

Instruction Manual

YarnMaster® PRISMA

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1 General Information

1.1 About this document

Before using this device, read these instructions completely and always keep them accessible.



If there are operation ambiguities or uncertainties, please consult the supplier!

1.1.1 Validity

This document applies to:

- YarnMaster® PRISMA DM
- YarnMaster® PRISMA DMF
- YarnMaster® PRISMA DMFP

1.1.2 Target group

This document is intended exclusively for the operators. The descriptions require qualified personnel trained by the manufacturer. The descriptions do not replace product training.

1.1.3 Note

Information symbol



This symbol indicates additional information for the user.

Illustrations in the document



The user interface (screen copies) illustrations in these operating instructions are examples and make no claim to relevant data.

2 Safety

2.1 General safety information

- Read all safety and installation instructions before installation or maintenance.
- Follow all safety and operating instructions precisely.
- Retain all documentation for later reference.
- Take note of all warnings on the device and in the documentation for the machine in which this device is installed or repaired.

2.2 Intended use

Electromagnetic environment



- This equipment is intended for use in an industrial environment.
Electromagnetic compatibility in other environments cannot be guaranteed due to conducted or radiated interference.
- This equipment is not intended for use in residential areas and may not provide adequate protection for radio reception in such environments.

The yarn clearer system is designed solely for use in yarn monitoring and for clearing undesired yarn faults on winders from various manufacturers. Any other use, or any use that goes beyond the intended purpose, is considered improper. Loepfe Brothers Ltd. shall not be liable for any damages that result from improper use.

No claims of any kind may be made for damages arising from improper use.

2.3 Target group

The yarn clearer system may only be operated by qualified personnel, defined as an operator who meets the necessary training and knowledge requirements and is authorized to perform the associated task.

2.3.1 Qualified personnel

The device and software manufacturer defines qualified personnel as follows:

- **«Foreman»**
 - The foreman can guide the operator and specify settings and configurations for devices and software.
- **«Electrician»**
 - The electrician is responsible for installing the devices and connecting them to a network. Electricians are professionally trained and qualified to work with electrical equipment, and are familiar with the rules and safety regulations for working with electrical equipment.
- **«Service technician»**
 - Service technicians are responsible for the repair and maintenance of the devices and software. They are trained and qualified Loepfe employees, or expressly authorized by Loepfe to perform service operations.
- **«Network administrator»**
 - Network administrators are responsible for connecting the devices and software to a computer network. They are professionally trained and qualified to work with IT networks, and have administrator rights for the installed network.

2.4 Safety regulations and warnings

The safety regulations and warnings call attention to residual risks and are identified by symbols and provided with signal words expressing the extent of the hazard.

	 DANGER Indicates an imminently hazardous situation that will lead to death or severe injury.
	 WARNING Indicates a potentially hazardous situation that can lead to death or severe injury.
	 CAUTION Indicates a potentially hazardous situation that can lead to minor or moderate injury.
	NOTE Indicates a potentially hazardous situation that can lead to property damage.

2.4.1 Description of symbol

Warning symbols



General warning symbol



Electric voltage warning



Flammable substances warning



Hot surfaces warning

Prohibition symbols



Switched on mobile phones not permitted



Operation with long hair not permitted

Instruction symbols



Disconnect power plug



Disconnect before maintenance or repair (disconnect power supply)



Ground before using

ESD symbol



Electrostatically sensitive components

2.5 Safety design

This section describes the yarn clearer system's safety design to protect against risks to users and property damage.

	 WARNING
	Danger from incorrect installation and operation Risk of injury and property damage through custom modifications to the yarn clearer system. ▶ Only authorized Loepfe service technicians may perform installation and operation of the yarn clearer system or individual system parts, or perform upgrades.

2.5.1 Safety features

YarnMaster® PRISMA is integrated into a winding machine and has no additional safety features.

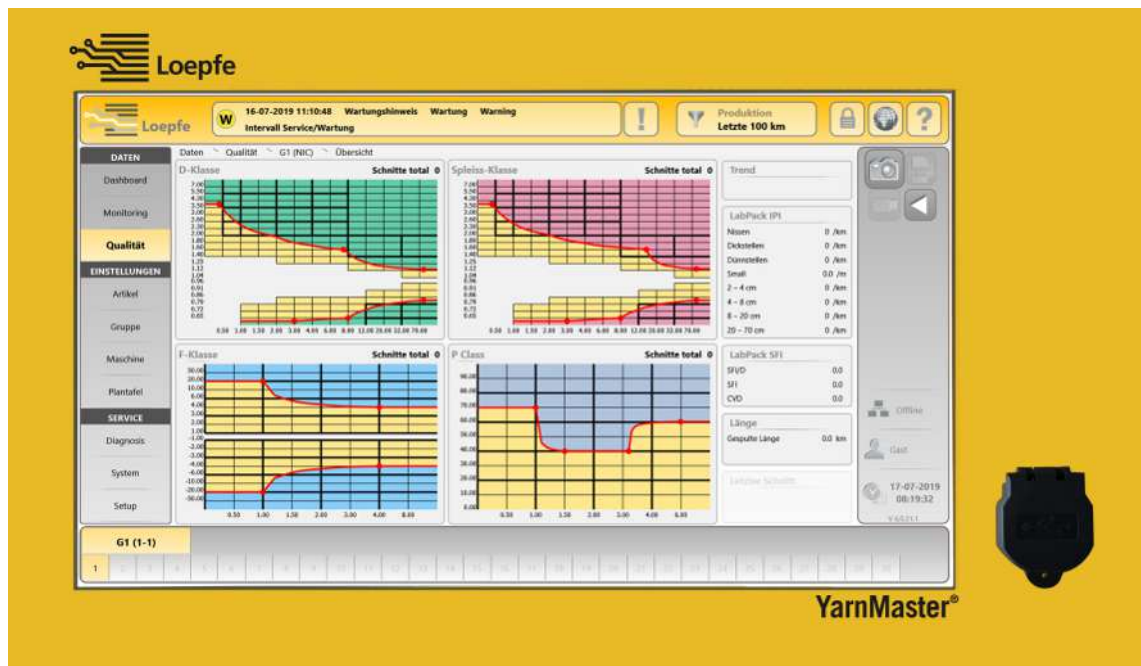
	For more information about safety features like the emergency off switch, see the operating instructions for the winding machine.
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3 Products and functions

3.1 Product description

The yarn clearer system is used to clear yarn faults and foreign matter, and for quality monitoring during winding. It is installed on winders from various manufacturers. Yarn faults are detected by means of a dual measurement system. The yarn clearer system can be combined with the MillMaster TOP data evaluation and administration system.

3.1.1 Loepfe Central Unit (LZE-6)



LZE-6 central unit

The central unit consists of the following components:

- Computer
- Touchscreen display
- USB port
- Yarn clearer software

Functions:

- Communication with sensing heads
- Yarn clearing control and monitoring
- Processing, logging and storage of process and quality data

3.1.2 Spindle adapter

The spindle adapter (SA) is the interface between the central unit, the sensing heads and the spindles to supply power to the sensing head and adapt the connections.

3.1.3 Sensing head (TK)

All processing and evaluation of the yarn signal is carried out in the sensing head. Events outside of the specified yarn clearer settings are removed with the integrated cutter.

The sensing head consists of the following components:

- Sensors to detect yarn diameter, yarn mass and foreign matter
- Integrated evaluation electronics
- Yarn clearer software



YarnMaster® PRISMA sensing head

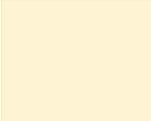
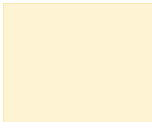
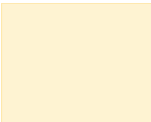
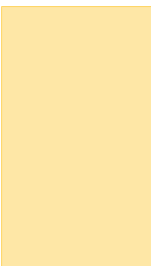
1 M sensor, for detecting yarn mass (capacitive)	5 P sensor, for detecting synthetic foreign matter (triboelectric)
2 F sensor, for detecting foreign matter (optical, RGB)	6 Side limiter
3 D sensor, for detecting yarn diameter (optical)	7 Test / reset button ■ Cut —> short press ■ Reset technical alarm —> short press ■ Reset TK —> long press > 5 s
4 Cutter	8 Sensing head 7-segment display

3.2 Scope of delivery

The following components are included in the scope of delivery:

- YarnMaster® PRISMA sensing head
- Loepfe Central Unit (LZE-6)
 - with touchscreen or
 - without touchscreen
- Spindle adapter

3.3 Functionality

DM	DMF	DMFP	
			Polypropylene clearing ■ Polypropylene curve clearing and classification of synthetic foreign matter (PP, PE, PES etc.)
			OffColor (option) ■ OffColor curve clearing and classification ■ Alarms for OffColor: Bobbin startup alarm and length limit alarm
			Foreign matter clearing ■ Foreign matter curve clearing and classification ■ Foreign matter cluster curve clearing and classification ■ Organic filtering curve clearing and classification ■ Color mapping
			LabPack (Option) ■ SFI/D curve clearing and classification ■ IPI ■ SFI surface index ■ Alarms: IPI alarm and length limit alarm for SFI/D
			DM clearing ■ NSLT curve clearing and classification ■ NSLT cluster curve clearing and classification ■ Splice curve clearing and classification ■ OffCount curve clearing and classification ■ Compactness clearing ■ Core yarn clearing and classification: Missing core and OffCentric core ■ Fancy yarn clearing and classification ■ Conductive yarn clearing and classification ■ Autostart / Autocorrect and Trend ■ Alarms – OffStandard bobbins alarm for all clearing features – Splice accumulation alarm – Length limit alarm for OffCount – Bobbin startup alarm for OffCount – OffLimit alarm for all clearing features – Class alarm for NSLT

3.3.1 DM clearing

NSLT curve clearing and classification

	Diameter range:	Length range:	Number of setpoints:
Thick	1.04 - 10	0 – 128 cm	16
Thin	0.3 – 0.96	1.0 – 128 cm	8

NSLT cluster curve clearing and classification

Cluster curve:

	Diameter range:	Length range:	Number of setpoints:
Thick	1.04 - 10	0 – 128 cm	5
Thin	0.3 – 0.96	1.0 – 128 cm	5

Cluster faults:

	Event range:	Length range:
N/S/L/T	2 - 9999	1 - 80 m

Splice curve clearing and classification

	Diameter range:	Length range:	Number of setpoints:
Thick	1.04 - 10	0 – 128 cm	16
Thin	0.3 – 0.96	1.0 – 128 cm	8

OffCount curve clearing and classification

OffCount:

	Mass range:	Length range:	Number of setpoints:
Thick	3.0 % – 150 %	10 – 50 m	5
Thin	(-3.0 %) – (-60 %)	10 – 50 m	5

Short Offcount:

	Mass range:	Length range:	Number of setpoints:
Thick	3.0 % – 150 %	1 – 10 m	5
Thin	(-3.0 %) – (-60 %)	1 – 10 m	5

Compactness clearing

	Intensity range:	Length range:
Positive	1.0 % - 150 %	0.2 – 50 m
Negative	(-1.0 %) - (-60 %)	0.2 – 50 m

Core yarn clearing and classification

Missing core:

Sensitivity range:	(-125) - 80
Length range:	2 – 50 m

OffCentric core:

Limit range:	10 - 200
Length range:	0.2 – 50 m

Fancy yarn clearing and classification

Number of available NSLT fine classes:	207
---	-----

Conductive yarn clearing and classification

Features available for conductive yarns:	All
---	-----

Autostart / Autocorrect

Available for curve clearing of:

NSLT
Splice
OffCount
SFI/D
Foreign Matter
OffColor
Polypropylene

Trend

Time period:	72 h
--------------	------

No. of trend settings per article:	5
------------------------------------	---

Alarms

Standard Bobbins alarm for all clearing features:

Event range:	1 - 99
--------------	--------

Length range:	Per bobbin
---------------	------------

Splice accumulation alarm:

Event range:	2 - 20
--------------	--------

Length range:	1 - 80 m
---------------	----------

Length limit alarm for OffCount:

	Mass range:	Length range:	No. of setpoints:
Thick	3.0 % – 150 %	1 – 50 m	5
Thin	(-3.0 %) – (-60 %)	1 – 50 m	5

Bobbin startup alarm for OffCount:

	Mass range:	Length range:
Thick/Thin	0.01 % – 25.5 %	11 – 20 m

OffLimit alarm for all clearing features:

Alarm types:	Textile
--------------	---------

No. of alarm settings:	5
------------------------	---

Class alarm for NSLT:

