Operating instructions

for the

Combino/Guss-Linie/Performance/Masterline/single module

Conveyor system with apricot band, heat tunnel and/or fondant band

Original operating instructions in German (D)

Product name	**Combino/ Casting line/ Performance/ Masterline Conveyor system/ Single module**
Year	2026
Identification	Type plate on control cabinet
Date of creation/revision	2025-07 / V.002.00
Manufacturer and address	**Frisch Spritzmatic GmbH** Ramminger Straße 4 D- 89129 Öllingen

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1 Important safety instructions

Only use the tape system for the purpose described in this manual. Otherwise, you may endanger yourself or damage parts of the system.

You will endanger yourself and others if you operate the system incorrectly or fail to observe the safety and warning instructions. This could result in serious injury or significant damage to property.

1.1 About this operating manual and other important user information

These instructions contain important descriptions and instructions as well as safety and warning notices regarding possible residual risks during handling and use. These operating instructions are indispensable for the safe and effective operation and handling of the belt system.

However, this operating manual does not contain redundant information on the modules or optional accessories that can be combined with the belt system. Separate project-specific manuals are supplied for this purpose.

Furthermore, these instructions provide guidance on troubleshooting and information on necessary maintenance intervals.

1.1.1 Terms used

Belt system
The conveyor belt system is used to coat, dry, glaze and, if necessary, decorate baked goods.

Apricot belt with infeed
The apricot band with inlet and a heating machine is a key component of a band system. This is where the pastries are placed.
The short term "*apricot belt*" is also used for this below.

Apricot coating bridge
The apricot coating bridge sits on the apricot coating belt and is a key component of the belt system. It is used to spray the pastries with apricot coating. The term *"spray bridge"* is also used below to refer to this component.

Heat tunnel
The heat tunnel is a key component of the conveyor belt system. It is used to dry the apricot glaze.

Glazing belt with outlet
The glazing belt with outlet and a heating machine is a key component of a belt system. This is where the pastries are glazed and removed.
The short term "*fondant belt*" is also used for this below.

Glazing station
The glazing station is located on the glazing conveyor and is a key component of the conveyor system. This is where the baked goods are coated with fondant or fat glaze.

WIS
The water injection system is an optional feature of the heating machines. It serves to maintain and stabilise the medium in the heating machines.

Heating machine
The heating machine is designed for use on the conveyor belt system. It is ideal for the automated feeding of materials into the production line. In addition, it can also be used as a stand-alone device to heat and convey media that are then processed with a spray gun**.** The abbreviation *HZ* is also used for this purpose below.

Interchangeable equipment (optional)
The interchangeable equipment can be used as an additional option for decorating.

P&R cleaning agent
Care concentrate with cleaning effect. For internal cleaning of material-carrying parts of machines and systems.
Available from the manufacturer Frisch Spritzmatic GmbH

1.1.2 Scope of these operating instructions

These operating instructions apply exclusively to the model specified on the cover page.
Conveyor system with **apricot band (1)**, **heat tunnel (2)** and/or **glazing band (3)**.
This operating manual also shows the control-related connections between the **conveyor system** and the **heating machines (4+5).**

Figure 1: Example of a combino with heating machines

1 Apricot band
2 Heat tunnel
3 Glazing belt
4 Apricot heating machine
5 Fondant heating machine

Observe further operating instructions
These operating instructions do not replace the separate instructions for **the heating machines (4 and 5).**

1.1.3 Applicable documents and further instructions

In addition to these instructions, additional applicable documents have been delivered to the operator. The applicable documents provide important supplementary information on project-specific

- restrictions on use and
- Descriptions and instructions for any necessary maintenance and repair work.

Cross-references in these instructions

This manual contains numerous references to other relevant documents.

► In such cases, please also observe the safety and warning notices as well as the descriptions and instructions in the respective documents:

- **Electrical circuit diagram**
- **Pneumatic circuit diagram**
- **Operating instructions** for the heating machines and, if applicable, Masterline.

1.1.4 Storage, provision and transfer

Storage and provision

► Keep

- this operating manual and
- all applicable documents

in the operating environment at the system at all times.

Transfer to others

If the system is ever moved to another location or transferred to another operator:

► Enter

- this operating manual and
- all relevant documents

to subsequent operators and users.

1.1.5 What this operating manual cannot do

Ensure the qualification of operating and maintenance personnel

Requirements for qualifications and specialist knowledge for certain activities are specified in this manual and in the relevant documents.

However, this manual cannot impart the necessary specialist knowledge.

If you do not have the required qualifications for certain activities yourself:

- ► Only allow tasks that require specialist knowledge to be carried out by qualified personnel with the appropriate training.
- ► Never attempt to carry out tasks yourself if you do not have the necessary qualifications.

Research operating regulations

Depending on the country and state in which the system is operated, there are different operating regulations that the operator and user must observe.

Due to these differences, the requirements of the regulations cannot be listed in this operating manual.

In addition, the rules and regulations applicable to the place of use regarding accident prevention and environmental protection, as well as any work and operating instructions issued by the operator/facility, must be observed.

- ► Find out about any additional operating regulations that apply.

Internal instructions

Operating or accident prevention regulations may necessitate internal operating and work instructions.

These may specify additional safety and warning instructions as well as necessary additional personal protective equipment.

In addition to these operating instructions, necessary behaviour for persons working on or with the system may also be required here.

- ► If necessary, supplement these instructions with your internal company instructions.

Training and instruction

These operating instructions provide step-by-step guidance on how to work safely and effectively on and with the system. Nevertheless, it is essential that anyone who is to work on or with the system receives detailed training and instruction.

Operating and accident prevention regulations also require the operator to follow this procedure.

- ► As the operator, you must instruct and train any person who is to work on or with the belt system.
- ► To do this, take these instructions and any existing operating and work instructions into account.
- ► In particular, provide information on all safety and warning notices.

1.2 Symbols and signal words used

All safety and warning notices in these instructions have been clearly highlighted. The following symbols and signal words have been used for warning notices.

⚠ WARNING

Warns you of dangers that **could result** in **death or serious injury** to persons if you do not follow these instructions.

or

⚠ **WARNING**, directly in the context of an instructional section of these operating instructions

⚠ CAUTION

Warns you of hazards that could result in **minor**, usually reversible **injury** to persons if you do not follow these instructions.

or

⚠ **CAUTION,** directly in the context of an instructional part of this operating manual

ATTENTION

Warns you of situations that could lead to **property damage and disruptions in operations** if you do not follow these instructions.

or

CAUTION, directly in the context of an instructional section of these operating instructions

Safety chapter

Safety chapters are entire sections containing safety-related information that is essential for safe and effective operation and handling.

Hazards are also specified by the **following pictograms**:

Warning of hazards that are specified in more detail in the warning notice

Hazards due to electric current

Warning of hot surfaces

Warning of rotating parts

Warning of crushing and entrapment points

Command symbols used in these instructions**:**

Wear **a hair net**

Wear **protective clothing**

Wear **safety footwear**

Wear **protective gloves**

Other **signs and symbols** used in this manual**:**

Tip
Reference to useful information on handling the belt system.

Cross-references
Cross-references in this operating manual are marked with this symbol or in *italics*.

► **Call to action**
Calls for action are marked with this symbol.

Action step
Action step
...
Step-by-step instructions are listed in lowercase letters according to the sequence of actions.

✓ **Interim or final result of an action or series of actions**
This information makes it easier to determine whether the step-by-step instructions have been successfully completed.
.

■ **Bullet points**
are used to mark lists in both the descriptive and instructional sections of this operating manual.

Carrier

Operator

Installer

Trained electrician

1.3 Ensure authorised persons

Ensure qualified personnel – train and instruct

Insufficiently qualified personnel can cause personal injury and property damage through incorrect operation.

Only work with the conveyor system if you

- have read and understood the contents of this operating manual and
- have received additional instruction on safe operation.

The descriptions and instructions contained herein require the specialist knowledge of a trained operator.

