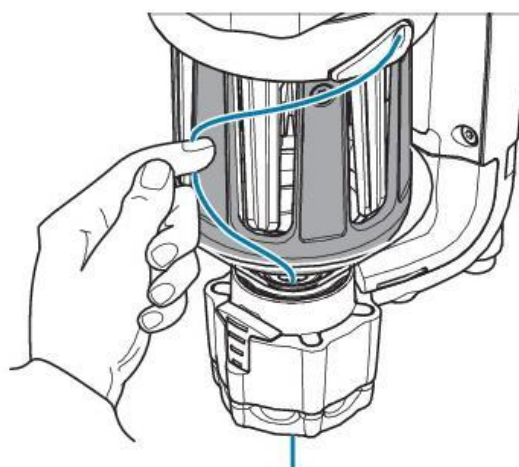
Servicing:

Changing the magnetic tensioner
- You can remove the tension cone for cleaning. Pull the knob (1).
- Remove the tension cone (3) from the tensioner (2).
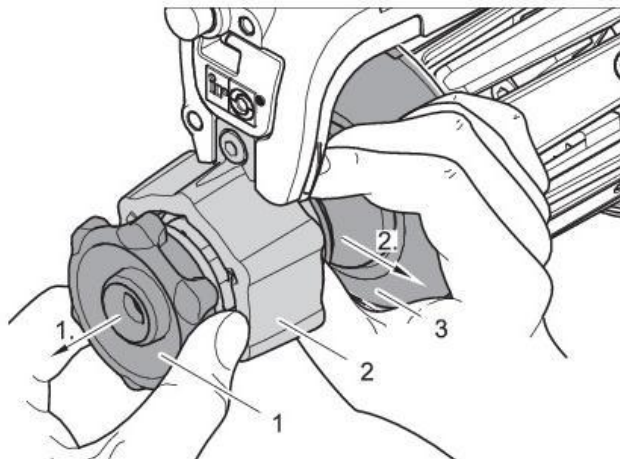
Cleaning the yarn sensors
- Only use the sensor cleaner 09-270-001 or the optional cleaning brush 000-680-098 to clean the yarn sensors.
- Switch off the unit (4).
- Push the sensor cleaner (6) or the cleaning brush (9) between the winding reel (5) and the yarn sensors (7).
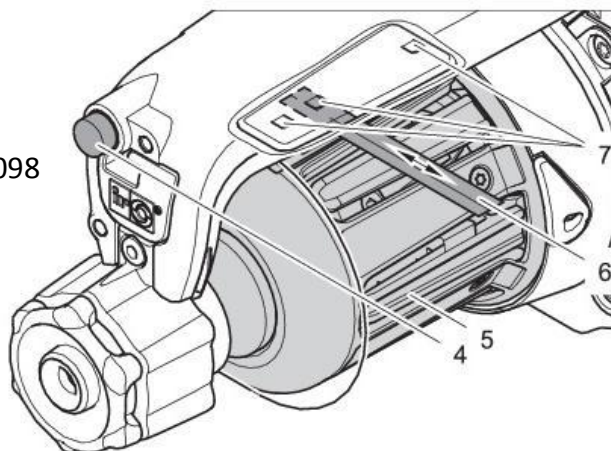
- Using the cleaning brush (8), clean the outlet eyelet (9).
- Switch on the unit.
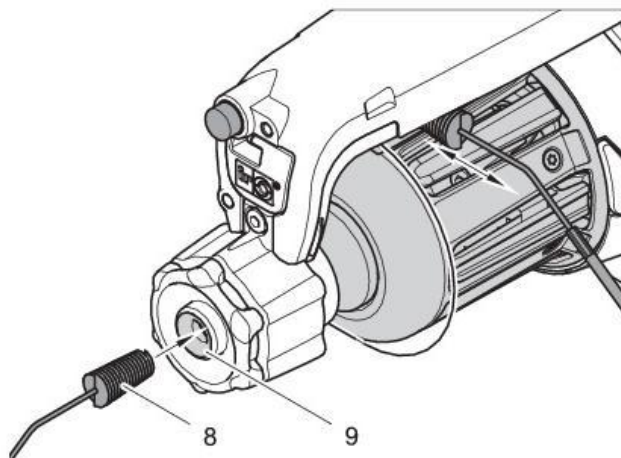
Note!
Do not use chemical cleaners for cleaning the yarn sensors.