No. of available NSLT classes:	23
--------------------------------	----

3.3.2 LabPack (Option)

SFI/D curve clearing and classification

SFI/D:

	Intensity range:	Length range:	Number of setpoints:
Thick	10 % – 200 %	10 – 80 m	5
Thin	(-10 %) – (-100%)	10 – 80 m	5

Short SFI/D:

	Intensity range:	Length range:	Number of setpoints:
Thick	10 % – 200 %	1 – 10 m	5
Thin	(-10 %) – (-100%)	1 – 10 m	5

IPI

IPI's per 1000 m:

	Diameter range:	Length range:
Neps	> 2.0	0.0 – 5 mm
Thick	1.4 – 2.0	2.0 – 128 cm
Thin	< 0.79	2.0 – 128 cm

IPI per 1 m:

	Diameter range:	Length range:
Small	0.79 - 1.4	2.0 – 128 cm

Additional IPI`s per 1000 m:

Diameter range:	Length range:
All	2 – 4 cm
All	4 – 8 cm
All	8 – 20 cm
All	20 – 70 cm

Alarms

IPI alarm:

	Length:	Number of alarm types:	Action:
Group	1000 m	8	Block / Message / Popup
Spindle	1000 m	8	Block / Message / Popup

Length limit alarm for SFI/D:

	Intensity range:	Length range:	Number of setpoints:
Thick	10 % – 200 %	1 – 80 m	5
Thin	(-10 %) – (-100%)	1 – 80 m	5

3.3.3 Foreign matter clearing

Foreign matter curve clearing and classification

	Intensity range:	Length range:	Number of setpoints:
Dark	1 - 100	0 – 12.8 cm	8
Bright	(-1) – (-100)	0 – 12.8 cm	8

Foreign matter cluster curve clearing and classification

Cluster curve:

	Intensity range:	Length range:	Number of setpoints:
Dark	1 - 100	0 – 12.8 cm	8
Bright	(-1) – (-100)	0 – 12.8 cm	8

Cluster events:

	Event range:	Length range:
Dark / Bright	2 - 9999	0 – 80 m

Organic filtering curve clearing and classification

	Intensity range:	Length range:	Number of setpoints:
Organic	1 - 100	0 – 12.8 cm	8

Color mapping

Fault colors:

- Brown
- Green
- Blue
- Red
- Yellow
- Black
- Cyan
- Magenta

3.3.4 OffColor (option)

OffColor curve clearing and classification

	Intensity range:	Length range:	Number of setpoints:
Dark	0.25 – 10.0	1.0 – 50.0 m	5
Bright	(-0.25) – (-10.0)	1.0 – 50.0 m	5

Alarms

Bobbin startup alarm for OffColor:

	Color deviation range:	Length range:
Dark / Bright	0.01 % – 25.5 %	According to Bobbin startup alarm OffCount

Length limit alarm for OffColor:

	Intensity range:	Length range:	Number of setpoints:
Dark	0.25 – 10.0	1.0 – 50.0 m	5
Bright	(-0.25) – (-10.0)	1.0 – 50.0 m	5

3.3.5 Polypropylene clearing

Polypropylene curve clearing and classification of synthetic foreign matter (PP, PE, PES etc.)

	Intensity range:	Reference length range:	Number of setpoints:
Polypropylene	0.0 – 100.0	0.0 – 8.0	8

3.3.6 Data selection filters

Production:

	Length unit:	Classification data per:
First	100 km / 1000 km	Group / spindle
Last	100 km / 1000 km	Group / spindle
Cone	km per cone	Spindle (data reset at cone doff)

Current shift:

	Length unit:	Classification data per:
Absolute	km	Group / spindle
/ km (relative)	100 km / 1000 km	Group / spindle
/ kg (relative)	100 km / 1000 km	Group / spindle

Previous shift / 100 km:

	Length unit:
Shift (relative)	100 km

4 Installation

4.1 Safety

	 DANGER Electric voltage hazard Contact with live parts poses an imminent risk of fatal injury. ▶ All electrical work on a yarn clearer system must be performed exclusively by qualified personnel specifically authorized to do so. ▶ Work on electrical components may only be performed when the system is switched off and disconnected from power.
	 DANGER Danger due to electric shock Touching live components and electrical connections can lead to serious physical injury or death. ▶ Disconnect the unit from the power supply before performing maintenance or repair work. ▶ Disconnect the device from the power supply before removing the covers or opening the side panels.
	 WARNING Danger from incorrect installation and operation Risk of injury and property damage through custom modifications to the yarn clearer system. ▶ Only authorized Loepfe service technicians may perform installation and operation of the yarn clearer system or individual system parts, or perform upgrades.
	 WARNING Working on running machines poses a risk of severe physical injury. ▶ Switch off machines and wait until they have come to a complete stop. ▶ Work on electrical components may only be performed when the system is switched off and disconnected from power. ▶ Before installing or performing maintenance on machines, disconnect the compressed air supply and release the pressure from the machines' compressed air system. ▶ Before operating, ensure that all appropriate covers are in place.

4.2 Startup after an upgrade or software update

To ensure safe operation of the yarn clearer system, all upgrades and software updates must be performed by authorized Loepfe service technicians.

4.3 Startup after an interruption in operations

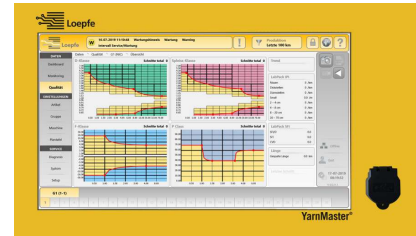
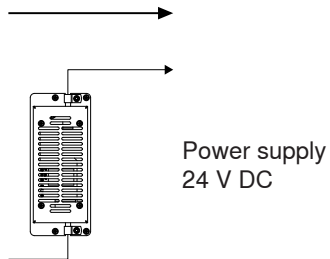
After an interruption in operations, e.g. as the result of a power outage, a warm start will be initiated when the system is switched back on.

- **Note:** All settings and shift data will be retained. The only exception is the latest cut data which could not be sent to the LZE-6 before the interruption.

4.4 Installation overview

Variant 1

External power supply
24 V DC



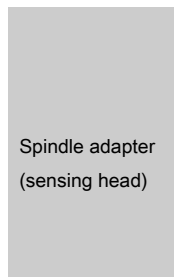
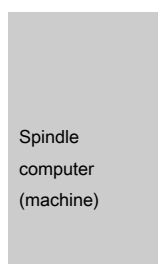
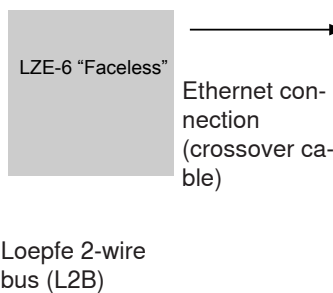
Variant 2

External power supply
90 – 264 V AC



Variant 3

External power supply
24 V DC



Loepfe 2-wire bus (L2B)



Sensing head

4.5 LZE-6 connections

	 DANGER Danger due to electric shock Touching live components and electrical connections can lead to serious physical injury or death. ▶ Disconnect the unit from the power supply before performing maintenance or repair work. ▶ Disconnect the device from the power supply before removing the covers or opening the side panels.
	 WARNING Danger from incorrect installation and operation Risk of injury and property damage through custom modifications to the yarn clearer system. ▶ Only authorized Loepfe service technicians may perform installation and operation of the yarn clearer system or individual system parts, or perform upgrades.

Front panels



with touchscreen



without touchscreen

USB 2.0 interface (USB port):

- For data transfer of settings and other data.
- A cap protects the port from dust and moisture.

Rear panels

with touchscreen



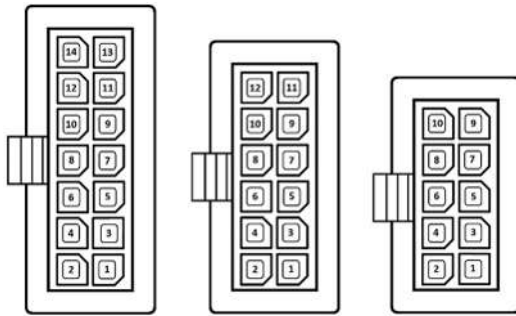
without touchscreen



Label	Type	Description
Power	D-sub PSC	Power supply 24 V DC Contact 1: (+) 24 V DC Contact 2: not connected Contact 3: (-) 0 V DC
		 This connection must only be supplied with 24 V DC.
	Screw connection	Protective grounding  This separate ground pin must be connected to protective grounding!
Clearer	D-sub 9-pole connector	Connection to Loepfe 2-wire bus (L2B)
HDMI	HDMI	HDMI port, recommended resolution 1366 x 768
	DP	Display Port, recommended resolution 1366 x 768
LAN 1	RJ45	Network connection, static IP 192.168.1.200 <i>Caution: Accidental modification of the LAN 1 IP address may break the connection with the Savio control unit!</i>
LAN 2	RJ45	Network connection, dynamic IP DHCP
 / 	USB 3.0	USB port (4x)

4.6 Supply connector layout

Depending on the model, the connector has 10, 12 or 14 pins.



Pin	Signal Name	Function
1	SPINDLE_DRUM_PULSE	(I) Drum signal, 3V3 level (is 5V tolerant)
2	SPINDLE_STATUS	(I/O), Open collector output: Cut pulse, Input: /POWER_FAIL
3	LoepfeBus_B	(I/O) Loepfe-Bus line B, RS485
4	GND	Ground
5	LoepfeBus_A	(I/O) Loepfe-Bus line A, RS485
6	+54V	Cutter supply. Current is limited to max. 0.03A
7	SPINDLE_TXD	(I) Data from spindle to sensor, 3V3 level (is 5V tolerant)
8	+5V	Digital Supply input
9	SPINDLE_RXD	(O) Data from sensor to spindle, 3V3 level
10	+7V	Analog Supply input
11	Not connected	
12	Not connected	
13	Not connected	
14	Not connected	

4.7 Installing the sensing head

	⚠ WARNING
	Working on running machines poses a risk of severe physical injury. ▶ Switch off machines and wait until they have come to a complete stop. ▶ Work on electrical components may only be performed when the system is switched off and disconnected from power. ▶ Before installing or performing maintenance on machines, disconnect the compressed air supply and release the pressure from the machines' compressed air system. ▶ Before operating, ensure that all appropriate covers are in place.
	NOTE
	Before installation, ensure that the machines are equipped with an overpressure release mechanism. Sensing heads may only be installed on machines with overpressure release mechanisms.

1. Switch off the machine's main power supply and secure the power switch with a lock.
2. Release the pressure from the machine's compressed air system.
3. Disconnect the machine's compressed air supply.
4. Remove the spindle cover.
5. Install the sensing head on the spindle.
6. Connect the machine's compressed air supply.
7. Connect the sensing head to the integrated spindle adapter.
8. Replace the spindle cover, switch on the machine's compressed air and main power supply.

5 Commissioning

5.1 Select clearer system

1. Turn on the LZE-6 and wait until the boot process is complete.
2. Select the applicable sensing head YarnMaster® PRISMA.
3. Confirm the selection.
 - ⇒ The appropriate clearer GUI environment will be installed.
 - ⇒ The Master Module firmware will be updated.
- ⇒ The LZE-6 will boot into the setup wizard for further clearer configuration.