If a qualified person is required for a specific task, this person must be able to demonstrate, based on their training and professional experience, that they are capable of recognising the dangers and risks associated with the task in question or which may arise during its performance.

- ► Always comply with the necessary requirements for the permitted groups of persons.
- ► Observe the qualification requirements listed below.
- ► Also comply with the relevant accident prevention regulations and environmental protection regulations.

The necessary qualifications of the operating personnel and descriptions of the permitted and prohibited activities are summarised in the following sub-sections.

Warning against incorrect operation due to the influence of drugs, medication or alcohol

- ► Never work on or with the system if you
  - under the influence of alcohol,
  - drugs or medication.

1.3.1 Freight forwarder and warehouse clerk

Transport and storage	
Person in this manual	**Forwarding agent/warehouse clerk** with training and instruction and a valid driving licence for the vehicles to be used. 
Required qualification	■ Operating instructions for *transport and storage* read and understood. ■ Familiar with all basic regulations on occupational safety, accident prevention and environmental protection. ■ Driving licence for the vehicles to be used and regularly instructed and trained in the safe handling of industrial trucks.
Permitted activities	■ Lifting ■ Setting down ■ Lashing ■ Transport
Prohibited activities	■ Operation ■ Cleaning and maintenance work ■ Identifying and rectifying faults ■ Maintenance ■ Rectifying faults and defects ■ Repair

1.3.2 Operating personnel

Use	
Person in this manual	**Operator / operator** with training and instruction 
Required qualification	■ Operating instructions read and understood ■ Familiar with all basic regulations concerning occupational safety, accident prevention and environmental protection ■ Trained and instructed in the safe handling of the system and its components
Permitted activities	■ Connecting the power supply ■ Operation ■ Identifying faults ■ Cleaning and maintenance work ■ Inspection activities
Prohibited activities	■ Maintenance ■ Rectifying faults and defects ■ Repair

1.3.3 Repair and maintenance personnel

Repair and maintenance – electrical equipment	
Person in this manual	**Qualified electrician** 
Required training	As the operator, plus: ■ Completed training as a qualified electrician or ■ higher-level training (electrical technician, master craftsman, engineer) with practical experience
Permitted activities	■ Troubleshooting electrical equipment ■ Repairing electrical equipment ■ Maintaining electrical equipment
Prohibited activities	■ Lifting ■ Setting down ■ Lashing ■ Transport

Installing, repairing and maintaining mechanical and pneumatic equipment	
Person in this manual	**Maintenance technician** 
Required training	Same as for the operator, plus ■ Completed training as a mechanic, pneumatic specialist/mechatronics engineer with practical experience or ■ higher education (mechanical engineering technician, master craftsman, engineer) with practical experience
Permitted activities	■ Troubleshooting mechanical and pneumatic equipment ■ Repair mechanical and pneumatic equipment ■ Maintaining mechanical and pneumatic equipment

2 Requirements for safe operation

Observing basic rules of conduct

- Only use the belt conveyor system for its intended purpose as described in this operating manual.
- Never attempt to manipulate or bypass safety functions or protective devices.
- Never work with the belt conveyor if safety functions have been activated, protective devices are missing or you can detect a defect.
- In such cases, have the system restored to a safe condition or repaired before attempting to restart it.
- Always keep your working environment clean and tidy.
- Ensure that the floor is non-slip and level and that there is sufficient lighting at your workstations.

✓ This will help you avoid unforeseeable safety risks when using the system.

2.1 Intended use

The belt conveyor system has been constructed in accordance with the latest technology and recognised safety regulations. Nevertheless, improper or unintended use may result in danger to the life and limb of the user or third parties, or damage to the system or other property.

The belt conveyor system is intended exclusively for the following activities

- Conveying pastries,
- "Refining" (apricoting, drying and glazing) of fine baked goods

The conveyor belt system may only be used in accordance with the instructions described in this operating manual.

- operations,
- operating modes
- operating modes described in this operating manual.

The belt system must always be in

- technically sound condition and
- in accordance with the maintenance intervals specified in these operating instructions, and
- installed and operated in a safe and hazard-conscious manner.

In particular, faults that could compromise safety must be rectified immediately.

Any other use is not in accordance with the intended purpose and is therefore not permitted.

2.2 Improper and unintended use

The following are not considered proper use

- operation outside the environmental and operating conditions specified in these instructions, or
- Any operation outside the specified intended and permissible use or
- operation and/or handling of the system during any phase of its service life by personnel who are not sufficiently qualified.

It is expressly prohibited

- the operation of individual or all system components within explosive atmospheres.

2.3 Operator's obligation

Overall responsibility for safe operation

The operator bears overall responsibility for the safe operation of the conveyor system during all phases of its life cycle and specifies the rules and boundary conditions for the necessary organisation.
The operator shall ensure compliance with all necessary operating, application and environmental conditions.

All operating and maintenance personnel must be trained and instructed by the operator in accordance with the operating instructions and informed about local, operation-specific hazards.

The operator shall ensure that

- these operating instructions are always kept handy at the conveyor system and
- any operating instructions that have been damaged or have become illegible are replaced immediately.

The operator undertakes to

only allow persons to work on or with the belt system who

- have read and understood these operating instructions,
- are familiar with the basic regulations on occupational safety, accident prevention and environmental protection, and
- are trained in the safe handling of the conveyor system (instruction) and thus
- meet the requirements and qualifications specified in these instructions.

Furthermore, the operator undertakes to

that maintenance work will only be carried out by qualified personnel who

- have read and understood these operating instructions,
- are familiar with the basic regulations on occupational safety, accident prevention and environmental protection, and
- have been specially trained for the respective activity.

2.4 Obligations of operating and maintenance personnel

Every person who works on or with the conveyor system is obliged to

- read and observe this operating manual and
- to follow all safety and warning instructions without exception,
- to follow all warnings and notices affixed to or marked on the conveyor system itself,
- familiarise yourself with the operation, functions and all safety and protective devices,
- use the system only when it is in perfect technical condition and in accordance with its intended purpose, in a safe and hazard-conscious manner, observing the operating instructions, and
- immediately rectify any faults that could compromise safety or have them rectified if necessary.

2.5 Space requirements around the belt conveyor system

The installation site must be selected so that all minimum distances for safe access to plant and control elements can be maintained. The distances to all other objects and building parts specified below are minimum dimensions for workplaces, passageways and escape routes.

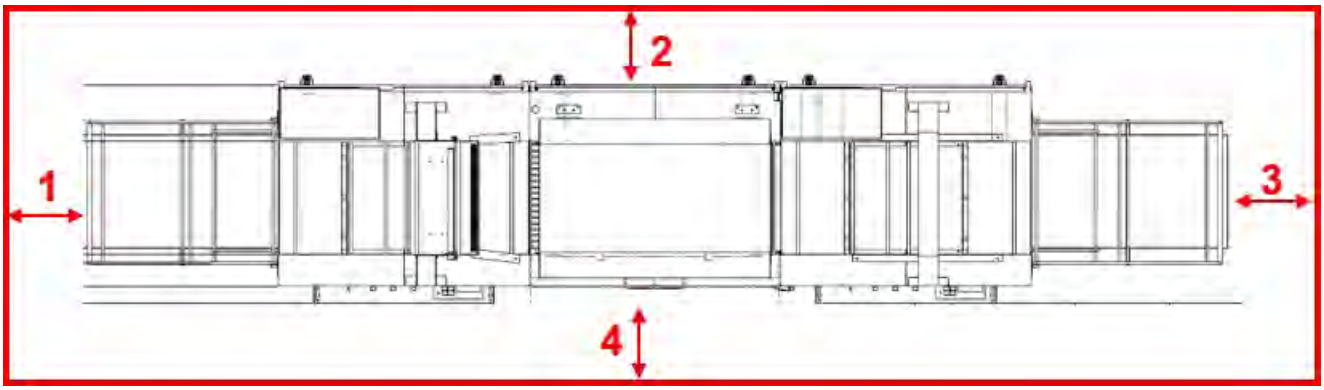


Figure 2: Space requirements around the conveyor system

Accessibility

1 Left – Workstation for removing baked goods

Minimum distance: 800 mm

2 Rear – access to supply connections

Minimum distance: 800 mm

3 Right – Workstation for placing baked goods

Minimum distance: 800 mm

4 Front – Work area for the operator

Minimum distance: 800 mm

3 Technical data and connection values

3.1 Technical data Combino

Dimensions and weights			
***Complete system – Combino conveyor system (basic configuration with the following combination options)**			
Height in mm	Length in mm	Width in mm	Total weight in kg
1808	4571	800	622

*Depending on the use of optional modules, the total dimensions/weight may vary.