Cleaning the remaining parts of the unit
- Switch off the unit.
- Blow off any fibre dust or dirt with compressed air.
- Wash off the paraffin wax and other deposits with spirits or with iso-propanol.
- Switch on the unit.
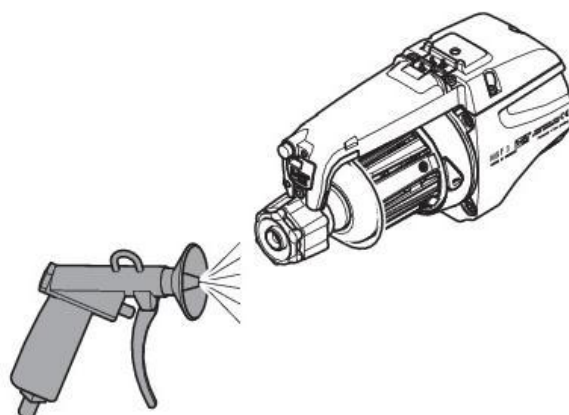
Adjusting the yarn tension at the outlet

- The yarn tension must be adjusted to match the yarn type and hardness.
- Turn the knob (4) on the tensioner (3).
- The pressure exerted by the tension cone (2) on the winding reel (1) increases or decreases depending on the direction in which the knob is rotated.
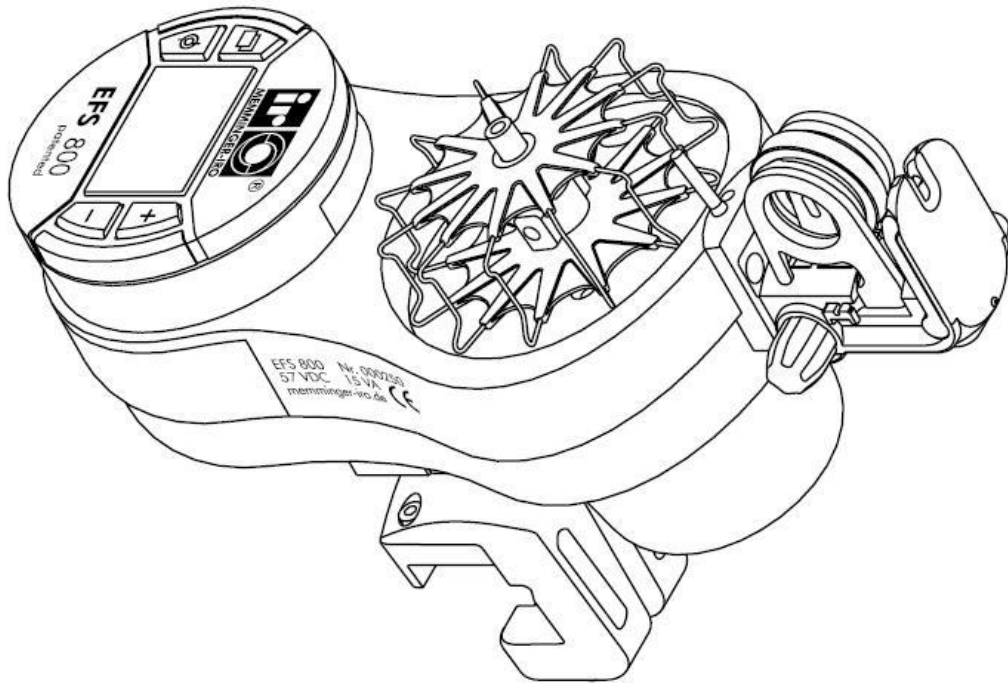
Note!
To ensure a uniform yarn tension, make sure that the knob engages fully with the tensioner.
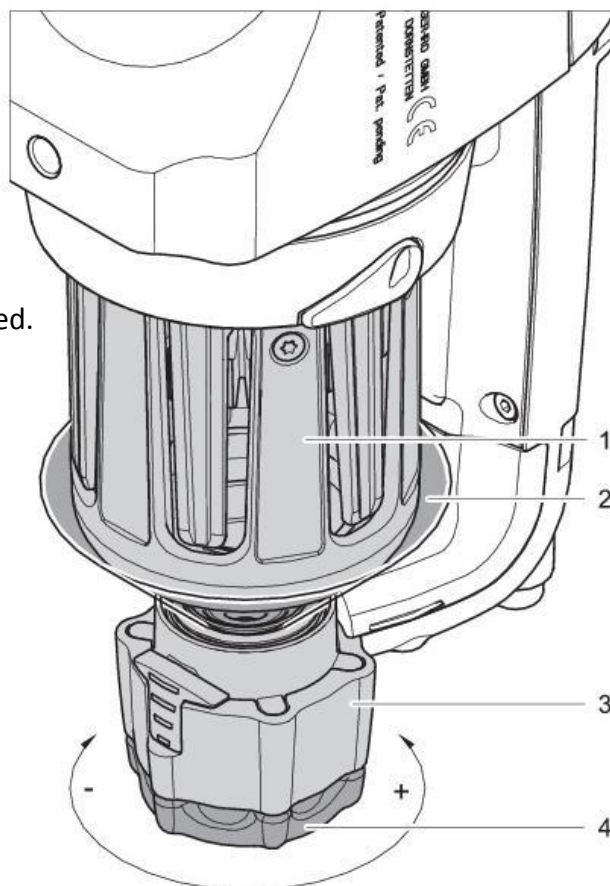
Technical Data