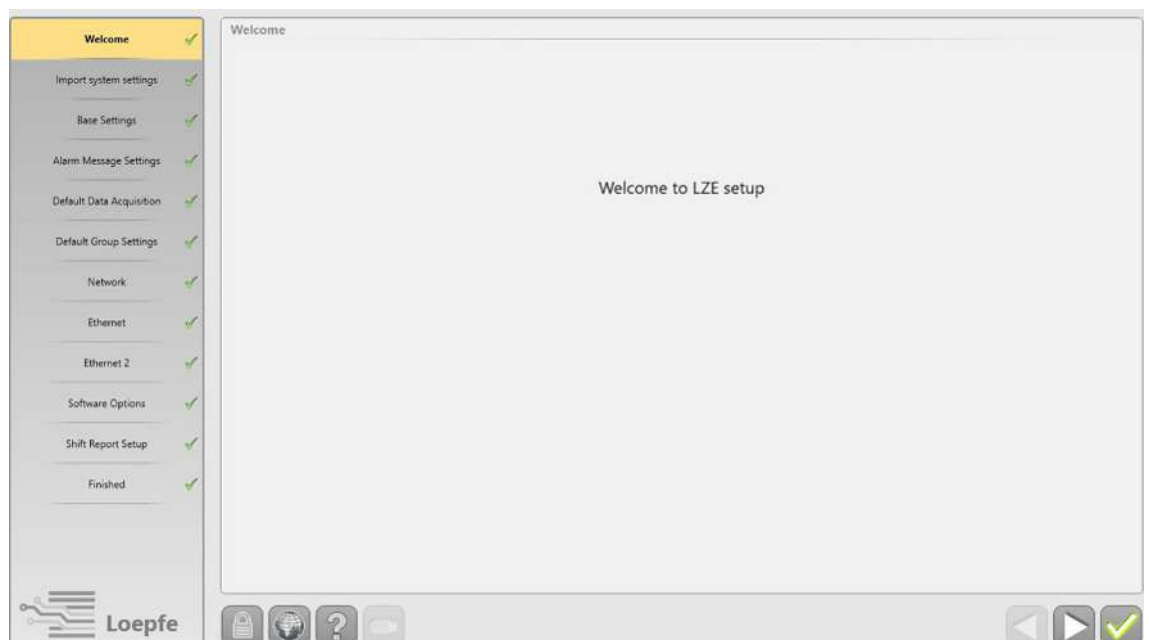
5.2 Setup wizard



The default settings can be modified later at any time!

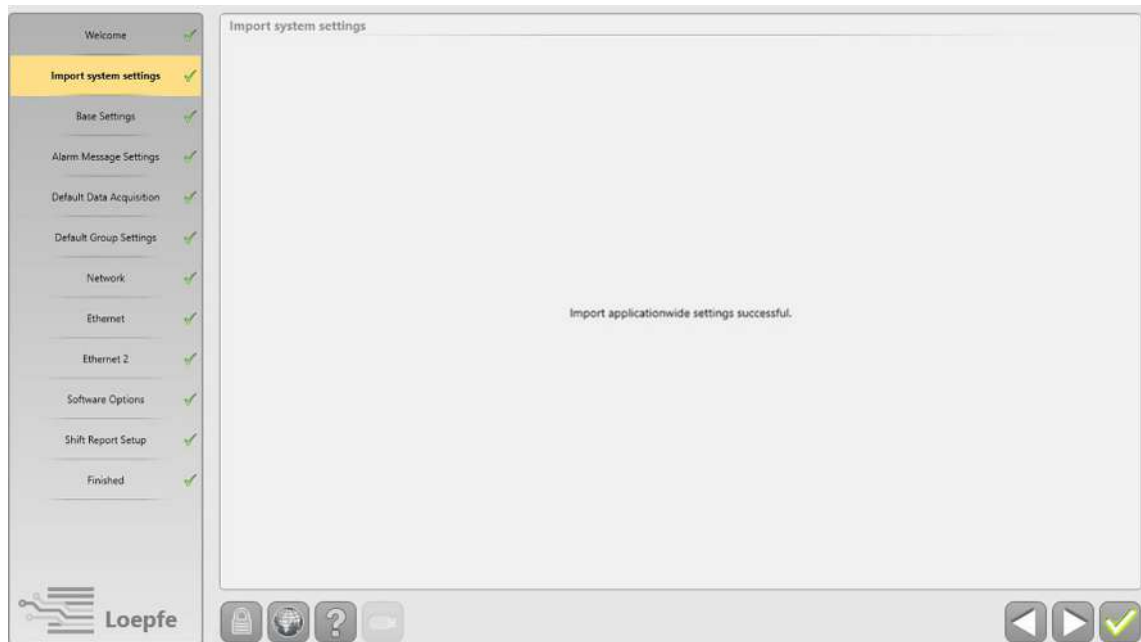
The installation wizard walks you through the basic settings step by step.

- ✓ The software has been installed.
- 1. Plug the LZE-6 into mains power.
 - ⇒ The LZE-6 starts up.
 - ⇒ The «**Welcome**» window opens.



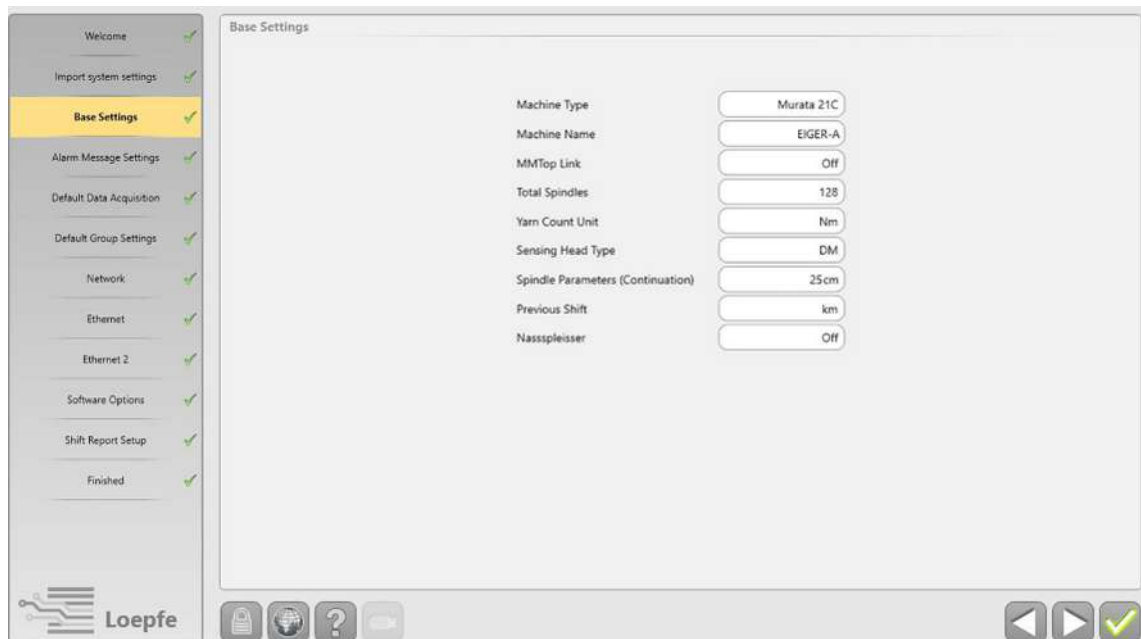
Welcome

2. Press  .
⇒ The «**Import system settings**» window opens.



Import system settings

3. Press  .
⇒ The «**Basic Settings**» window opens.

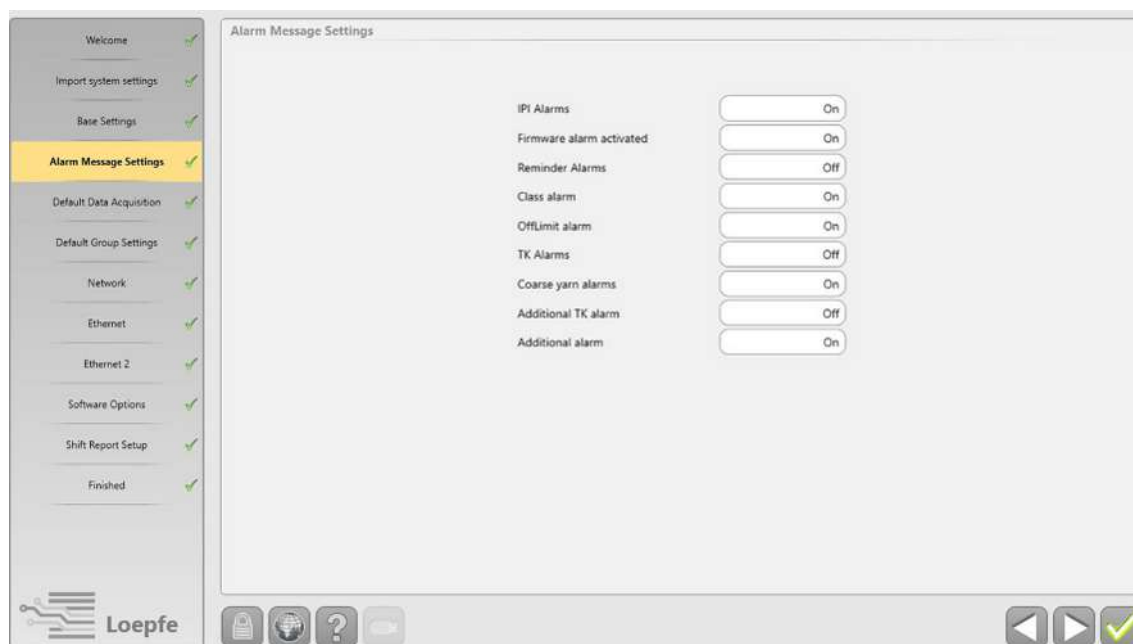


Basic Settings

4. Make sure that the correct **Machine Type** is selected.
5. Enter the total number of spindles.
6. Make sure that the correct **Sensing Head Type** is selected.
7. Switch on wet splicer if the machine is equipped with one.

8. Press .

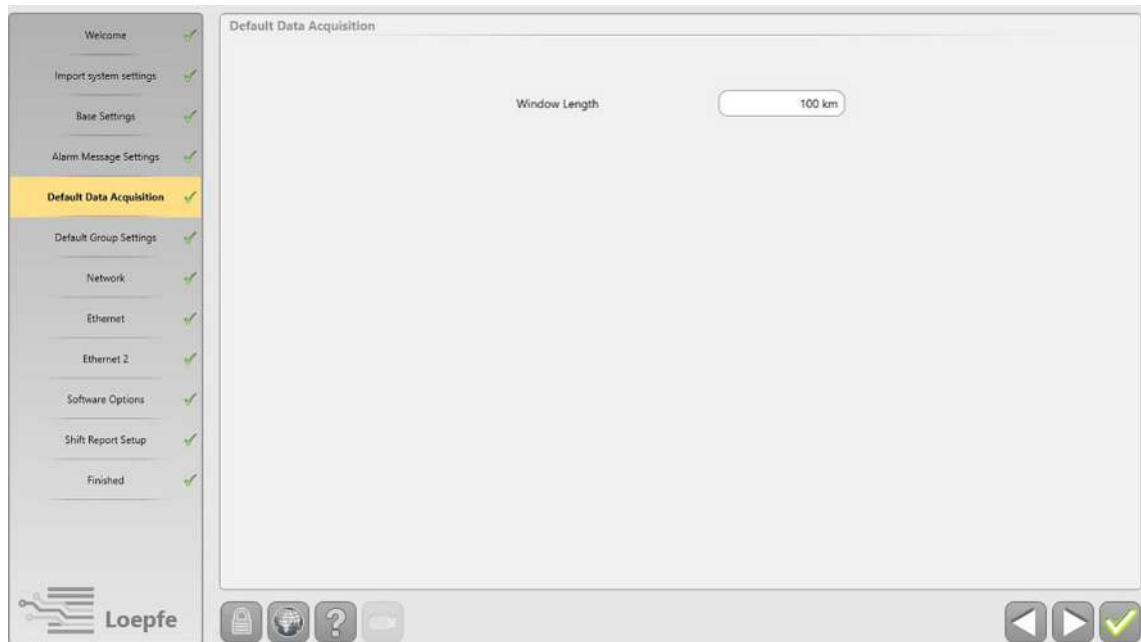
⇒ The «Alarm Messages Setting» window opens.