Apricot band with apricot station and inlet			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1784	800	115

Heat tunnel			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1001	800	118

Glazing belt with veiling station and outlet			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1784	800	115

Heating machines			
Height in mm	Length in mm	Width in mm	Weight in kg
780	630	800	137

3.2 Technical data Casting line

Dimensions and weights			
***Complete system – casting line (basic configuration with the following combination options)**			
Height in mm	Length in mm	Width in mm	Total weight in kg
1808	3568	800	622

*Depending on the use of optional modules, the total dimensions/weight may vary.

Apricot band with spray station and inlet			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1784	800	115

Glazing belt with veiling station and outlet			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1784	800	115

Heating machines			
Height in mm	Length in mm	Width in mm	Weight in kg
850	630	800	137

3.3 Technical data Performance

Dimensions and weights			
***Complete system – Performance belt conveyor (basic configuration with the following combination options)**			
Height in mm	Length in mm	Width in mm	Total weight in kg
1808	4727	983	910

*Depending on the use of optional modules, the total dimensions/weight may vary.

Apricot band with apricot station and infeed roller conveyor			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1952	983	130

Heat tunnel			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1001	983	140

Glazing belt with veiling station and discharge roller belt			
Height in mm	Length in mm	Width in mm	Weight in kg
1808	1757	983	130

Heating machines			
Height in mm	Length in mm	Width in mm	Weight in kg
780	630	800	210/ 290

3.4 Ambient conditions and connection values

Permissible ambient conditions	
Temperature during transport	-15°C to +50°C
Temperature during storage/operation	-15°C to +50°C
Relative humidity	Max. 85% in the specified temperature range
Floor condition	The quality of the hall floor must meet the requirements for a food processing industrial floor in terms of concrete quality, concrete thickness, coating and flatness.

Noise level at the conveyor system	
Normal operation	Continuous sound pressure level Average max. 70 dB(A)

Performance and load capacity of the conveyor belt system	
Use	(8 hours/day, 2,920 hours/year)
Belt speed	max. 16 m/min
Cycles/year (n_{op})	700,800

Connection values of the belt system	
Mains – electrical energy	3/PE/N
Nominal voltage	400 V
Frequency range	50/60 Hz
Rated current	16 A
Compressed air supply and quality	4 - 8 bar, filtered, oil-free

4 Main components and functions of the belt system

Descriptive parts of the manual do not contain instructions for action

This chapter is a descriptive part of the operating instructions. It serves to explain the system and does **not** yet contain **any** instructions for action.

Figure 3: Example combination of a complete Combino belt system

1 Apricot band

2 Heat tunnel (not included in casting line)

3 Glazing belt

4 Apricot heating machine

5 Fondant heating machine

4.1 Apricot band

Figure 4: Apricot band

1 Control panel
2 Spray bridge
3 Light barrier (only for Performance and Masterline)
4 Infeed roller conveyor (optional)
5 Compressed air connection
6 Apricot conveyor belt

4.2 Heat tunnel (not included in casting line)

Figure 5: Heat tunnel

1 Heat tunnel
2 Control panel

4.3 Glazing belt

Figure 6: Glazing belt

1 Control panel
2 Veil station
3 Heating machine
4 Glazing belt
5 Outfeed roller conveyor with drip tray (optional)

4.4 Heating machines

Observe applicable documents

The instructions for the heating machines are included with the applicable documents. See *section 1.1.3 Applicable documents and further instructions.*

These operating instructions do not contain any redundant descriptions or instructions.

Figure 7: Heating machine, e.g. Combino Jet Fondant

1 Control panel

2 Material hose

3 Heating machine

5 Workstations

Descriptive parts of the instructions do not contain instructions for action

This chapter is a descriptive part of the operating instructions. It is intended to aid understanding and does **not** yet contain **any**
instructions for action.

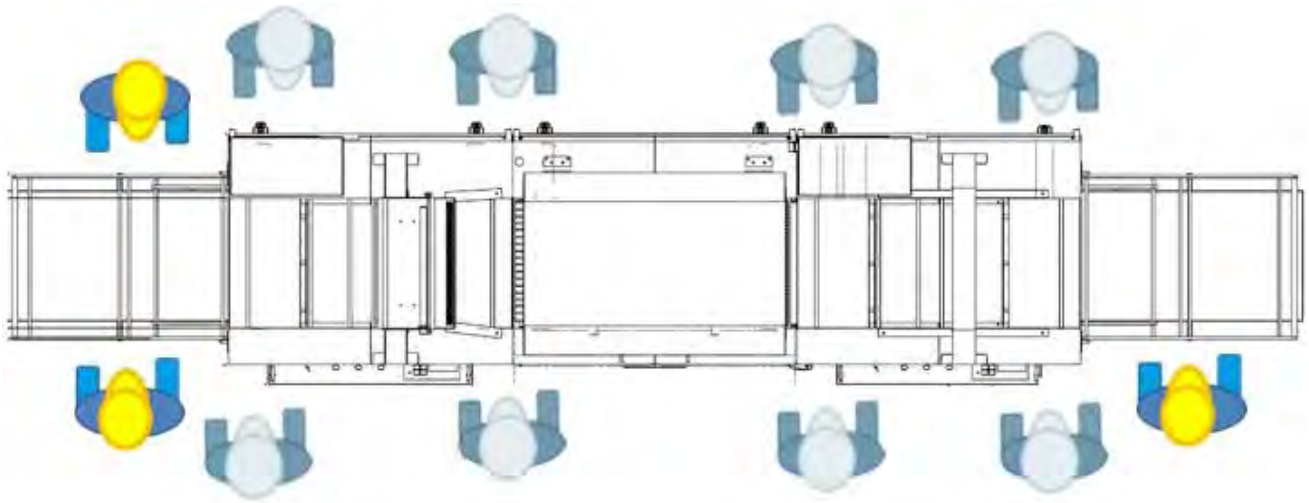
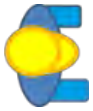


Figure 8: Workstations



Workstations

During operation, the operator must place the baked goods at the start of the conveyor belt and another operator must remove them at the end of the conveyor belt

Adjustment options

During maintenance and cleaning work, the operator must be able to reach almost all system components.

6 Overview of operating and display elements

Descriptive parts of the manual do not contain instructions for action.

This chapter is a descriptive part of the operating instructions. It serves to aid understanding and does **not** yet contain **any**
instructions for action.

Figure 9: Combino control panels

1 Apricot belt control panel

2 Control panel for glazing belt

3 Control panel for heating tunnel (not included in casting line)

4 Control panels for apricot heating machine

5 Control panel for fondant heating machine

6.1 Control panel on apricot and glazing belt

Figure 10: Controls on the apricot/glazing belt

1 Emergency stop button

2 Blanking plug (optional Selector switch for floor heating on glazing belt, e.g. casting line)

3 Acknowledgement button

4 Compressed air supply on/off (only on apricot band)

5 Conveyor belt speed controller

6 Main switch

6.2 Control panel on the heat tunnel (not included in the casting line)

Figure 11: Controls on the heat tunnel

1 Heating on

2 Temp. reached

3 Belt speed

4 Acknowledgement button

5 Main switch

6 Heating on/off

7 Emergency stop button

6.3 Control panel on heating machine (various designs possible)

Figure 12: Control elements on heating machine

1 Control

2 Pressure gauge

The pressure gauge shows the pressure at which the pump is operating

3 Compressed air reducer

The compressed air reducer regulates the operating pressure

4 Pump speed throttle

The throttle regulates the pump speed

5 Main switch on/off

6 Compressed air switch On/Off

7 Injection indicator button

Pressing the button activates the water injection. The button lights up.