Power supply:	57 V DC
Average current:	0.44 A
Max. power:	85 VA (at a yarn speed of 1100 m/min)
Average power:	25 VA
Max. yarn speed:	1100 m/min
Yarn gauge range:	17 - 500 dtex
Ambient temperature for operation and storage:	+5 °C to +45 °C
Weight:	1.9 kg

Yarn brake EFS

Function:

The yarn is reeled off the feed wheel and fed to the machine via a sensor, which measures the yarn speed. This measurement is used to control the feed speed. The yarn tension can be set using keys on the device and read on the display. The yarn speed is also displayed. In the Automatic mode the EFS automatically switches from reduced yarn tension to working yarn tension, if the yarn is running. The reducing yarn tension has to set up 0,1 cN less than the working yarn tension.

Unit components

1 - Pushbutton
2 - Double magnetic tensioner
3 - Tensioner adjustment knob
4 - Ceramic pin
5 - Fibre optic connection
6 - Yarn wheel
7 - Unit holder
8 - Display
9 - Yarn lifter
10 - Sensor
11 - Light cover lens
12 - Outlet eyelet
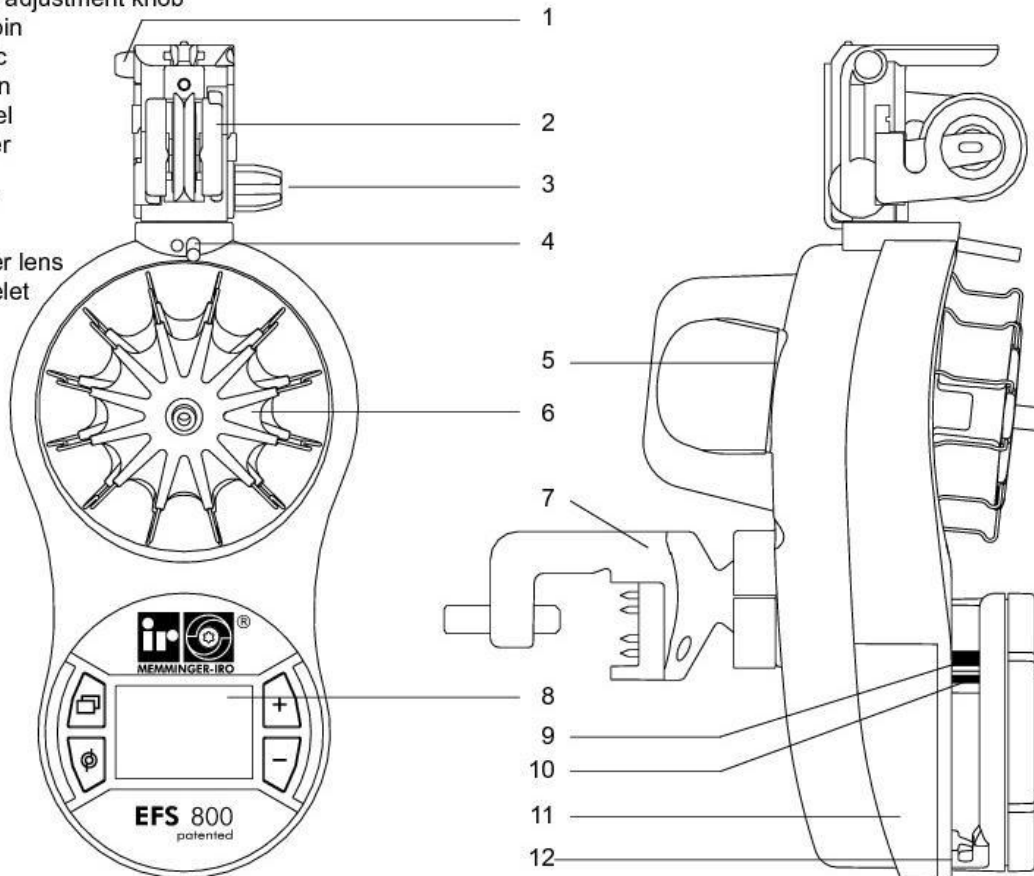
Display