Alarm Messages Setting

9. Press .

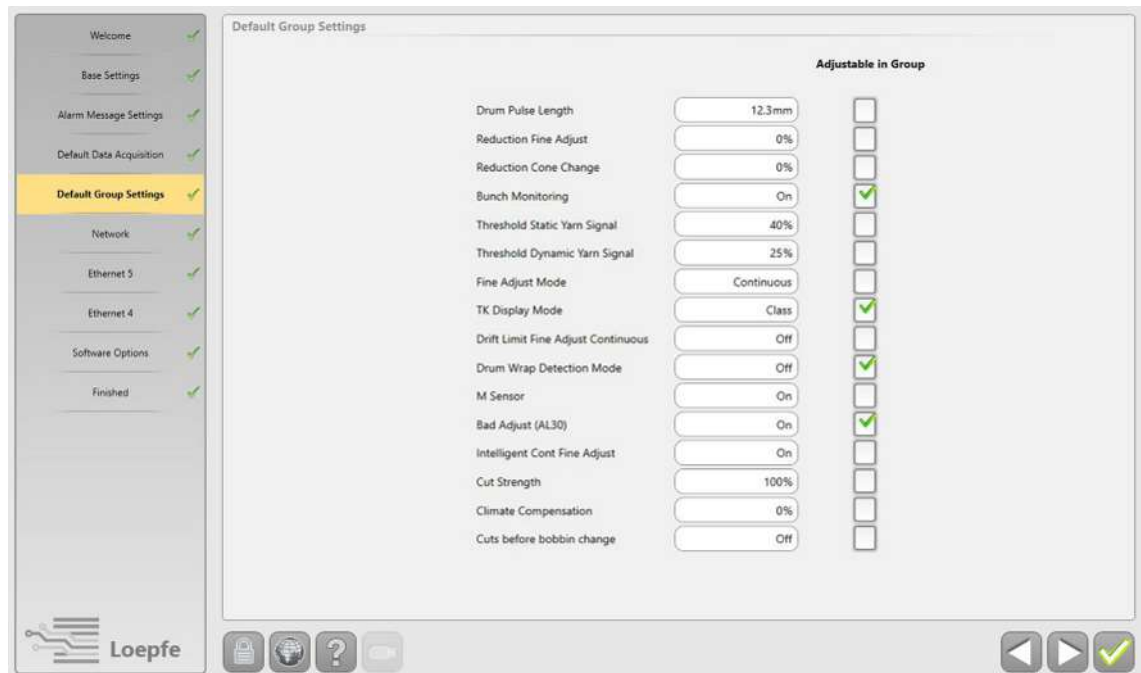
⇒ The «Default Data Acquisition» window opens.



Default Data Acquisition

10. Press .

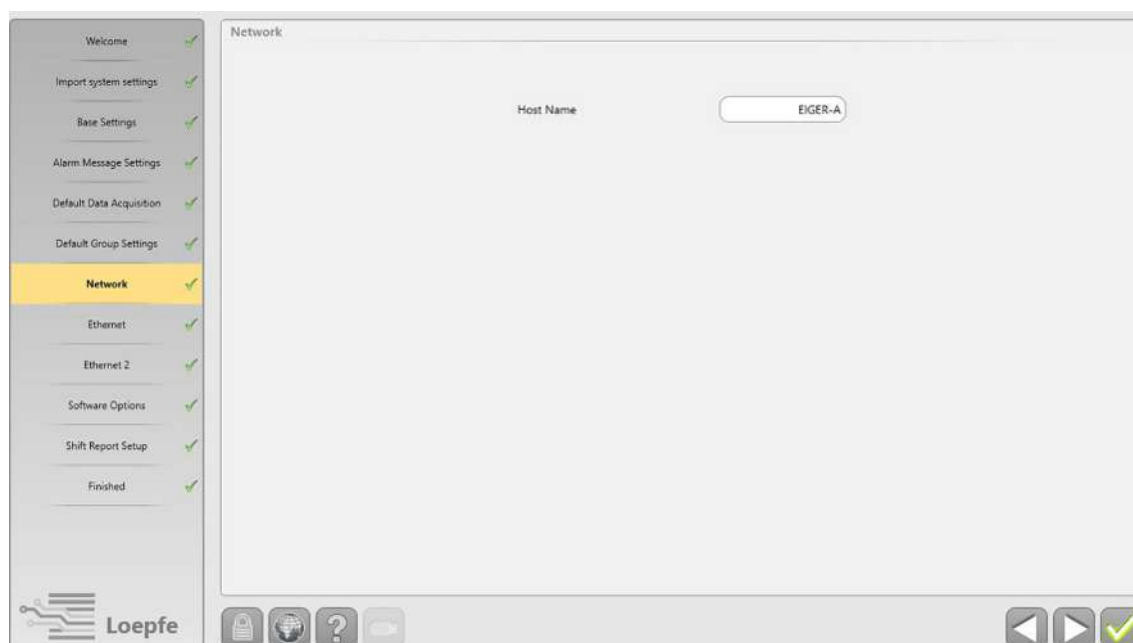
⇒ The «Default Group Settings» windows opens.



Default Group Settings

11. Press .

⇒ The «**Network**» window opens.

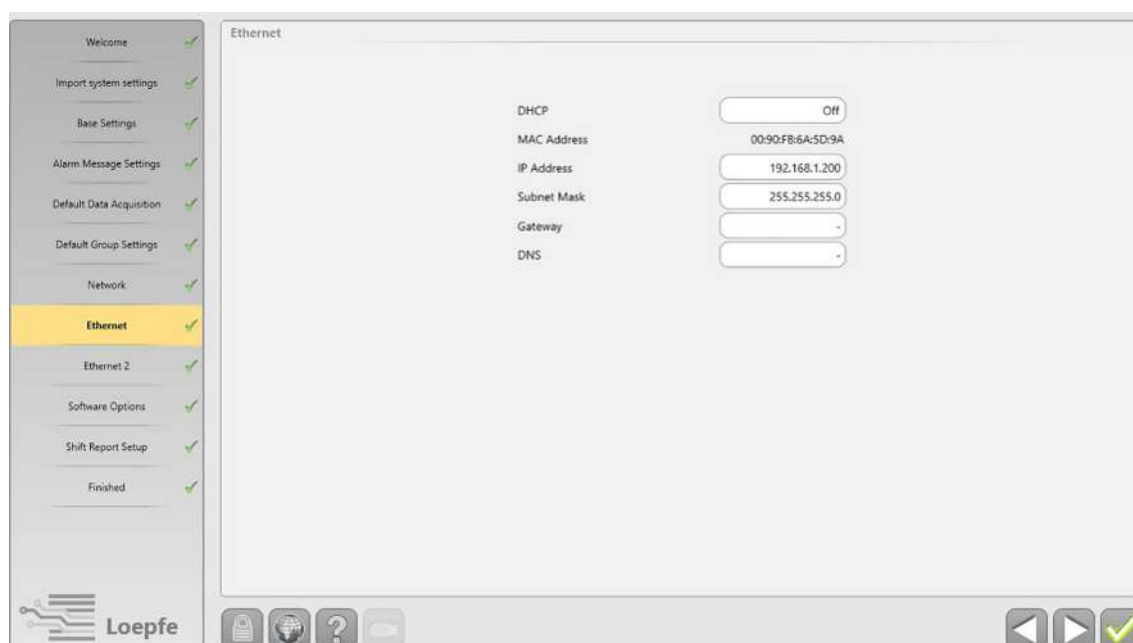


Network

12. Press .

⇒ The «**Ethernet**» window opens.

⇒ Attention: Do not change the settings of «**Ethernet**»! The settings are used for faceless LZE-6 to establish a VNC connection with a Savio winder monitor screen.

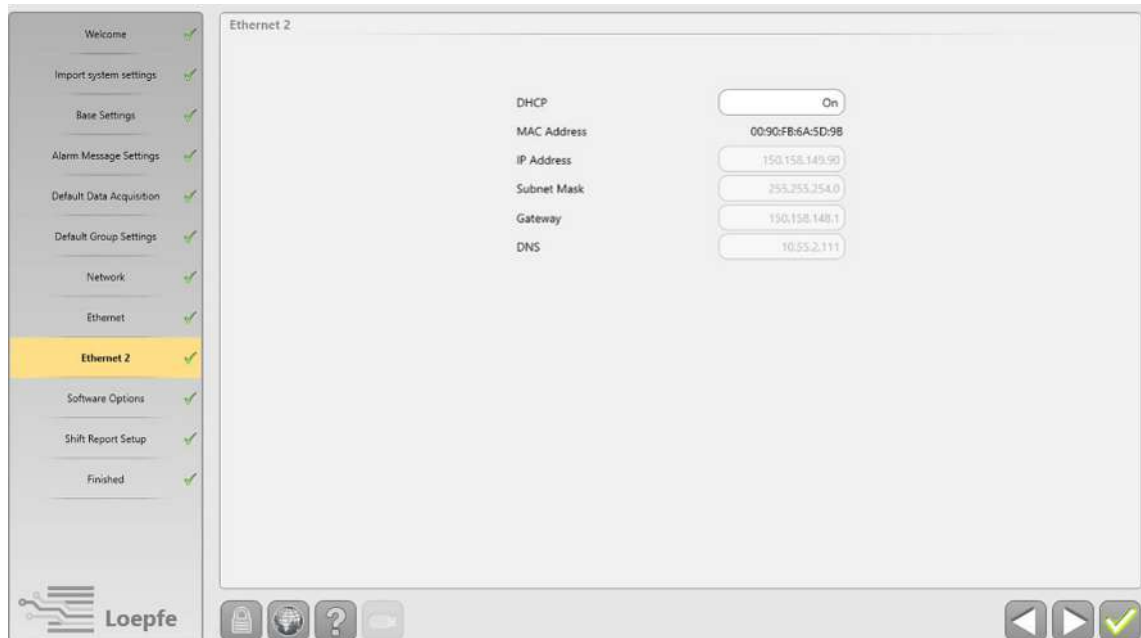


Ethernet

13. Press .

⇒ The «**Ethernet 2**» window opens.

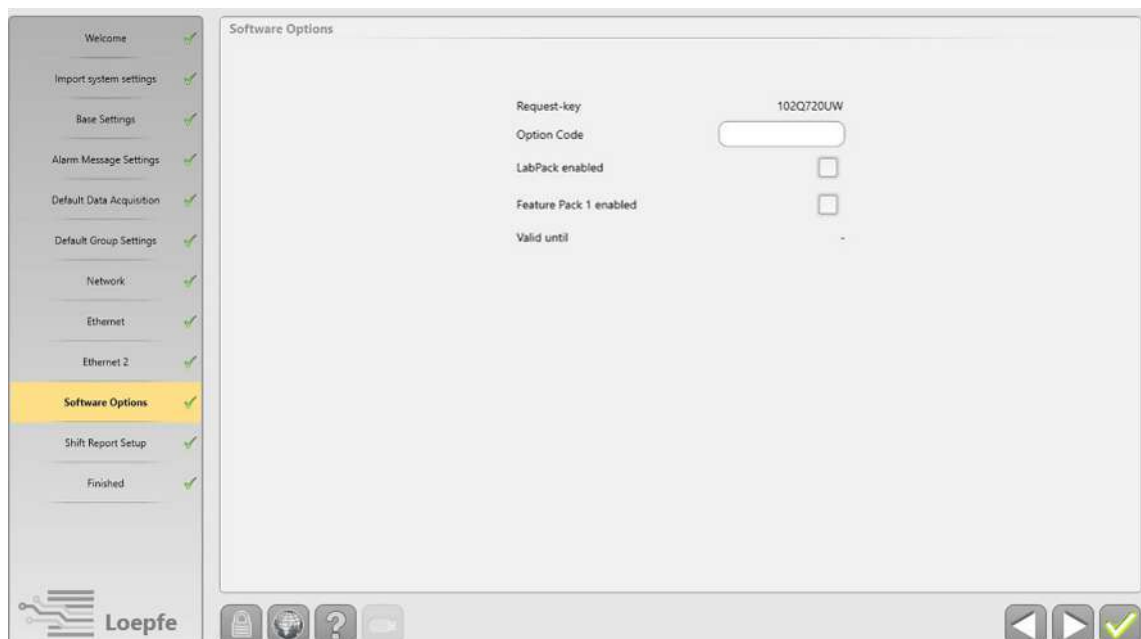
⇒ The «**Ethernet 2**» settings are used to establish a LAN connection with a MillMaster Top server.



Ethernet 2

14. Press .

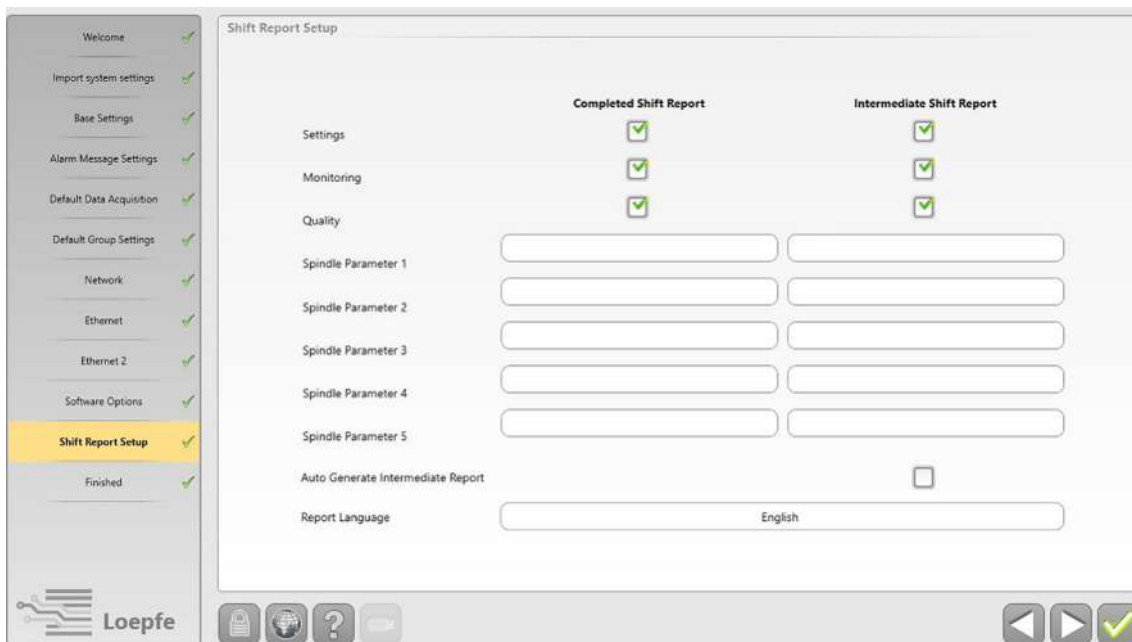
⇒ The «**Software Options**» window opens.