7 Safety and protective devices

Descriptive parts of the manual do not contain instructions for action

This chapter is a descriptive part of the operating instructions. It serves to aid understanding and does **not** yet contain **any**
instructions for action.

7.1 Design and technical protective measures

Design measures

Design measures to prevent hazards were already taken into account and integrated during the design phase.

Technical measures and user information

Despite the state-of-the-art design and construction of the system, residual risks cannot be completely ruled out.

For this reason, in addition to the design measures, technical protective measures were also implemented to further reduce exposure to hazards, and user information was provided to enable rapid and improved recognition of residual risks.

7.2 Safety functions

Safety function and event	Risk reduction and ✓ Response	Quality according to EN ISO 13849-1
SF001 Acknowledgement button at the control panel not pressed	**Safely prevent the system from starting up while safety functions are still active** ✓ **System** remains in safe condition	PL d
SF002 One or more emergency stop control devices activated	**Supplementary protective measure: emergency stop** ✓ **Power supply** is switched off and locked	PL d
SF003 One or more emergency stop devices activated	**Supplementary protective measure Emergency stop** ✓ **Compressed air supply** is switched off and locked	PL d

7.3 Main switch

Figure 13: Main switch

Main switches are used to switch on the power supply for the respective control cabinet and to safely disconnect the power supply to the system component.

7.4 Emergency stop button

Figure 14: Emergency stop button

Each emergency stop button brakes the drives of the conveyor system and ultimately disconnects them from the power supply (stop category 1).

The emergency stop button may only be unlocked and acknowledged once the dangerous situation has been rectified.

7.5 Acknowledgement

Figure 15: Red acknowledgement button

Red illuminated button on the control panel

Acknowledgement prevents unexpected start-up and serves to confirm that a safe state has been restored.

A confirmation is necessary:

- after each (re)establishment of the electrical power supply and
- after emergency stop situations have been rectified.

7.6 Fixed protective devices

Protective devices such as

- filler pieces

offer protection against reaching hazardous areas. These must always be in perfect condition and fully attached to the system.

Filler pieces

a)

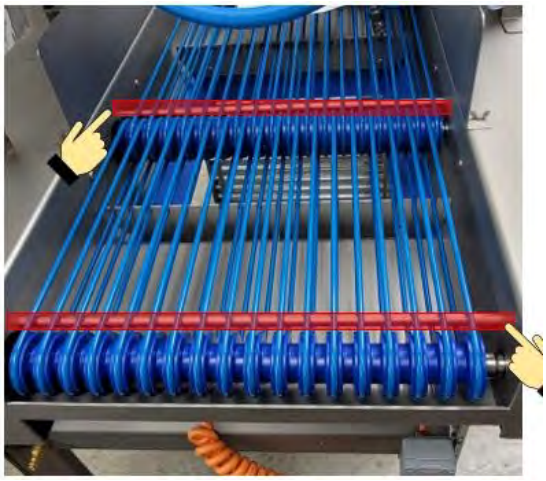


Figure 16: Filler pieces on the conveyor belt

Filler pieces are mounted in front of the deflection rollers on the conveyor belts to prevent people from reaching under the deflection rollers and being pulled in.

8 Transport and storage

Transport and storage	
Person in these instructions	**Forwarding agent/warehouse clerk** with training and instruction and a valid driving licence for the vehicles to be used. 
Required training and permitted activities	See *section 1.3.1 Forwarding agent and warehouse clerk* in these operating instructions.

Before transport

- Have all system components taken out of service by trained specialists before you begin transport.
- Transport all system components separately from each other.
- Protect all system components against moisture, dirt and dust.

⚠ WARNING

Warning of danger to bystanders

During transport, bystanders may be injured due to lack of knowledge.

- Employ additional personnel to provide guidance during loading and transport work.
- Cordon off the danger area for bystanders.

8.1 Transporting modules

⚠ WARNING

Warning of heavy parts tipping over or falling

- ► Observe the weight specifications for the system in the technical data.
- ► Use appropriate industrial trucks.

Warning of falling heavy parts during internal transport

System components may fall over during transport.

- ► Secure the conveyor belts against any unwanted movement, even during internal transport.
- ► Transport may only be carried out by trained specialist personnel.

Figure 17: Lifting conveyor belts with a pallet truck or industrial truck

- ► Transport all plant components exclusively in a horizontal position and
- ► use appropriate industrial trucks.

CAUTION: the system components have an off-centre centre of gravity.

- ► Secure all system components against any unwanted movement – even for internal transport.
- ► Avoid jolting the system components and collisions with other objects.

✓ This is the only way to ensure safe transport of the system components.

8.2 Storage location

Always maintain the ambient conditions specified in *Chapter 3 Technical Data and Connection Values* at the storage location.

Protect all system components from damage before, during and at the end of storage by taking appropriate measures.

- damage,
- penetration of water, dirt, dust or other substances,
- extreme temperature and humidity fluctuations,
- frost,
- direct sunlight,
- contact with chemicals and
- condensation.

The substrate must have sufficient load-bearing capacity.

9 Setup and installation

The instructions in this chapter are intended for specially trained personnel	
Person in these instructions	Depending on the task to be performed: ■ **Qualified electrician** and/or **maintenance technician** 
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.
Wear personal protective equipment	

⚠ WARNING

Insufficiently qualified personnel can cause personal injury and property damage The assembly and installation of the belt system require the knowledge of a trained specialist. The belt system may only be assembled and installed by specially trained personnel

.

This manual cannot provide such knowledge.

- ► Have all system components assembled and installed only by trained specialists.
- ► Commission the **manufacturer** itself or a **specialist company authorised** by the manufacturer to carry out any assembly and installation work.

Danger from electric current

The system operates at high voltage.

- ► **Never** open switch cabinets, control units or other electrical equipment unless you are **a qualified electrician**.

9.1 Setting up system components

- Observe the requirements for the location
- Ensure that the environmental and location conditions listed in *Chapter 3* are met.

- Set up the system components in accordance with the installation plan; observe *section 2.5 Space requirements* in this operating manual.
- When installing, observe the applicable documentation for the optional system components. See *section 1.1.3 Applicable documentation and further instructions*.
- When connecting, observe the connection values listed in *Chapter 3 Technical Data and Connection Values.*

9.2 Connecting the electrical power supply

⚠ WARNING

Prevent electric shocks

The system operates with life-threatening voltage.

- ► Only work on electrical equipment if you are a qualified electrician.

Risk of electric shock from defective cables or plugs

- ► Check cables and plugs for damage.
- ► Only use undamaged cables and plugs.

Figure 18: Connecting the power supply

The power connections for the individual modules are located on the rear of the conveyor system.

⚠ CAUTION Risk of tripping

- ► Lay the electrical connection cable in such a way that it is protected from mechanical damage and always away from walkways.

- ► Plug the CEE plug on the cable leading out of the conveyor system into the designated 400V, 16 A socket.
  Observe the current consumption specified in *Chapter 3 Technical Data and Connection Values*.

9.3 Establish compressed air supply

Observe the applicable documents

The instructions for the heating machine are included with the applicable documentation. *Section 1.1.3 Applicable documentation and additional instructions.*

These operating instructions do not contain any redundant descriptions or instructions.

► Therefore, please also observe the safety and warning instructions as well as the descriptions and instructions in *the original manual*.

Figure 19: Establishing the compressed air supply

Establishing the compressed air supply

The compressed air connection is located on the rear of the heating machines.

► Please refer to the *media connection diagram* in *section 1.1.3 Applicable documents and further instructions.*

CAUTION Tripping hazard

► Lay the compressed air line so that it is protected from mechanical damage and always outside of walkways.

a) Close the the the compressed air supply to the heating engines.

b) Connect the supplied spiral air hose to "Air" and

Figure 20: Establishing the compressed air supply Apricot belt

connect it to the connection on the apricot belt

For belt systems in combination with 150 L heating machines, the compressed air supply is provided directly via the
main compressed air line.