▼ Working yarn tension

▽ Reduced yarn tension

⇢ Set up

✳ Yarn break

(!) Stop

Mode Mode

Value Value

m/min Yarn speed

cN Yarn tension

Keys

⧉ Menu

φ Wind / Exit

➕ Plus

➖ Minus
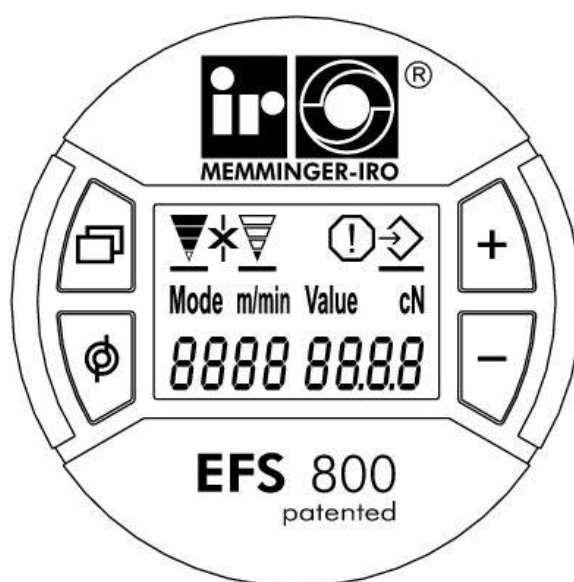
Turning the EFS on and off

- Press the ⊐ key (1), to turn on the EFS. The yarn tension, which has been set, is displayed.
- Press and hold the ⊐ key (1) for 2 seconds long, to turn off the EFS.

CAUTION!
**The fibre wheel of the EFS reaches a speed of up to 10,000 rpm.
For your own protection, please wear protective goggles, as parts can be thrown off due to the high speed of the wheel.
Please maintain a safe distance from the EFS, as otherwise hair, ties and the like can be caught up and drawn in by the rapidly rotating wheel.**
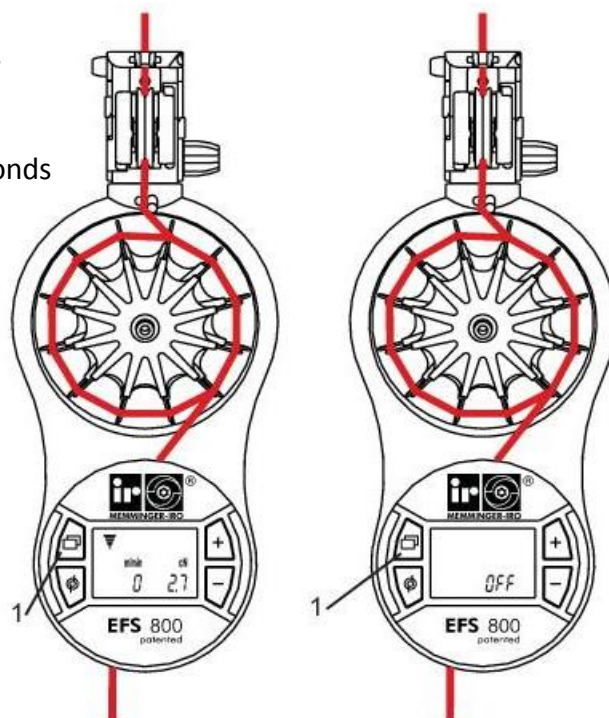