Software Options

15. Press .

⇒ The «Shift Report Setup» window opens.



Shift Report Setup

16. Press .

⇒ The «Finished» window opens.



Finished

⇒ The basic settings have been set.

17. Press .

⇒ The installation wizard closes.

⇒ The system restarts.

5.3 Bootloader and firmware update

Before starting the machine for the first time it might be necessary to update the bootloader and/or the firmware of the sensing head.

To update the bootloader and/or the firmware:

1. Select System > Firmware Update.
2. Check the version number of the bootloader and the firmware for all spindles.
 - ⇒ The version numbers are shown in red if they are outdated. An update is necessary.
3. Log in as foreman with the password **12911291** (operator password with reduced rights: **47114711**).
4. Press the download button TK (bootlader/firmware).
 - ⇒ During the update the display of the sensing head shows "UF" and the LZE-6 displays the error message "Master module is offline" for some seconds.
 - ⇒ Once the update is successful the color of the version numbers turns from red to black.
 - ⇒ After the update the display of the sensing head shows "PA" which means the sensing head is ready and waiting for parameters.

If the version number of a firmware is still red after the firmware update, the update must be repeated until the version numbers of all sensing heads are black. If the version number of a firmware is gray, this means that the sensing head is offline and the connection to the LZE-6 must be checked before the update.

The screenshot shows the Loepfe web interface for the 'Firmware Update' section. The sidebar on the left contains navigation links: DATA (Dashboard, Monitoring, Quality), SETTINGS (Article, Group, Machine), SERVICE (Diagnosis, System, Setup), and System. The main content area is divided into several panels. The 'Firmware Archive' panel shows the current versions of the Master Module (2.0.12.0), Bootloader (6.0.25.19400-24b7cc77), and Firmware (6.23.2.42996-3459499e). The 'Update Progress' panel shows the Master Module is 100% updated, while the TK (bootlader/firmware) is at 0%. The 'Master Module' panel shows the current version (2.0.12.0) and the update state (Application). The 'Spindles' table lists 10 spindles with their respective Firmware and Bootloader versions. The status of the versions is indicated by color: red for outdated, black for up-to-date, and gray for offline.

Spindle	Firmware	Bootloader
1	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
2	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
3	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
4	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
5	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
6	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
7	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
8	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
9	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77
10	6.23.2.42996-3459499e	6.0.25.19400-24b7cc77

Firmware Error

6 Startup

An article consists of settings for different clearing channels (NSLT, Foreign matter, OffCount etc.). An article can be assigned to a single sensing head or a group of sensing heads.

As long as an article is assigned to a group of sensing heads it can't be deleted.

To add a new article:

1. Select Article in the left menu.
2. Log in as foreman with the password **12911291** (operator password with reduced rights: **47114711**).
3. Press + "add" in the right menu to create a new article.
 - ⇒ There are three ways to create an article:
 - Create new article
 - Copy settings from an article
 - Import settings from USB

To add a new group:

1. Select Group in the left menu.
2. Log in as foreman with the password **12911291** (operator password with reduced rights: **47114711**).
3. Press + "add" in the right menu to create a new group.
 - ⇒ There are two ways to create a group:
 - Create new group
 - Copy settings from a group

6.1 Create new Article

A new article can be created by editing a list of yarn properties and adjusting the clearing curves manually or with the help of the Autostart function. If Autostart is selected the parameters will be adjusted automatically during the first 100 km wound yarn per group. If Autostart is deselected default clearing curves are given. In this case the clearing curves can be adjusted by editing the parameters.

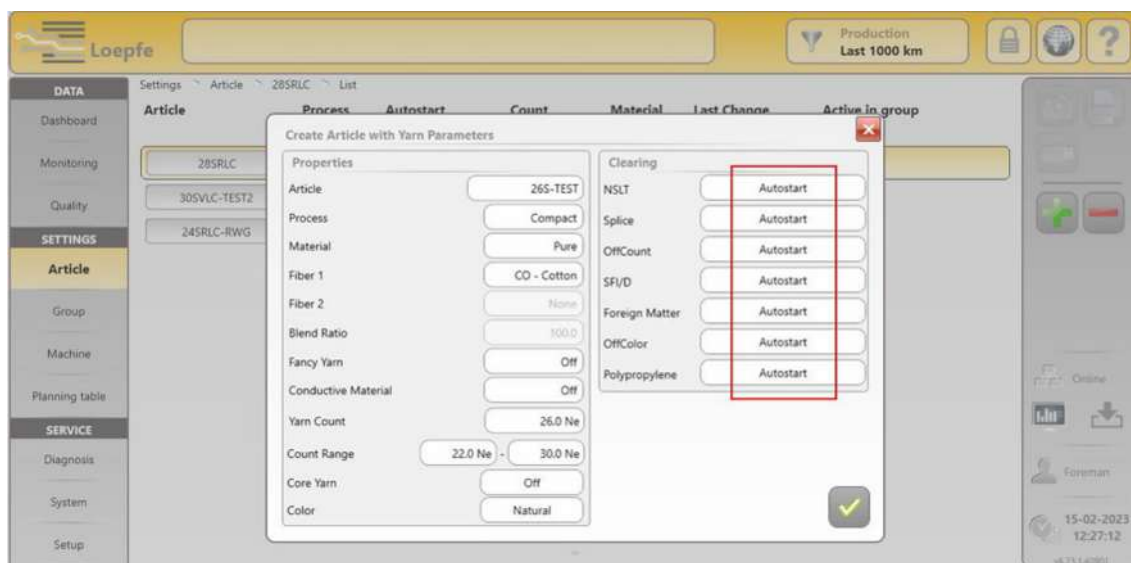
6.1.1 Autostart Article

Fine-tuning of clearer setting for a given yarn quality is always a challenging task. For new users it can be difficult to find suitable clearer settings.

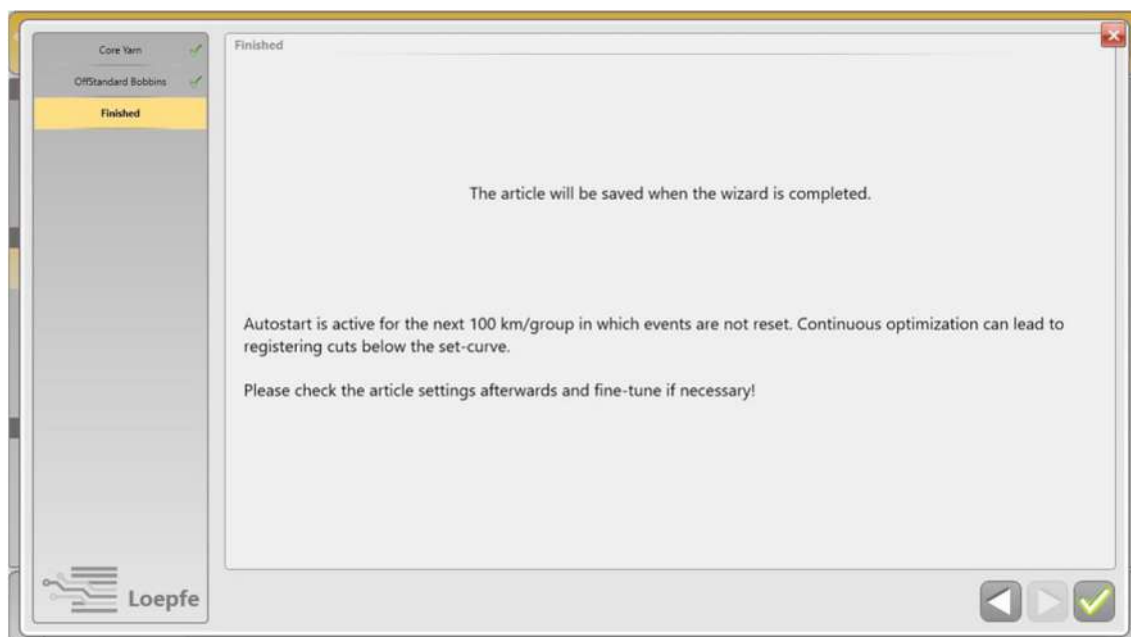
The Autostart function supports the user to solve this problem. It starts with an optimized setting for all clearing curves and continuously adjusts the clearing curves for the first 100 km wound yarn per group. After 100 km the clearing curves are fixed.

If necessary, manual fine-tuning can be done afterwards.

Based on the main yarn parameters the clearing function can be selected. By default Autostart is activated.



New Articles with applied Autostart function will be saved after this information screen:

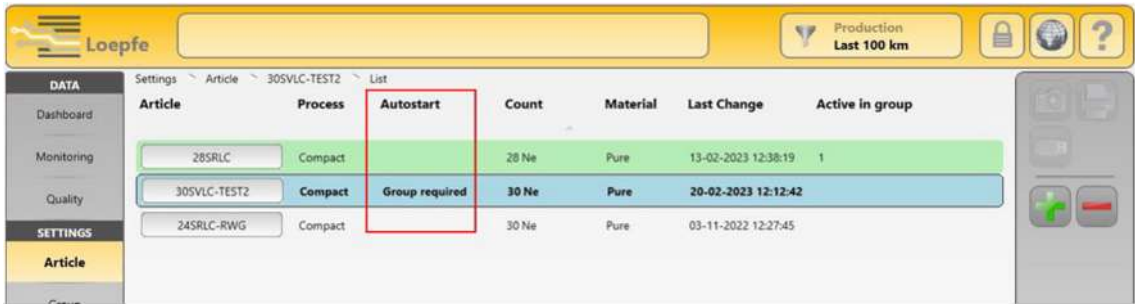


Indication of an article with applied Autostart function:

Default settings will be applied to the selected matrixes and highlighted in blue to indicate that Autostart is active.



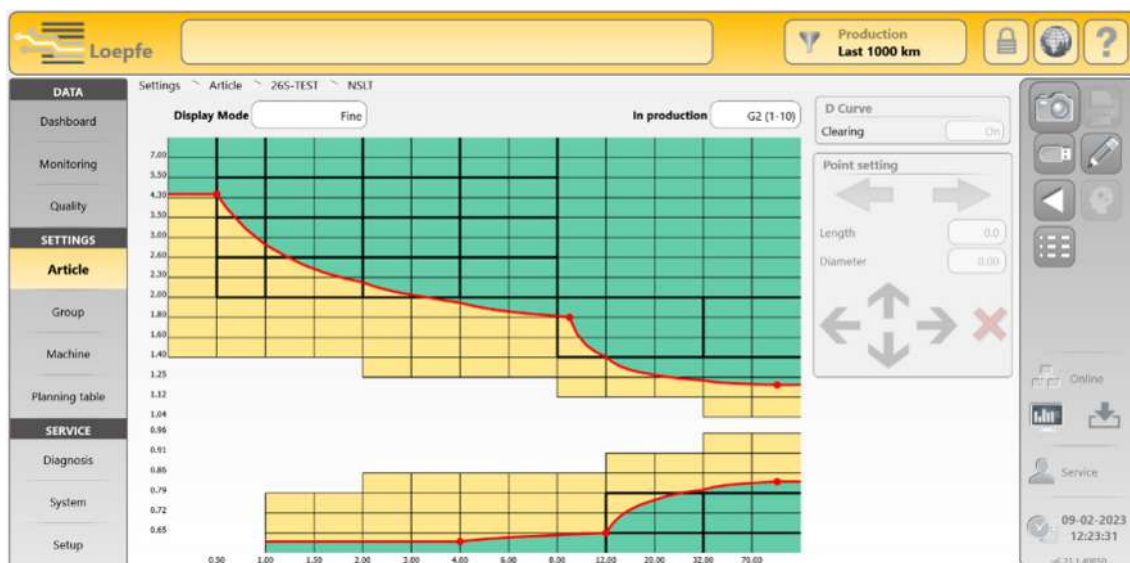
Assigning an article with applied Autostart function to a group:
In the article list the article is highlighted and the user is informed that an assignment to a group is necessary.