9.4 Establish water supply for water injection system (WIS)

Observe the applicable documents

The instructions for the heating machines are included with the applicable documents. *Section 1.1.3 Applicable documents and further instructions.*

These operating instructions do not contain any redundant descriptions or instructions.

► Therefore, please also observe the safety and warning instructions as well as the descriptions and instructions in *the original manual*.

9.4.1 WIS for Combino Jet

Figure 21: Establishing the water supply

Establishing the water supply on the Combino Jet

The injection connection is located at the rear of the heating unit.

► Please refer to the *media connection diagram* in *section 1.1.3 Applicable documents and further instructions.*

⚠ CAUTION Risk of tripping

► Use a pressure vessel or

► Lay the water pipe in such a way that it is protected from mechanical damage and always outside of walkways.

► Connect the water supply to the heating machine.

9.4.2 WIS for Thermo Schleier Jet/Thermo Schleier Jet HT/Schleier Jet HT (optional)

Observe applicable documents

The instructions for **the large heating machines** are included with the applicable documents. See *point 1.1.3 Applicable documents and further instructions.*

These operating instructions do not contain any redundant descriptions or instructions.

Figure 22: TSJ water supply

Establishing the water supply to the thermal curtain jet

The connections are located on the rear of the heating machine.

Please refer to the *media connection diagram* in *section 1.1.3 Applicable documents and further instructions.*

CAUTION Risk of tripping

- Use a pressure vessel or
- Lay the water pipe in such a way that it is protected from mechanical damage and always outside of walkways.
- Establish the water and electricity supply to the large heating engines.
- To do this, follow the original operating instructions for the large heating machines.
- Also observe the *media connection diagram* in accordance with *section 1.1.3 Applicable documents and further instructions.*

10 Preparing the conveyor belt system

The instructions in this chapter are intended for the operator	
Person in these instructions	**Operator/operating personnel** with training and instruction 
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.

10.1 Preparing apricot jam/fondant

10.1.1 Recipe suggestions from the manufacturer

Tip

The quality of the end product depends largely on the raw materials used. The information provided here is recommendations that may be helpful. All products used to date can continue to be used.

Apricot jam: 12.5 kg apricot jam 35% fruit content Approx.
1.8 litres water

Fondant: 15 kg block fondant
Approx. 1.2 litres of
water Approx. 0.2 kg
glucose

15 kg Swiss fondant, spreadable
Approx. 0.3 litres water
Approx. 0.2 kg glucose

10.2 Prepare heating machines (Combino Jet)

The medium must be prepared in accordance with the manufacturer's specifications and the components of the conveyor belt system (WIS) and then processed further in accordance with the recipes.

Tip

Heating phase for fondant heating machine: approx. 45 minutes (45°C water bath temperature)
Heating phase for Apri heating machine: approx. 10 minutes (95°C water bath temperature)

► Work on the **heating machines** of the conveyor belt system

Figure 23: Position of heating machine

► Pour the stirred medium into the heating machine

Figure 24: Pump speed setting

Preheat the heating machine

a) Switch on the main switch
b) Switch on the heating on the "display".
   (1) For heating machine for apricot jam
   (2) For fondant heating machine

When heating the apricot heating machine, the medium does not need to be circulated.

When heating the fondant heating machine, the medium must be circulated. To do this

c) Set the pressure switch to "On".

✓ The heating machine starts pumping
d) Turn the pump speed dial back

✓ Pump slowly circulates the medium

10.3 Heat up the heat tunnel (not included in the casting line).

⚠ WARNING

WARNING: risk of severe burns

- ► Always keep the lid of the heat tunnel closed during operation.
- ► Do not touch the heating rods

CAUTION

Ensure that the heat tunnel is not connected to the apricot and fondant belt and that there is a distance of 10 cm between the belts. The conveyor belts may melt.

Tip

Heating phase of the heat tunnel: approx. 10 minutes

► Work on the control panel of the heat tunnel

Figure 25: Switching on the heat tunnel

Switch on the heat tunnel

a) Switch on the main switch once

✓ The acknowledgement button lights up.
Press the "Acknowledge" button.

✓ The acknowledgement button goes out.
Set the belt speed to "1".

✓ The conveyor chains in the heat tunnel start running.

✓ The "Heating on" indicator light illuminates

► If the indicator light does not come on, the heating must be switched on using the selector switch

"Heating on" selector switch.

CAUTION: *the heating only switches on when the belt speed is set to at least "1".*

10.3.1 Changing the temperature settings

The logo control is located in the control cabinet of the heating machine.

Figure 26: Logo start screen

Changing parameter settings

a) Press ESC

Figure 27: Setup

b) Press ↓ arrow

✓ Programme background turns dark.
Confirm OK

Figure 28: Start screen logo

c) Press ↓ arrow until On+Hyster is highlighted.

d) Confirm OK

Figure 29: Start screen logo

e) Select the desired ON temperature value with ↓ and ↑

f) Confirm with OK

✓ Value has been accepted.
Press ESC to return to the parameter selection

Other values must not be changed!

Figure 30: Start screen logo

g) Press the ↓ arrow until B064 is highlighted.
Confirm OK

Figure 31: Start screen logo

h) Select the desired OFF temperature value with ↓ and ↑
i) Confirm with OK

✓ Value has been accepted.
Press ESC to return to the parameter selection

Other values must not be changed!

Parameters ON+Hyster ON and B064 OFF must be the same!

Figure 32: Start screen logo

j) Press the ↓ arrow until the lamp is highlighted.
Confirm with OK

Figure 33: Start screen logo

k) Set the desired ON temperature value with ↓ and ↑ 5°C below the desired setpoint temperature.
l) Confirm OK

✓ Value has been accepted.
Press ESC to return to the parameter selection.

Other values must not be changed!

✓ The hysteresis of 3°C is applied automatically.

m)

11 Connect and switch on the belt system.

The instructions in this chapter are intended for the operator	
Person in this manual	**Operator/operating personnel** with training and instruction
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.

Figure 34: Positions of the control cabinets

11.1 Connecting modules

Figure 35: Positioning modules

Positioning modules

a) Position the modules in a row.

Observe the planned sequence, which can also be found in the media connection diagram under *section 1.1.3 Applicable documents and further instructions.*

Lock all roller brakes on the positioned modules.

✓ The positioned module cannot roll away unintentionally.

Figure 36: Locking quick-release clamps

Locking quick-release clamps

Lock the quick-release clamps

11.2 Switch on the belt systems

► Work on the control panels of the belt systems

a) Switch on the main switch on all modules.

✓ The acknowledgement button begins to light up.

b) Confirm the acknowledgement button.

✓ The red lamp in the "Acknowledge" illuminated button goes out

c) Set the belt speed to the desired speed. *See Section 11.2.1 Changing the basic settings*.

✓ Conveyor belts start running.

d) Switch on the compressed air.

11.2.1 Changing the basic settings

Repair and maintenance – electrical equipment	
Person in this manual	**Maintenance technician/qualified electrician** 
Required training	Like the operator, as well as: ■ completed training as a mechanic, electrician or ■ higher education (electrical technician, master craftsman, engineer) with practical experience
Permitted activities	■ Troubleshooting mechanical/electrical equipment ■ Repairing mechanical/electrical equipment ■ Maintaining mechanical/electrical equipment

⚠ WARNING

Danger from electric current

The system operates at high voltage.

► **Never** open the control cabinet, the control system or other electrical equipment components unless you are **a trained electrician**.

► Work in the module's control cabinet.