Threading

- Press the pushbutton (2) on the double magnetic tensioner (3) and position the yarn (5) between the tensioner pads (4) from the front. Release the pushbutton (2).
- Position the yarn on the left of the hub (7) over the display (8) on the EFS 800 and hold the yarn taut. Press the φ key (9) briefly, the yarn will be wound round the yarn wheel (6) 8 times clockwise. The drive motor of the yarn wheel is then automatically switched off.
- Position the yarn (5) above the sensor correctly into the outlet eyelet (10).
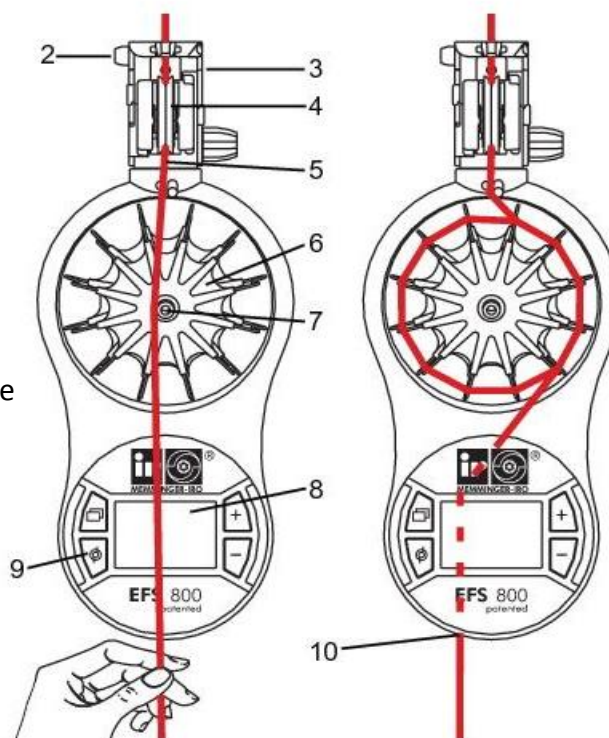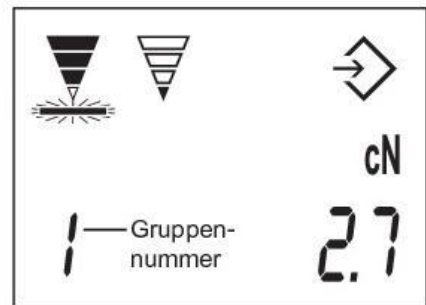
Setting the working yarn tension

- The EFS always regulates yarn tension
  to the specified value during running and
  when the machine is stopped.
  Press the ⬦ key. The group number of
  the EFS is also displayed at the bottom left.
- Press the **+** or – key, until the line under
  the symbol ☰ flashes.
- Confirm the symbol ☰ with the 🗗 key.
- Set the working yarn tension using the **+** or – key.
- Press the ⌀ key twice to confirm the
  working yarn tension.

Note!
Press and hold the **+** or –key to increase
the speed of yarn tension adjustment.
If no key is pressed within 10 seconds,
the current operating mode appears
automatically on the display.

Setting the reduced yarn tension

The yarn tension is reduced when
the yarn is stationary.
Press the 🗗 key.
Press the **+** or – key, until the line under
the symbol ☰ flashes. Confirm the symbol ☰
with the 🗗 key.
Set the reduced yarn tension using the **+** or – key.
Press the ⌀ key twice to confirm
the reduced yarn tension.
Caution!
**In this mode, a yarn break is only recognised
if Setup Menu Mode 5 is set to Value 1.**
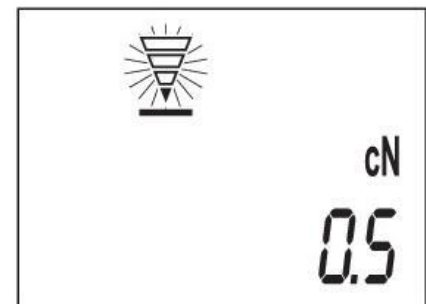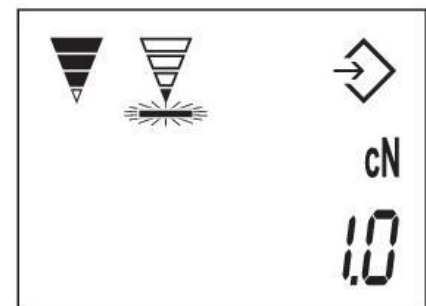
Setup menu

The EFS can be adjusted for different applications using the setup menu (see Adjustable parameters in setup menu).

- Press the ⧉ key.
- Press the **+** or **–** key, until the line under the symbol ⇗ flashes.
- Confirm the symbol ⇗ with the ⧉ key.
- Select the mode using the **+** or **–** key.
- Confirm the mode with the ⧉ key.

- Set the desired value using the **+** or **–** key.
- Confirm by pressing the ⌀ key in the setup menu three times.
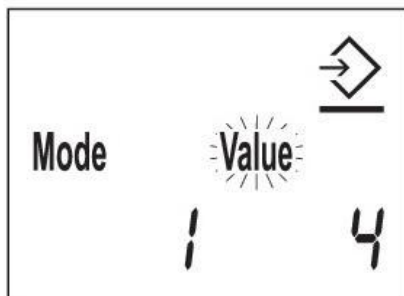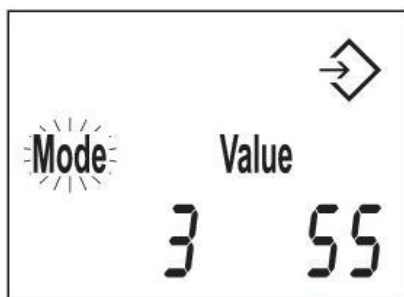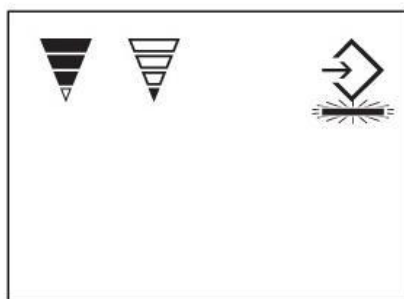
Adjustable parameters in the setup menu