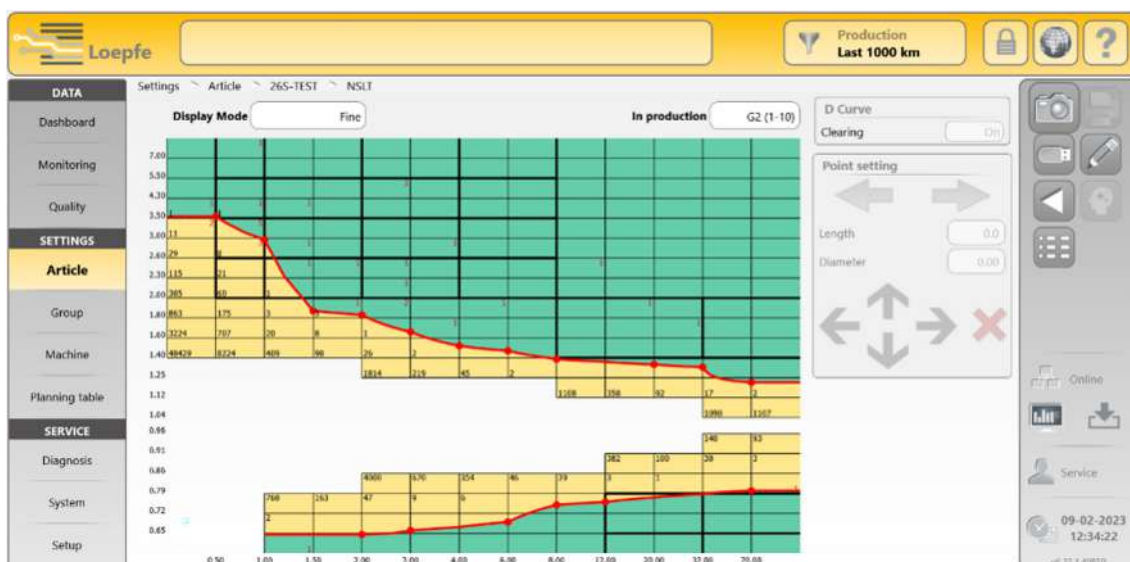
After assigning the article to a group, the Autostart state will be highlighted and displayed as active until the first 100 km are completed.



Comparison: bevor and after Autostart function:
Default NSLT clearing curve before the start.



NSLT clearing curve after 50 km wound yarn per group.



The Autostart function adapts the clearing curve continuously based on real quality data.

Overview:

The progress of the Autostart function is shown in the Settings > Article > Overview screen



End of the Autostart function:

After 100 km wound yarn per group the Autostart function will be finished automatically and the clearing curve is optimized.



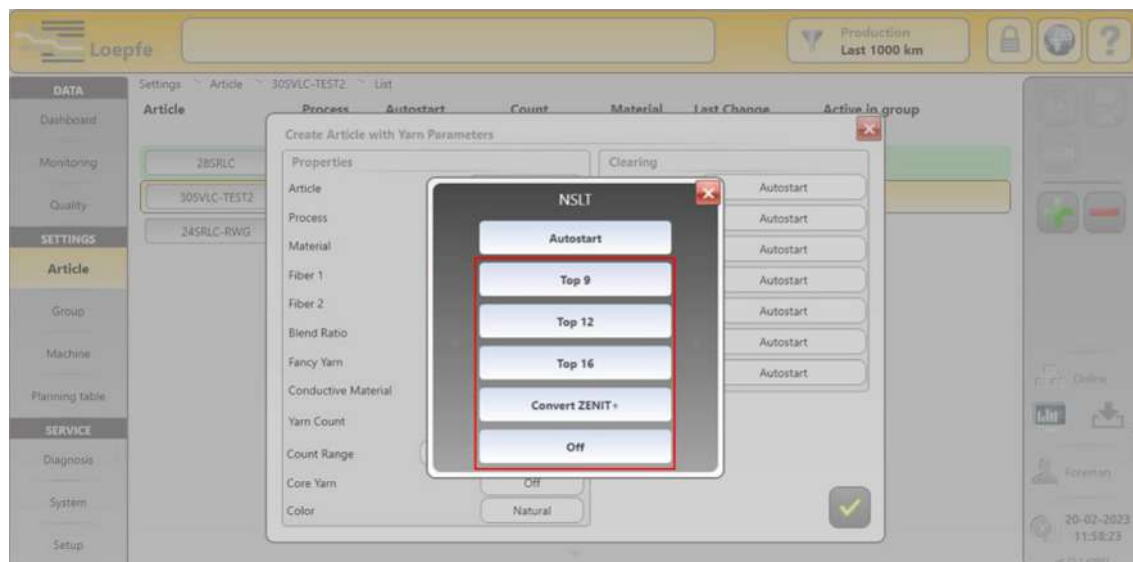
To finalize the article settings:

1. Define NSLT cluster settings and curve
2. Set up F Organic clearing
3. Enable Bobbin Startup alarm
4. Define Length limit alarm curve

6.1.2 Manually define Article

To add a new article choose one of these options:

- Enter all settings manually by starting with a selection of presets: Top 9, 12 or 16.



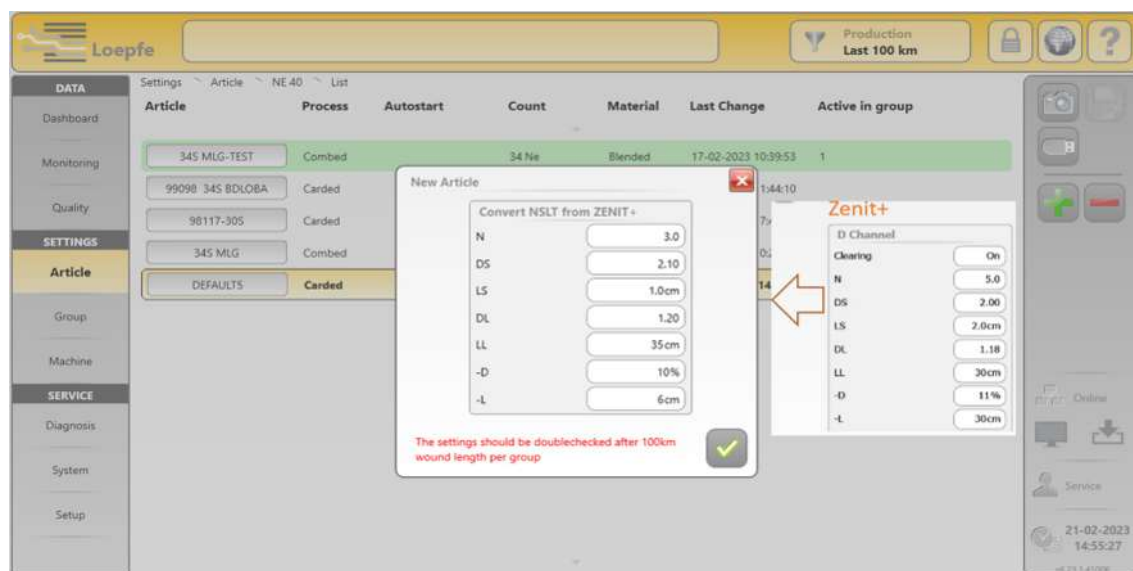
or

- Convert from ZENIT+:

Enter existing settings from ZENIT+ to get equivalent settings for PRISMA.

The settings should be doublechecked after 100 km wound length per group.

Then adjust the settings within the article setting wizard.



6.1.3 Copy Settings from Article

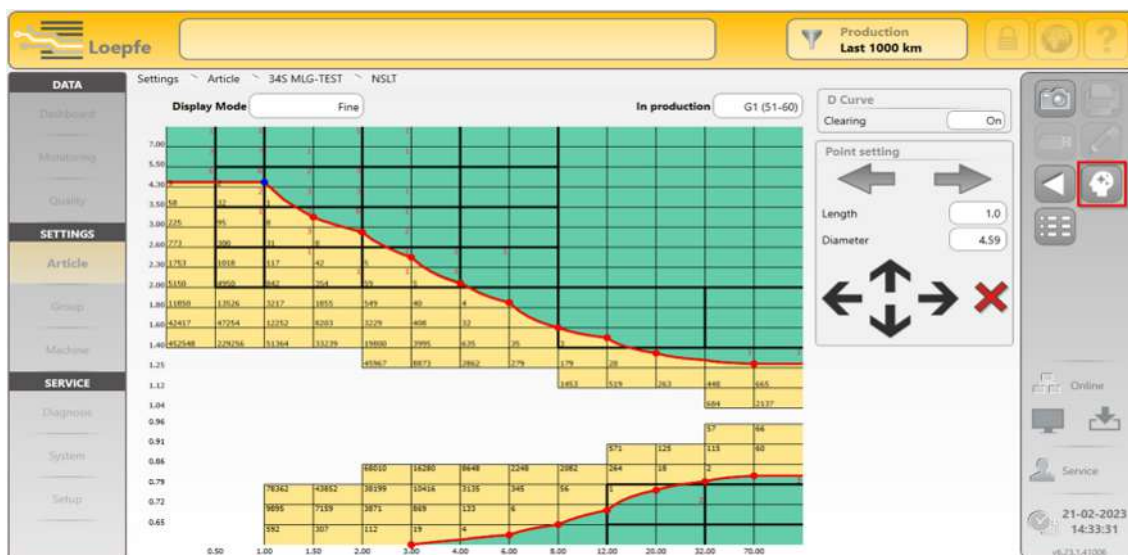
An article can be selected from a list of all articles that are available in the LZE-6. Its basic yarn parameters can be edited before it is saved as a new article.

6.1.4 Import Settings from USB

An article can be selected from a list of all articles that are available on the USB drive. Its basic yarn parameters can be edited before it is saved as a new article to the LZE-6.

6.1.5 Autocorrect Article Settings

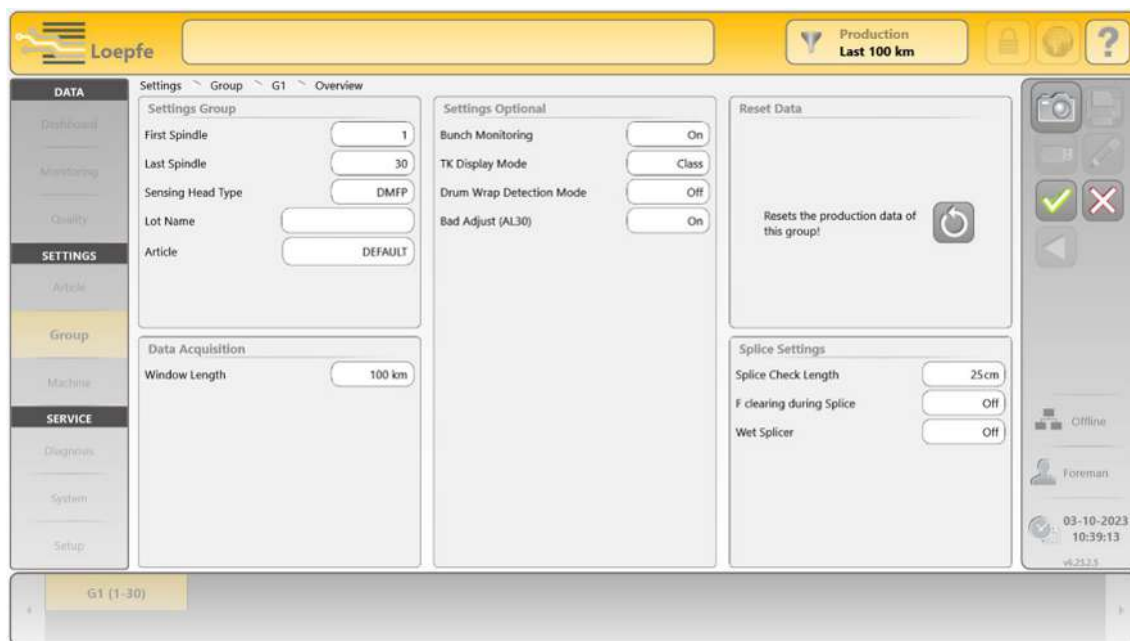
After the finalization of the Autostart or the first 100 km wound yarn per group each clearing curve can be corrected automatically with the Autocorrect function.