Figure 38: Movitrac

Changing and setting the belt speed

a) Press the >STOP/RESET< button.
Press the ↓ arrow key until the display shows >Par<

Confirm with >Enter< (→)
Find the desired parameter setting (e.g. 160). Confirm with >Enter< (→).
Change the value using the arrow keys ↓↑

✓ The value flashes
Confirm with >Enter< (→)

✓ Value is displayed permanently, value is now saved
Press the >Exit< (←) key twice to exit the menu

✓ "P---" is displayed
Press the ↑ arrow until "Stop" is displayed

Press the green RUN button to exit the symbol area

Examples of parameter numbers

- 160→ Speed No. 1
- 161→ Speed No. 2
- 162→ Speed No. 3
- 170→ Speed No. 4
- 171→ Speed No. 5
- 172→ Speed No. 6
- 302→ Speed No. 7

302 is the maximum belt speed

11.2.1.1 Setting parameters (factory settings)

► Work on the Movitrac in the control cabinet

	Belt: Apri/ Fondant/ Sprinkler	Revolutions per minute	Customer settings
	10 Hz	300	
	20 Hz	600	
	30 Hz	900	
Speed 1:	40 Hz	1200	
Speed 2:	50 Hz	1500	
Speed 3:	60 Hz	1800	
Speed 4:	70 Hz	2100	
Speed 5:	80 Hz	2400	
Speed 6:	90 Hz	2700	
Speed 7:	100 Hz	3000	

11.3 Connect heating machines to belt conveyor

The instructions in this chapter are intended for the operator	
Person in this manual	**Operator/operating personnel** with training and instruction
Required training and permitted activities	See *section 1.3.2 Operator* in these operating instructions.

11.3.1 Connecting the HZ to glazing stations

► Working on **the heating machines**

a) Switch off the compressed air switch.

► Disconnect the material hose at the Kamlok coupling from the HZ and

► connect it to the glazing station or the apricot bridge.

b)

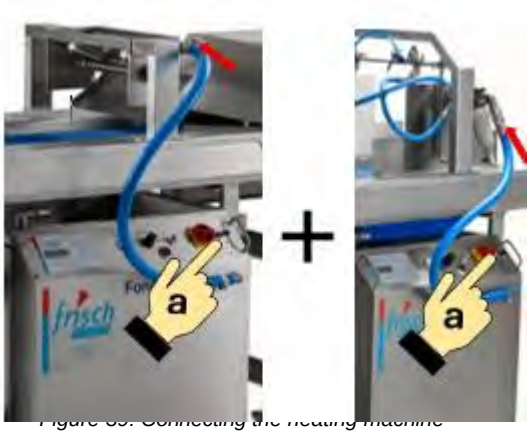


Figure 39: Connecting the heating machine

11.3.1.1 Setting up the apricot bridge

► Work on the **apricot heating machines**

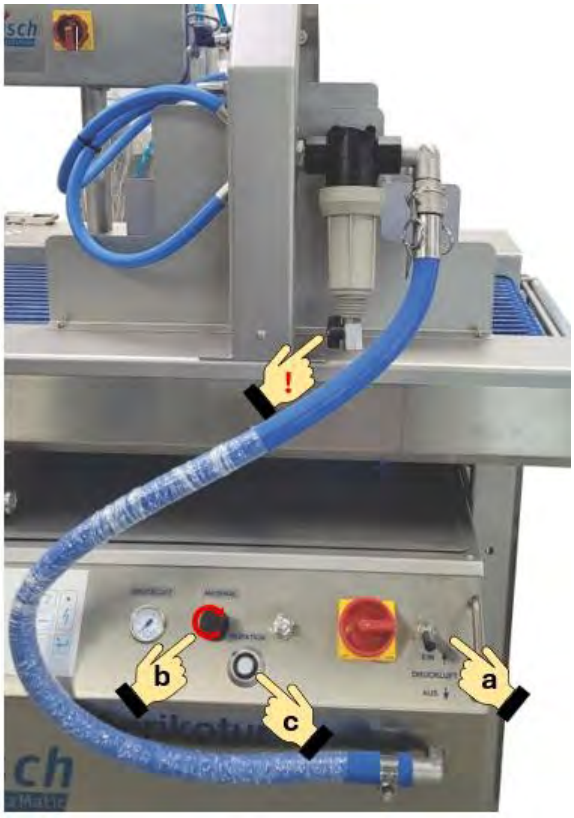


Figure 40: Setting up the apricot bridge

The ball valve on the filter housing must be closed!

a) Switch on the compressed air switch.

b) Set the initial pressure to 3 bar.

To achieve a constant temperature, the apricot must be circulated for 30 seconds.

To achieve continuous spraying with a Performance/Masterline, the light barrier must be occupied.

Over time, fruit fibres settle in the filter. The spray pattern changes. Increase the operating pressure by 1 bar. When the maximum pressure of 6 bar is reached, the filter in the filter housing must be cleaned.

Proceed as *described* in *section 16.3.1 Cleaning the apricot station.*

c) Switch on the water injection.

11.3.1.2 Setting up the glazing station

► Work on the **fondant heating machines**

Figure 41: Filling the glazing station

a) Switch on the compressed air switch.

b) Close the curtain station slide valve

✓ The veil station fills up.

c) Slowly open the slide valve again

Turning the slide valve determines the thickness of the fondant veil.

The fill level is determined by adjusting the compressed air throttle (max. 8 bar). For best results, the lance should be half covered with fondant.

d) Switch on the water injection.

11.3.1.3 Set up the large heating machine (optional).

Observe the applicable documents

The instructions for **the large heating machine** are enclosed with the applicable documents.

These operating instructions do not contain any redundant descriptions or instructions.

► Therefore, please also observe the safety and warning instructions as well as the descriptions and instructions in *the original manual*.

► Work on the control panel of the large heating machine

Figure 42: Filling the glazing station

Starting the large heating machine

Ensure that the ball valve on the filter housing is closed.

a) Set the SEW setpoint adjuster to a value of approx. 30 and start the pump

To achieve a constant temperature, the apricot jam must be circulated for 30 seconds.

To achieve continuous spraying with a Performance/Masterline, the light barrier must be occupied.

Over time, fruit fibres settle in the filter. The spray pattern changes. Increase the pump pressure on the SEW setpoint adjuster. After a few corrections to the spray pattern, the filter in the filter housing must be cleaned.

.

Proceed as *described* in *section 16.3.1 Cleaning the apricot station.*

12 Glazing pastries

The instructions in this chapter are intended for the operator.	
Person in this manual	**Operator/operating personnel** with training and instruction 
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.
Wear personal protective equipment	

► Work on the apricot and glaze belt of the belt system.

Figure 43: Position of the workstations

► Place it directly in the centre of the apricot band or
► Pour the pastries onto the feed roller conveyor or
► for conveyor belt systems connected to a Masterline, place the pastries on the feed belt.
✓ (Performance/Masterline) The apricot bridge only sprays when the light barrier is activated.
✓ The pastries pass through the conveyor system and are coated with apricot, dried and glazed or sprayed and flooded in the casting line
► At the exit roller conveyor, the finished glazed pastries are removed by hand and placed in baskets or on trays, or
► in conveyor systems connected to a Masterline, the pastries are transferred to the basket placement conveyor.

13 Switching off the conveyor belt

The instructions in this chapter are intended for the operator	
Person in this manual	**Operator / operating personnel** with training and instruction
Required training and permitted activities	See *section 1.3.2 Operator* in these operating instructions.

If the belt conveyor system is to be taken out of service for a longer period of time:

- ► Ensure that the modules are completely empty.
- ► Then clean all modules.
- ► Secure them against being switched back on.

► Work on all **control cabinets** of the belt conveyor system.

Figure 44: Positions of the control cabinets

Figure 45: Switch off the main switch on the modules

a) Set the belt speed to "0".

Switch off the main switches on all modules.

✓ The electrical power supply is now disconnected.

Switch off the compressed air supply on the control panel of the apricot conveyor belt.

During repair and maintenance work, the belt system must be secured against being switched back on.

- ► Secure the main switch against being switched back on with a padlock.

✓ The system is now safely shut down.

14 Separate the belt system

The instructions in this chapter are intended for the operator.	
Person in this manual	**Operator /** trained and instructed **operating personnel**
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.

► Work on all **module interfaces** of the conveyor system.

Figure 46: Positions of the module interfaces

⚠ WARNING

WARNING regarding live parts and unexpected start-up

► Switch off the main switch and secure it against being switched on again before you start dismantling the modules.