Mode	Description	Range	Initual value	Description of function
0	Yarn hardness category	1,2,3,4,5 0 = auto	0	Regulator setting for soft to hard yarns 1,2 = elastic yarns 3,4 = hard yarns 5 = Aramid-, Glasfiber
1	Group number	0 – 100	0	Setting the device address 0 = no group, ignores signals, only fault elimination
2	Over feed function	0 - 24	0	Over-run delivery quantity, one fibre whell rotation equals four units
3	Over feed delay	0 – 2000 ms	100	Time delay specified for over feed
4	Over feed yarn speed	50 – 1500 m/min	167	In m/min
5	Yarn break monitoring during reduced tension operation	0 – 1	0	0 = OFF 1 = ON
6	Soppage delay	0 – 20 sec	0	
7	INC/DEC step	0,1 – 30,0 cN	0,1	Only with Mastermode 3

Stoppage for yarn break

If there is a yarn break, the ⚹ symbol is shown.

Yarn break is displayed if:
- Yarn tension < 0,3 cN
- An error is observed from the feed monitoring (INC, DEC activation).
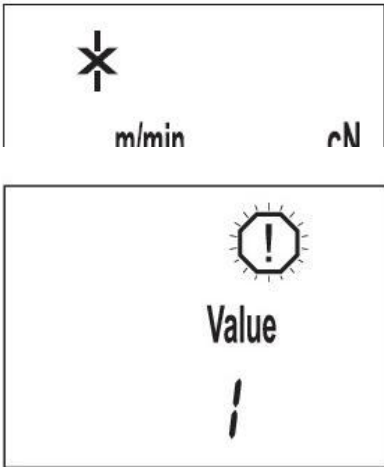
Other reasons for a stoppage

When where is a stoppage, an error message is shown on the display and the ⊘ symbol flashes.

Error messages	Meaning
1	yarn tension sensor overload, excessive yarn tension
2	Motor stalled
3	Excessive temperature in the EFS
4	Calibration error in the sensor
5	Supply voltage < 28 V
7	Motor fault
8	Calibration error

NOTE!

When there is a stoppage of the yarn, the error message must be confirmed with the ⧉ , **+** or **–** key.

If the yarn wheel is empty, the stoppage is confirmed by pressing the ⏀ key, and the yarn is immediately wound onto the yarn wheel.

Technical Data

Power:	35 VA
Supply voltage:	57 V DC
Max. current:	3 A
Max. yarn speed:	1,500 m/min.
Yarn tension range:	0.5 cN to 40 cN
Weight:	0.6 kg
Ambient temperature:	+10 °C to +45 °C
Storage temperature:	+0 °C to +70 °C

Troubleshooting:

Fault / Message during operating cycle	Possible cause	Solution
⊕ Value 1	Yarn tension sensor overload, excessive yarn tension	Remove the blockage from the yarn path Re-thread the EFS
⊕ Value 2 , 7	Motor stalled	Remove the blockage from the yarn path Clean the EFS
⊕ Value 3	Excessive temperature in the EFS	Check the setting for yarn hardness, it might be set as too soft. Clean the EFS. Allow the EFS to cool down.
⊕ Value 4	Calibration error in the sensor	Switch the EFS off and on. Clean the EFS
⊕ Value 5	Supply voltage < 28V	Load battery of YLM-M Contact us YLM-M - fault
⊕ Value 8	Build up of filaments Position changes during operation Calibration error, yarn filter jammed	Clean the EFS Switch the EFS off and on Contact us, maybe the EFS has to be changed
The symbol ⋇ is shown in the display	Feed monitoring shows yarn break	Thread the EFS Check if the yarnbecomes entangled on the EFS at working yarn tension
The EFS cannot be switched on	The contact to the power supply is interrupted The EFS is defected	Check the fuses on YLM-M Switch of the power supply of YLM-M, open the chassis and check the cables connected to EFS. The EFS has to be exchanged
The yarn wheel is turning with difficulty	Pieces of yarn have worked their way behind the yarn wheel	Remove the pieces of yarn behind the yarn wheel (see chapter on serving, changing the yarn wheel)

Meter counter Kübler Codix 716

With the engaging of the yarn length measuring system YLM-M also the counter is switched on. The last shown value is conserved in the intern memory and is shown again.