6.2 Create new Group

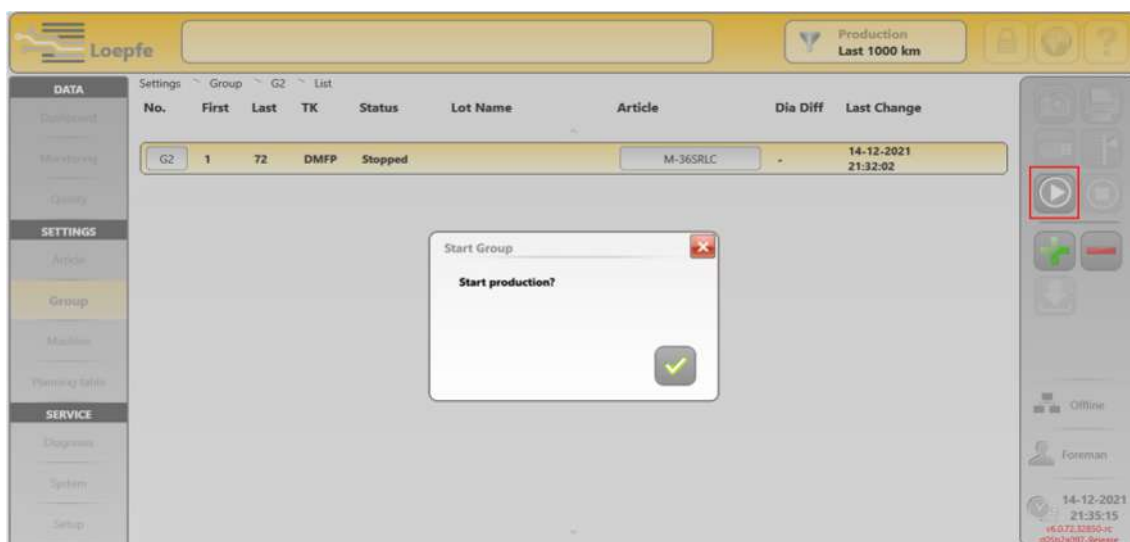
In "Settings Group" the group's spindle range, sensing head type, lot name and assigned article can be set.

If a wet splicer is present, the wet splicer function can be set under the "Splice Settings". In this case F-clearing during splice should be deactivated because water can change the shade of the fibers and trigger false F-cuts.



6.2.1 Start Group

1. In the group list select the group to be started.
 2. Press the start button in the right menu.
- ⇒ The displays of the sensing heads shows "Ad" which means that the spindles can be started.
- ⇒ All assigned sensing heads will start an individual adjust.



7 Maintenance

The yarn clearer system is practically maintenance-free. Regular inspections of the yarn clearer system are important and ensure trouble-free and reliable operation.

A yarn clearer system independently monitors clearing components and processes. It also indicates necessary maintenance work and errors.

	 DANGER Electric voltage hazard Contact with live parts poses an imminent risk of fatal injury. ▶ All electrical work on a yarn clearer system must be performed exclusively by qualified personnel specifically authorized to do so. ▶ Work on electrical components may only be performed when the system is switched off and disconnected from power.
	 WARNING Working on running machines poses a risk of severe physical injury. ▶ Switch off machines and wait until they have come to a complete stop. ▶ Work on electrical components may only be performed when the system is switched off and disconnected from power. ▶ Before installing or performing maintenance on machines, disconnect the compressed air supply and release the pressure from the machines' compressed air system. ▶ Before operating, ensure that all appropriate covers are in place.

7.1 Cleaning sensing head

	⚠ WARNING Sudden emergence of flames Use and ignition of flammable cleaning agents (e.g. Coleman fuel) ▶ Before cleaning: Turn off the machine and wait until it is cooled down. ▶ Electrostatic sensitive areas: Do not enter without proper static grounding equipment.
	NOTE Damage to the sensors due to the use of prohibited cleaning agents No warranty is given for damage caused by using prohibited cleaning agents. Only use permitted and recommended cleaning agents. ▶ Prohibited cleaning agents include: ⇒ all alcohols, such as methanol and ethanol, etc. ⇒ all gasolines, such as car or aviation gasoline, and ⇒ other substances, such as benzene, toluene, acetone and methylated spirits

This chapter provides recommendations for correct cleaning of the sensor area (optics) on the YarnMaster® PRISMA.

Dust contamination in the sensor area affects the clearing performance and can be the cause of an increased number of cuts and misclassifications.

When using marking paint, paraffin, grease and antistatic oils, the measuring slot must be cleaned at shorter intervals.

Cleaning of sensors

All sensors of the sensing head must be kept in good condition to ensure the proper functioning and good results of yarn quality and productivity.

Soiling of sensors is influenced by yarn and processing properties such as raw material, yarn count, winding speed, waxing etc.

A suitable cleaning interval should be decided upon regular inspections and by monitoring respective sensor health values.

Suitable cleaning agents

- TK-Clean from Loepfe Brothers Ltd.
- Drinking water
- Distilled water
- Pure petrol
- Zippo Premium Lighter Fluid «Lighter Fuel»

	NOTE No guarantee is given for damage caused by the use of other cleaning agents.
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Cleaning agent that can be ordered from Loepfe



Loepfe TK Clean

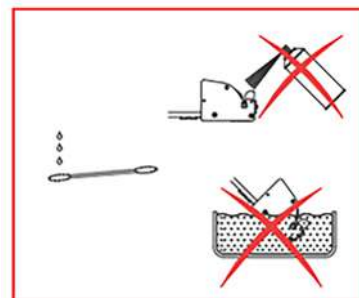
14359900



NOTE

Improper cleaning can damage the sensors!

- Clean the sensors with the utmost care.
- Clean the sensors with Loepfe cleaning swabs.
- DO NOT immerse the sensing head in cleaning agents!
- DO NOT spray cleaning solutions directly in the measuring slot!
- DO NOT use hard objects!



- DO NOT blow any compressed air directly to the sensing head's measuring channel!

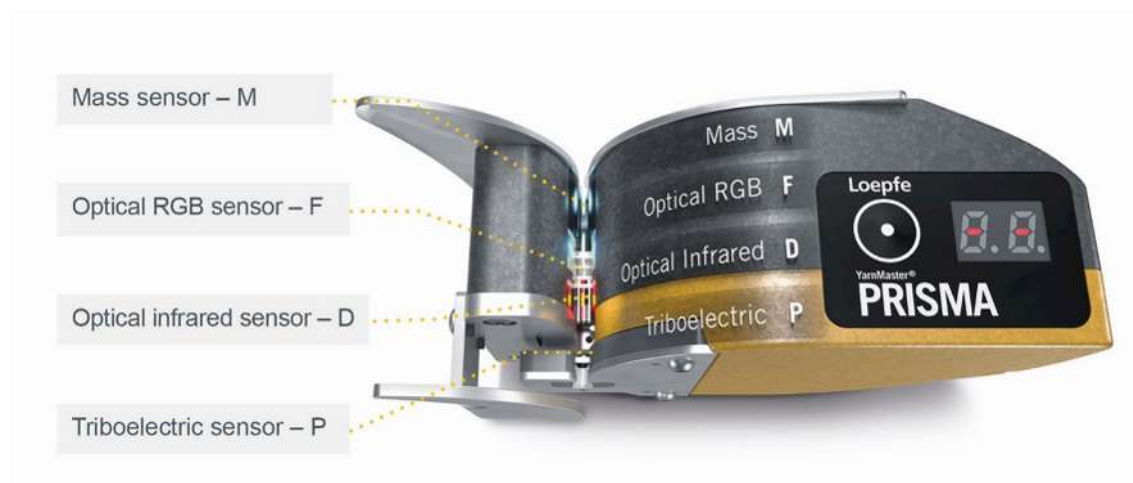


Suggested cleaning agents

Raw material	Cleaning agent
Cotton / Cotton blends	Zippo / TK-clean
Synthetics and blends (short staple)	TK-clean
Synthetics (long staple) Acrylic, Wool	Not required, use dry swabs

How to clean

The entire yarn path of the sensing head, including the yarn guide ceramics, must be cleaned regularly.



Step 1

Lightly wet a medical swab with cleaning agent.

Step 2

Clean sensor area by continuously moving the cleaning swab up and down in the measuring channel. Make sure that the cleaning swab touches the entire surface in the measuring channel and ensure that any soiling is properly removed.

Step 3

Repeat "Step 2" with a dry cleaning swab to dry the measuring channel.

The sensor area properly cleaned when the cleaning swab is free of dirt.

Loepfe recommends using only Loepfe cleaning swabs that can be ordered from Loepfe (Part number: 17528900).



The P4 sensor does not need to be cleaned like the D, M and F sensors. However, the P4 sensor should be checked for cracks or breaks in the ceramic guides.



NOTE

After the measuring channel of the sensing head has been cleaned, it is recommended to adjust the spindle or the group.

The cleaning efficiency can be verified on the LZE-6 using the D-Health value under the menu point: Service => Diagnosis => TK => TK Information. A cleaned measuring channel should have a D-Health value of >90%.

7.2 Replacing sensing head

- ✓ Spare sensing head is available.
- 1. Stop the relevant and neighboring spindles.
- 2. Switch off the power supply to the spindles.
- 3. Remove the covers from the relevant spindles.
- 4. Disconnect the sensing head cable from the spindle adapter.
- 5. Remove defective sensing head.
- 6. Change the sensing head.
- 7. Connect sensing head cable to spindle adapter.
- 8. Insert covers at the corresponding spindle.
- 9. Switch on the power supply to the spindle.
- 10. If the sensing head display shows "PC", update the firmware.
 - ⇒ See also chapter 5.3 Bootloader and firmware update.
- 11. Adjust the relevant spindles.
- 12. Start the spindles.

7.3 Replacing spindle adapter

ESD symbol



Electrostatically sensitive components

NOTE

Danger to electronic components due to electrostatic discharge

Improper handling of electronic components can cause damage that leads to complete failure or sporadic errors.

- ▶ Observe the general ESD protection measures when installing and repairing the product.
- ▶ Only touch the edges of the printed circuit boards.
- ▶ Do not touch the printed circuit board and connector plugs.
- ▶ Place removed components on an antistatic surface or in an antistatic shielding container.
- ▶ Avoid contact between printed circuit boards and clothing.

- ✓ Spare spindle adapter is available.
- 1. Stop the relevant and neighboring spindles.
- 2. Switch off the power supply to the spindles.
- 3. Remove the covers from the relevant spindles.
- 4. Disconnect all cables at the spindle adapter.
- 5. Remove the defective spindle adapter.
- 6. Change the spindle adapter.

7. Connect all cables to the spindle adapter.
8. Insert covers at the corresponding spindle.
9. Switch on the power supply to the spindle.
10. Start the spindles.

8 Troubleshooting

8.1 Alarms and messages

8.1.1 Alarm levels

- W** **Warning** Messages that do not require action
- E** **Error** Message that requires action
- A** **Alarm** Messages that require action
- F** **Fatal** Message that prevents further use of the LZE-6 and cannot be confirmed.

Last messages



Last message

1. Press the Message display button.
⇒ The last 20 messages are displayed.

Last 20 messages					
W	12-04-2023 16:36:04	Techn. Alarm	Spindle 3	Warning	TK offline
W	12-04-2023 16:36:04	Techn. Alarm	Spindle 4	Warning	TK offline
W	11-04-2023 12:39:50	Techn. Alarm	Spindle 4	Warning	TK offline
W	11-04-2023 12:39:50	Techn. Alarm	Spindle 3	Warning	TK offline

Messages window

8.1.2 Messages that require action

The following symbols can be selected in the Messages window and are described in the table.

Symbol	Description	Symbol	Description
	Indicates that there are messages.		Confirm all messages.
	Delete all messages.		Help
	Confirm last message.		Login, user level Foreman

1. Press  .
 - ⇒ The «**Messages**» that require action window opens.
 - ⇒ A message that requires action must be confirmed. Troubleshooting

8.1.3 Messages

The following procedure is recommended for messages requiring action:

1. Perform troubleshooting with suggested measures
2. Confirm alarm messages in the pop-up window
3. If faults cannot be rectified, contact Loepfe Support.