14.1 Requirements

b)

Switch off the system and disconnect the modules

► Switch off the system as described in *Chapter 13*.

► Disconnect the supply connections of the modules

To do this, follow the original operating instructions for the combinable modules.

14.2 Disconnect modules

Observe the applicable documentation (optional)
The instructions for **the heating machines and the Masterline** are included with the applicable documents. See *section 1.1.3 Applicable documents and further instructions.*

Figure 47: Unlocking the quick-release clamp

Disconnect the heating machine

a) Switch off the compressed air switch.

► Disconnect the material hose from the mist station or apricot bridge and

► connect it to the Kamlok coupling on the HZ.

► Disconnect the compressed air supply from the heating machines

Figure 48: Unlocking the quick-release clamp

Unlock the quick-release clamp

a) Press the release button on the front.

b) Open the locking bracket.

Figure 49: Releasing the roller brakes

Release roller brakes

c) Release all roller brakes on the positioned modules.

✓ The modules can now be moved.

15 Error and fault messages – taking action

The instructions in this chapter are intended for the operating personnel.	
Person in this manual	**Operator / operating personnel** with training and instruction 
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.

Some of the instructions in this chapter are intended for specialists	
This chapter describes various activities that require specialist knowledge that cannot be conveyed in these operating instructions. ► Consult a qualified specialist trained for the respective activity if the instructions prompt you to do so. ► Never attempt to carry out these activities yourself if you do not have the necessary expertise and training. ► Ensure that any specialist personnel called in to assist have also read and understood these instructions before attempting to rectify any faults.	
Persons in these instructions	Depending on the task to be performed: ■ **Qualified electrician** and/or **maintenance technician** 
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.

Read and understand all sub-sections of this chapter

Often, a fault can already be detected by a malfunction,
e.g. if the fault cannot be acknowledged using the fault and emergency stop acknowledgement buttons.

In addition to emergency stop situations, a variety of causes can lead to error messages.

The following instructions may be **necessary** for **various** measures and troubleshooting.
► Read this chapter and its sub-sections in full before you start taking any measures.
► Never attempt to carry out these activities yourself if you do not have the necessary expertise and training.
► Never open parts of the electrical equipment if you are not a trained electrician.

15.1 Identifying faults

Figure 50: "Acknowledge" illuminated pushbutton

If an error situation occurs,

✓ this is indicated by the red lamp in the "Acknowledge" illuminated pushbutton.

15.2 Identifying faults, causes and possible measures

Malfunction/error	Possible cause	Measures
Uneven spray pattern	■ Aprikotur too thick	▶ Dilute Aprikotur
	■ Filter clogged	▶ Clean the filter
	■ Nozzles clogged ■ Foreign object in the nozzle	▶ Disconnect compressed air supply. See *Chapter 13 Switch off belt conveyor* ▶ Switch off pump ▶ Clean nozzle ▶ Filter defective
Fondant veil breaks off	■ Material slide incorrectly adjusted	▶ Adjust material slider correctly
	■ Fondant too thick	▶ Thin fondant
	■ Fondant too cold	▶ Extend the warm-up phase before use
Poor drying of the baked goods (not included in the casting line)	■ Heat tunnel not working	▶ Contact a qualified electrician.
Heat tunnel does not heat up (not included in casting line)	■ Heating switched off	▶ Switch the heating on. *See chapter 10.3 Heating up the heat tunnel*
	■ Heater defective	▶ Contact a qualified electrician. ▶ Switch off the heating, but keep the belt running. The running time serves as drying time.

Frequent tearing of the conveyor belts	■ The pressure of the cleaning system is too high	► Clean the belt system at a maximum pressure of 20 bar
	■ Too much dry running	► Avoid too much dry running. Only switch the system on when in use and then switch it off again immediately afterwards.
	■ Melting during Preheating (not included in casting line)	► Separate the belt system from each other during the heating phase of the drying tunnel

Apricot bridge not spraying (Performance/Master-line)	► Light barrier dirty	► Clean the light barrier and check whether air is coming out of the opening. If not, notify a technician/maintenance engineer.
	► Light barrier defective	► Notify a technician/qualified electrician.

15.3 Acknowledge faults and emergency stops

Figure 51: Acknowledging on the control panel

Check the system area

The illuminated button "Acknowledge fault and emergency stop" lights up as soon as the emergency stop button has been triggered.

► Ensure that the cause of the emergency stop has been rectified and that safety has been restored.

Unlock and acknowledge emergency stop

a) Unlock the emergency stop button.

✓ The red "Acknowledge" indicator light will illuminate.

b) Press the red "Acknowledge" button.

✓ The red "Acknowledge" indicator light goes out.

If the fault cannot be acknowledged,

- there is another fault.

► Commission a specialist to carry out the relevant work in accordance with *section 1.3.3 Repair and maintenance personnel or*

► contact the customer service department of Frisch Spritzmatic GmbH, see *18 Emergency service, customer service.*

► Have all causes of error and warning messages rectified by the appropriate specialists.

16 Cleaning, maintenance and servicing

The instructions in this chapter are intended for the following persons		
Person in this manual	**Operators/operating personnel** with training and instruction	
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.	
Person in these instructions	Depending on the activity to be performed: ■ **Qualified electrician** and/or **maintenance technician**	
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.	
Wear personal protective equipment		

⚠ WARNING

Personnel who are not sufficiently qualified may cause personal injury and property damage due to incorrect operation.

The specialist trained for the respective activity must be demonstrably capable, based on their training and professional experience, of recognising hazards and risks that arise or may arise from the respective activity.

► Only maintain or repair the system components if you are a specialist trained for the respective activity.

Prevent contact with live parts

Switch cabinets and electrical equipment in the system operate at potentially lethal voltages.

► Never open switch cabinets and/or electrical equipment of the system for cleaning work if you are not a trained electrician.

WARNING: risk of crushing

► Secure the cover of the heat tunnel and the support bar to prevent them from closing.

► Only remove protective covers for cleaning purposes.

Prevent injuries from hot surfaces

The heat tunnel can reach dangerously high temperatures.

Allow the system to cool down for at least 60 minutes before starting cleaning work on the heat tunnels.

► Close the cover flaps of the plug connections before cleaning.

✓ This will prevent water from entering the plug connection and resulting in electrical hazards when the system is restarted.

CAUTION

Protect materials

- ► **Never** use **corrosive** cleaning agents.
- ► Never spray water jets onto electrical equipment or components.

✓ This will prevent short circuits and protect sensitive parts from damage.

ATTENTION

Cleaning conveyor belts

- ► Clean the conveyor belts of the system exclusively with a low-pressure cleaner (max. 20 bar) or warm water and P&R cleaning agent.

16.1 Prepare the system

Switch off the system and secure it against being switched on again

With the exception of emergency stop tests, cleaning, maintenance and repair work must be carried out when the system has been safely shut down.

- ► Ensure that the system is switched off and secured against being switched on again.

  To do this, follow the instructions in *chapter 13* of this operating manual.

- ► Disconnect all supply connections and separate the modules. To do this, proceed as described in *Chapter 14* of this operating manual.

16.2 Intervals

Cleaning, maintenance and servicing intervals are relevant to safety

Performing the cleaning, maintenance and servicing activities specified in this operating manual ensures safety at your workplace.

- ► Always carry out the activities specified in this operating manual within the intervals specified below.

✓ This will prevent dangerous situations when using the belt system that could arise from failure to observe the care, cleaning and inspection intervals.

Observe the applicable documents

These operating instructions only contain a summary of the necessary cleaning, maintenance and servicing intervals for the modules.

These are not listed redundantly in this operating manual.

- ► Carry out the cleaning, maintenance and servicing activities exactly as described in this operating manual **and** the applicable original operating manuals.

  See *section 1.1.3 Applicable documents and further instructions.*

The following list of intervals also provides information on the respective sources from which you can obtain the operating instructions.

If you discover any defects in any system components during the cleaning, maintenance and repair work described below:

- ► Always consult a suitably trained specialist for any necessary repair or maintenance work.
- ► Have any defects repaired immediately.
- ► Only operate the belt system if you can confirm that all parts are in proper condition and functioning properly.