Push buttons:
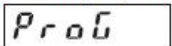
The red push button is the reset-key.
The "P"-push button and the both "arrow"-push buttons – look at setting of operating parameters

Description:

- 6-digit yardage counter with serial interface RS232 for data transmission to the Tablet-PC
- Counting range up to 99.999,9 m, 999.999 m
- Programming of the functions and the operating parameters by means of the push button. Operator guidance by the display while programming.
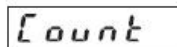
Setting of the operating parameters

a.   Press push-button "P" and apply power to the device.

b.   The display shows the message:

ProG

c.   When the push-button is released, the title of the menu and the current values of its parameters are displayed in one-second periods. Press the "←" key to interrupt the scrolling and display only the current parameters.

d.   Press the "↑" key to jump to the following value of the parameter currently being set.

e.   Press the "P" key to accept the value of the parameter currently being and switch over to the following menu item.

f.   The last parameter of the setting menu, "EndPro" allows, selecting "YES", to leave the programming menu and to take over (to save) the new values. If "NO" is selected, the programming routine starts again from the beginning, keeping the last input values. They can then be checked and modified again.

g.   For the setting of the numerical values, like for instance the scale factor, see also 6. Setting of the preset.
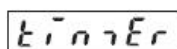
Program routine

The YLM-M needs the mode: „**Count**"
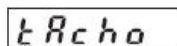
The first parameter of the menu is the selection of the operating mode.

ModE

Count	Mode pulse counter. See 5.1.

tinnEr	Mode time counter. See 5.2.

tAcho	Mode frequency meter. See 5.3.

Impulse counter – Mode „Count"

For our usage: **smode „Add" / inpol „PnP" / Filter „off"**

5.1 Pulse counter mode setting
5.1.1 Sub-operating mode

$5 \Pi \Pi o d E$

$R d d$ **Adding**
Output active at count value ≥ preset
Resetting to zero

$5 u b$ **Subtracting**
Output active at count value ≤ 0
Resetting to preset

$R d d R r$ **Adding**
Output active at count value = preset
Automatic reset to zero at count value
= preset Resetting to zero

$5 u b R r$ **Subtracting**
Output active at count value = 0
Automatic positioning to preset
Resetting to preset

5.1.2 Polarity of the inputs

$I n P o L$

$n P n$ npn: switching to 0 V

$P n P$ pnp: switching to +24 V

5.1.3 Activation of the 30 Hz filter

$F i L t E r$

$o F F$ max. counting frequency: 20 kHz

$o n$ max. counting frequency: 30 Hz

Impulse counter – Mode „Count"
For our usage: **Input „Cnt.dir" / Factor „0,9400" / dp „0,0"**

5.1.4 Input modes

| InPut |

| Cnt.dir | Counting and counting direction inputs
INP A: counting input
INP B: counting direction input

| uP dn | Differential counting input
INP A: adding counting input
INP B: subtracting counting input

| quAd | Phase discriminator
INP A: 0° counting input
INP B: 90° counting input

| quAd 2 | Phase discriminator with multiplication of the pulses by two
INP A: 0° counting input
INP B: 90° counting input
Each INP A pulse edge is considered

5.1.5 Setting of the scale factor

| FActor |

| 00.0001 |
| 99.9999 |
Scale factor setting range from 00.0001 to 99.9999. Fixed decimal point set to 4 decimal places.
A "0" setting is not accepted.

5.1.6 Decimal point setting

| dP |

The decimal point determines the number of decimal places displayed.
It is only used for displaying purposes and has no influence on the counting.

| 0 |
| 0.000 |

0	no decimal place
0.0	one decimal place
0.00	two decimal places
0.000	three decimal places

Impulse counter – Mode „Count"

For our usage: **reset „manu" / Out „__I ̄ "**

5.1.7 Resetting mode

| r E 5 E t |

| P ٦ R n E L | Manual (using the red push-button) and electrical resetting

| n o r E 5 | No resetting possible (red push-button and reset input idle)

| E L E c t r | Only electrical resetting

| P ٦ R n u | Only manual resetting

5.1.8 Shape of output signal

| 0 u t   1 |

| _ _ r ̄ ̄ | **Permanent signal** of the output, activated at count value ≥ preset in adding mode and at count value ≤ 0 in subtracting mode

| ̄ ̄ L _ _ | **Permanent signal** of the output, will become passive at count value ≥ preset in adding mode and at count value ≤ 0 in subtracting mode

| ̄ ̄ u ̄ ̄ | **Timed signal** of the output will become passive at count value ≥ preset in adding mode and at count value ≤ 0 in subtracting mode