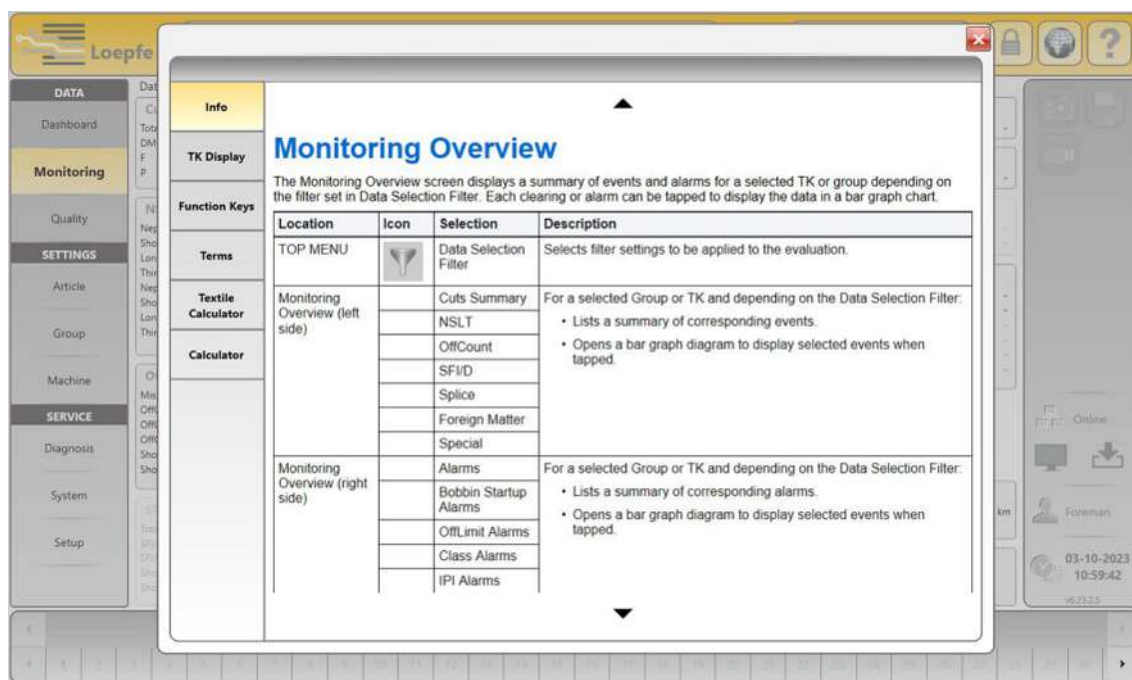
8.2 Alarms on the sensing head



Flashing display means alarm.

- the corresponding cause of the alarm is displayed on the sensing head
- the respective spindle is stopped
- the faulty yarn is automatically removed from the cone, max. 80 m
- the respective bobbin is ejected, depending on the machine setting and the machine type

The sensing head display codes can be found in the info button (right upper corner of the LZE-6) under the submenu "TK Display".



9 Packing, transport and storage

9.1 Packing the devices

For transport to the first destination, the system parts are packed according to the expected transport and storage conditions. If the system plant is sold or returned, the following packing instructions for transport must be observed:

- Pack the system parts so that they are protected against mechanical damage and against moisture.
- Pack printed circuit boards so that they are protected against physical damage, electrostatic discharge and moisture. If possible, pack in ESD protective packaging.

9.2 Transport inspection

Check the delivery for completeness and transport damage upon receipt.

- ✓ Transport damage is discovered during the receiving inspection.
 1. Notify deliverer.
 2. Create damage report.
 3. Inform supplier.



Claims for damages must take place within the valid complaint periods.

9.3 Storage of devices

The following storage conditions must be observed for the devices and system parts:

- Storage temperature between 0 - 60 °C
- Protection against humidity
- Protection against dirt and dust
- Protection from direct sunlight

If possible, the devices and system parts must be stored in closed, dry and clean rooms.

NOTE

Corrosion damage due to improper storage

Warranty is void for damage caused by outdoor storage or in a damp environment leading to corrosion and other damage.

10 Technical data

10.1 System

Installation

Concept	■ Modular integration in winder from various suppliers ■ Power supply by winder ■ Components/devices can be replaced individually
Central unit LZE-6	1 Central unit for each machine and serial connection to the sensing heads
Operation	With central unit LZE-6 and touch screen
Spindle adapter	1 Spindle adapter for each spindle
Sensing head	1 Sensing head for each spindle
Applicable for	Staple yarn, made of natural and synthetic fibers

Ambient conditions

Operating temperature	0 – 50 °C
Storage temperature	0 – 60 °C
Transport temperature	-25 – 70 °C
Humidity (relative)	max. 10 - 90 % rH, not condensing

10.2 Loeffe Central Unit (LZE-6)

LZE-6 Central unit

Screen	Touchscreen with LCD color display
User interface	Multilingual
Power	24 V DC $\pm 10\%$ /1100 mA or with AC/DC converter with 90-264 V AC/50-60 Hz
Dimensions WxHxD	483x266x70 mm
Weight	5.0 kg
Individual assembly	In the machine head

Articles and groups

Articles	99
Groups	30

10.3 Sensing Head

Power supply for sensing head with and without spindle adapter	Voltage	Maximum available output current under all conditions	Fuse
	5 V DC	1 A	Max. 0.5 AT, 65 V min Average time current curve: 1.5 A max. at 120 sec
	7 V DC	1 A	Max. 0.5 AT, 65 V min Average time current curve: 1.5 A max. at 120 sec
	54 V DC	0.1 A	Max. 0.05 AT, 125 V min Average time current curve: 0.15 A max. at 120 sec



- Ground of the supply cannot be used as protective earth connection.
- The power supplies of YarnMaster® PRISMA meets the requirements of CLASS 2 or better.
- The max. available output current of the supplies to YarnMaster® PRISMA are limited by one of the following means:
 - The maximum output current of the supply to YarnMaster® PRISMA is limited under all circumstances to the value given in table below (even when the output of the supply is shorted) or
 - The supply output to YarnMaster® PRISMA is protected by fuse given in table below.

Safety EMC	EN 61010-1:2010-10 + A1:2019 EN 61326-1:2012-07
Winding speed	up to 2200 m/min
Compressed air connection	max. 7.5 bar without oil
Outside diameter connection tube	4 mm

10.3.1 Sensing head variants

TK YarnMaster® PRISMA DM	Detection of diameter/mass faults
TK YarnMaster® PRISMA DMF	Detection of diameter/mass faults and foreign matter
TK YarnMaster® PRISMA DMFP	Detection of diameter/mass faults, foreign matter and synthetic foreign matter

10.3.2 Yarn count range

TK Type	Threshold range coarse	Threshold range fine
DM	Nm 4.0–10.0 / Nec 2.4–5.9	Nm 430–540 / Nec 255–320
DMF	Nm 7.0–10.0 / Nec 4.1–5.9	Nm 430–540 / Nec 255–320
DMFP	Nm 7.0–10.0 / Nec 4.1–5.9	Nm 430–540 / Nec 255–320

11 Dismantling and removal

11.1 Dismantling

	 DANGER Danger due to electric shock Touching live components and electrical connections will result in severe injury or death.
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11.2 Removal

Any parts of the yarn clearer system that cannot be reused must be disposed of properly and in accordance with the usual national environmental protection regulations.

11.2.1 Hazardous Waste

Electronic components



Possible environmental and property damage due to improper disposal of electrical and electronic components/assemblies.

If you need to dispose of these products, please observe the following:

- Electrical and electronic components and assemblies as well as batteries and capacitors must be disposed of/recycled properly.
- Check with local authorities or distributor for waste disposal regulations.

12 Spare parts and accessories

12.1 Non-original spare parts or non-approved accessories

NOTE
Safety risk due to non-original spare parts or non-approved accessories! Non-original spare parts or non-approved accessories can impair safety and lead to damage, malfunctions or total failure of the yarn clearer system. ► Only use original spare parts or accessories approved by Gebrüder Loepfe AG.

Gebrüder Loepfe AG does not accept liability for damage resulting from the use of spare parts / replacement parts / conversion parts not supplied by Gebrüder Loepfe AG.

12.2 Order Information

All listed spare parts can be ordered through the local representative or the Loepfe service.

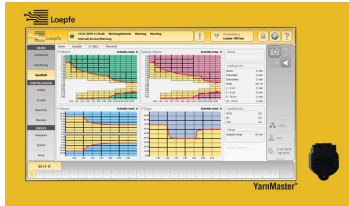
To prevent incorrect deliveries and delays, the following information must be provided for orders:

- Company name
- Company address
- Spare part designations
- Item number
- Quantity
- Machine type with serial number

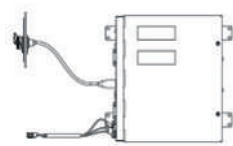
12.3 Spare parts

LZE-6 Central Unit

Item number



LZE-6, MUR	51267000
LZE-6, SAV	51265000
LZE-6, AC	51266000
LZE-6, QDHD	51316000



LZE-6, SAV Faceless	51306000
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Master module LZE-6	50271000
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Power supply kit LZE-6	17189900
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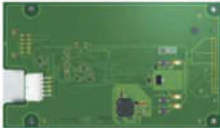
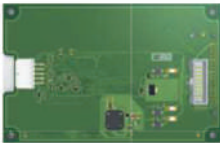
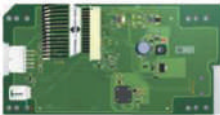
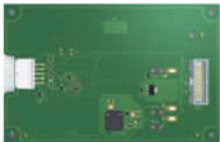
Power supply cable SAV (24 V)	46385000
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Power supply cable AC (24 V)	50307000
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Power supply cable SMARO/ ISPERO (115/230 V)	46390000
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Bus-adaptor cable SOP	44959000
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Spindle Adapter

	Spindle adapter QPRO	50328000
	Spindle adapter 21C	50330000
	Spindle adapter SOP	50155000
	Spindle adapter AC	50274000
	Spindle adapter AC338	50276000
	Spindle adapter SMARO/ISPERO	50233000

Sensing Head (TK), YarnMaster® PRISMA**Murata QPRO / Alcone / FLcone**

TK YarnMaster® PRISMA DM	51333000
TK YarnMaster® PRISMA DMF	51259000
TK YarnMaster® PRISMA DMFP	51260000

Murata 21C

TK YarnMaster® PRISMA DM	51341000
TK YarnMaster® PRISMA DMF	51342000
TK YarnMaster® PRISMA DMFP	51343000

Savio POLAR

TK YarnMaster® PRISMA DM	51331000
TK YarnMaster® PRISMA DMF	51255000
TK YarnMaster® PRISMA DMFP	51256000

Savio PULSAR

TK YarnMaster® PRISMA DM	51332000
TK YarnMaster® PRISMA DMF	51257000
TK YarnMaster® PRISMA DMFP	51258000

Savio PROXIMA

TK YarnMaster® PRISMA DM	51383000
TK YarnMaster® PRISMA DMF	51384000
TK YarnMaster® PRISMA DMFP	51385000

Rieter AC338/AC5/ACX5

TK YarnMaster® PRISMA DM	51334000
TK YarnMaster® PRISMA DMF	51261000
TK YarnMaster® PRISMA DMFP	51262000

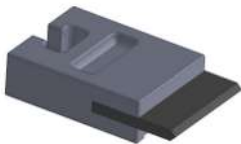
Rieter AC6/ACX6

TK YarnMaster® PRISMA DM	51335000
TK YarnMaster® PRISMA DMF	51263000
TK YarnMaster® PRISMA DMFP	51264000

QDHD VCRO Plus

TK YarnMaster® PRISMA DM	51405000
TK YarnMaster® PRISMA DMF	51406000
TK YarnMaster® PRISMA DMFP	51407000

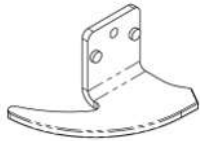
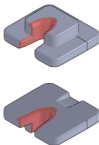
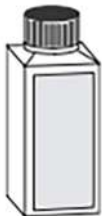
Knife	50033030
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Thread Guide Plate 2 x SR HDR TORX M2.5X12	51212000
	17373900



Sensing Head (TK), YarnMaster® PRISMA

	Standard side limiter 1 x SR LZYL TORX KOMBI M2.5X6	51327000 17186900
	Half-moon side limiter 1 x SR LZYL TORX KOMBI M2.5X6	51389000 17186900
	P-Sensor 2 x SR HDR TORX M2.5X12	51242000 17373900
P-Retrofit-Set		51375000
	Yarn guide	51310000
	Loepfe TK Clean	14359900
	Loepfe cleaning swab	17528900

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