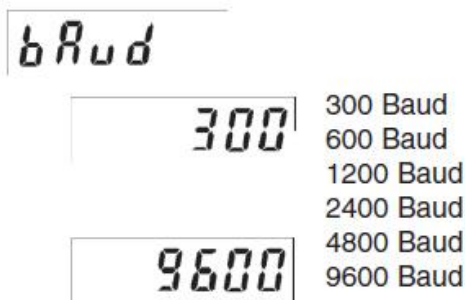| _ _ n _ _ | **Timed signal** of the output is activated at count value ≥ preset in adding mode and at count value ≤ 0 in subtracting mode

Impulse counter – Mode „Count"

For our usage: **baud „4.800" / form: „8noPar"**

Baudrate

```
bRud
```

```
300    300 Baud
       600 Baud
       1200 Baud
       2400 Baud
9600   4800 Baud
       9600 Baud
```
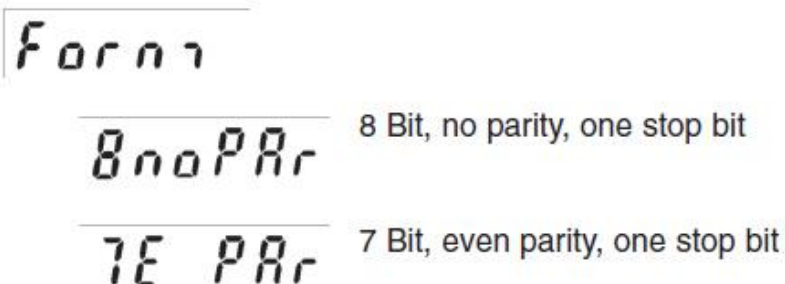
Attention - for devices with serial interfaces:

The data transmission speed for the serial interface is specified for max.4,800 Baud. If you use higher speed (for ex. 9,600 Baud) you may have errors in the data transmission.

3.2 Transmissionformat

```
Form
```

```
8noPAr    8 Bit, no parity, one stop bit
```

```
7E PAr    7 Bit, even parity, one stop bit
```

5.1.10 End of programming

```
EndPro
```
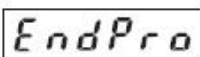
```
no     Programming is carried out once
       more. The values input can be
       checked and modified.
```
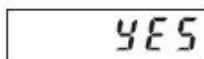
```
YES    Programming is complete and the val-
       ues input are taken over as new
       parameters.
       Then the device is ready for opera-
       tion.
```

Technical Data Counter:

Power supply:	10...30 V DC max. 1,2W, external fuse protection T 0,125A
Data storage:	min. 10 years or 106 memory cycle (switch off and on)

EMV:

Emitted interference:	EN 55 011 Klasse B
Interference resistance:	EN 61 000-6-2

Equipment safety:

Dimensioning to	EN 61 010 Teil1
safety class system	2
field of application	degree of pollution 2
Ambient temperature:	-10°C .. +50°C
Storage temperature:	-25°C .. +70°C
Height:	2000m
Weight:	ca. 200g
Degree of protection:	IP 65 (front)

References:

- English translation of the original German instruction manual MSF-2: 08-920-001-01 dd 25.08.2009
- Translation of the original Instruction Manual EFS: 006-920-009-01 dd 22.06.2010
- Operating instructions electronic preset counter Codix 716: R60030.0009A
- Additional information electronic preset counter Type 716 und Type 717: R60044.0009

Technical data YLM-M:

Dimensions:	L 850mm x B 550mm x ca. H 1050mm
Weight:	ca 70kg
Ride height:	85 mm
Power supply:	24V DC from internal lead acid battery
Power consumption:	190W max.
Battery capacity:	2 x 12V / 2 x 28Ah
Battery charging rate:	5A max.
Power supply battery charger:	230V~ 50/60Hz
Power consumption battery charger:	170W max.
Maximum yarn speed:	1000 m/min
Maximum countable yarn length:	99999,9 m, 999999 m
Yarn tension range:	0 – 40 cN
Yarn count range:	16 – 100 tex
Guaranteed maximum measuring fault:	0,1%

Technical data of the MSF / the EFS and the counter you will find in separate chapters on the pages 29, 36 and 44.