Minimum requirements For regular inspection and maintenance **Operator**	Intervals: As required	Daily	2-3 times weekly	Quarterly	Half-yearly or every 720 operating hours	Annually	Every 2 years or every 2500 operating hours	Applicable documents and further instructions:
Cleaning the conveyor belt system	X	X						in accordance with *section 16.3*
Basic cleaning of belt conveyors				X				in accordance with *section 16.4*
Cleaning heating machines			X					in accordance with the respective original operating instructions
Perform emergency stop test						X		in accordance with *section 16.5.1*
Trained specialist								
Belt conveyor								
Greasing or lubricating the bearings					X			in accordance with *point 16.5*
Replacing conveyor belts on belt conveyors	X							in accordance with *point 16.6*

16.3 Daily cleaning

The instructions in this chapter are intended for the following persons	
Person in these instructions	**Operator/operating personnel** with training and instruction 
Required training and permitted activities	See *section 1.3.2 Operator* in this operating manual.
Wear personal protective equipment	

16.3.1 Cleaning the apricot station

Figure 52: Cleaning the apricot station

a) Switch off the compressed air switch on the Apri-Hz.

Disconnect the material hose from the apricot bridge and reconnect it to the HZ.

Switch on the compressed air switch on the apricot bridge control panel.

✓ The nozzles open.

✓ The pressure escapes.

⚠ **CAUTION Risk of burns**

Slowly open the ball valve on the filter housing.

✓ Residual medium drains

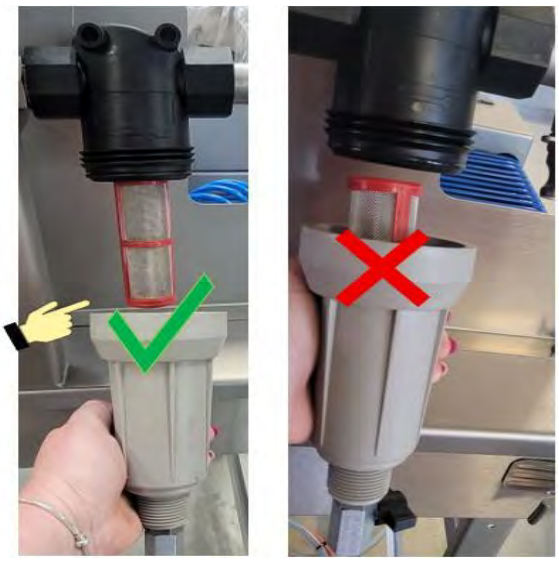


Figure 53: Closing the filter housing

- Open the filter housing
- Clean the filter with warm water
- First, place the filter back into the housing and close it hand-tight.

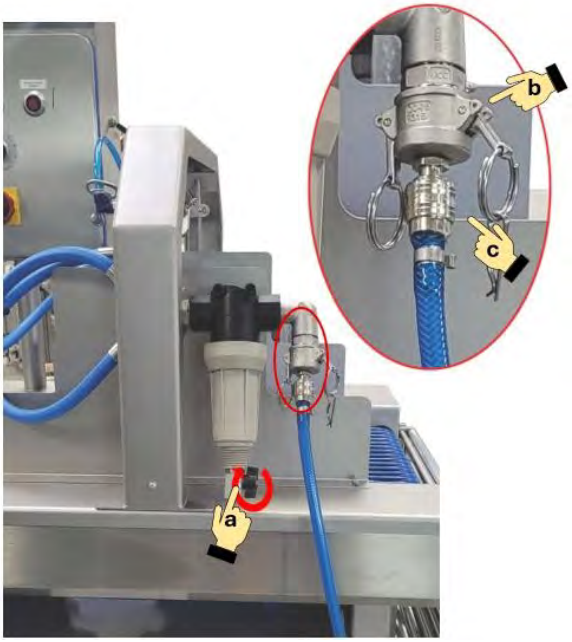


Figure 54: Rinsing the apricot station

a) Close the ball valve on the filter housing. Connect the supplied flushing adapter to the apricot bridge.

Connect this to the water pipe and flush the apricot bridge with warm water.

For conveyor systems with a light barrier (Performance/Masterline), the light barrier must be occupied.

16.3.2 Cleaning the curtain station

Figure 55: Cleaning the veil station

a) Switch off the compressed air switch on the fondant Hz.
Disconnect the material hose from the glazing box.

Lift the veil station off the glazing conveyor belt and

- ► place it upside down in the dishwasher.
- ► After the rinse cycle, blow it dry with compressed air.

16.3.3 Cleaning the glazing and apricot band

Figure 56: Cleaning the belt

► Move the modules to a hygiene/washing area.

⚠ **WARNING: To prevent rolling away or tipping over,** do not drive on sloping surfaces and make sure that the floor has sufficient load-bearing capacity before moving.

Do not allow water or moisture to enter electrical components.

✓ This will protect the system components, prevent electrical hazards, damage and malfunctions.

► Connect the modules to the power supply, see *Chapter 9.2 Connecting the electrical power supply*

► Switch on the modules as described in *Chapter 11.2 Switching on the belt system* and

► select belt speed 1.

► Clean the modules exclusively with a low-pressure cleaner (max. 20 bar) and warm water while the conveyor belts are running.

CAUTION Never use corrosive cleaning agents.

✓ This protects the system components and prevents damage and malfunctions.

16.3.4 Clean heat tunnel (not included in casting line)

⚠ WARNING

Prevent injuries from hot surfaces

The heat tunnel can reach dangerously high temperatures.

- ► Allow the system to cool down for at least 60 minutes before starting cleaning work on the heat tunnels.

b) 

WARNING: risk of crushing

- ► Secure the lid of the heat tunnel and the support bar to prevent them from closing.
- ► Only remove protective covers for cleaning purposes.

- ► Open the lid and secure it with the retaining bar.
- ► Remove all crumbs and debris from the interior daily with a hand brush.

Remove dirt every 2-3 days with a damp cloth.

Caution: only clean the heating elements and the inside of the heat tunnel with a damp cloth. Avoid getting water on the heating elements.

16.3.5 Cleaning heating machines

Observe applicable documents (optional)

The instructions for **the heating machines and the Masterline** are included in the applicable documents. See *section 1.1.3 Applicable documents and further instructions.*

Tip

To ensure consistent hygiene and functionality, it is recommended that the heating machines be cleaned regularly.

Cleaning should be carried out every two days.

If you have several heating machines, it is advisable to clean them alternately so as not to interrupt the production process.

Emptying the heating machine

- ▶ Switch off the compressed air switch.
- ▶ Disconnect the material hose from the glazing or decoration station and
- ▶ hold this end in a bucket or drain.
- ▶ Switch on the compressed air switch.

✓ The Hz pumps the medium out of the tank.

- ▶ Switch the compressed air switch off again when air comes out of the material hose.
- ▶ Connect the material hose to the Hz.
- ▶ Fill the Hz with sufficient warm water and
- ▶ start the pump.
- ▶ Clean the tank and the outside of the Hz with a suitable low-pressure cleaning system.
- ▶ Use a suitable cleaner to remove the encrustations in the heat exchanger.

CAUTION Never use corrosive cleaning agents.

We recommend P & R cleaning agents. These are available from Frisch Spritzmatic.

- ▶ Switch off the pump and allow the cleaning agent to take effect for approx. 5 minutes.
- ▶ Repeat this process approx. 3 times.
- ▶ Switch off the pump and
- ▶ disconnect the material hose from the top of the HZ.
- ▶ Hold the material hose in a drain and
- ▶ Pump the cleaning agent out of the tub as described in this chapter.
- ▶ Rinse the tank and pump with sufficient fresh water to ensure that no cleaning agent residue remains in the Hz.
- ▶ Prepare the Hz as described in *Chapter 10.2 Preparing the heating machine*.

16.4 Basic cleaning of the belt systems

The instructions in this chapter are intended for the following persons	
Person in these instructions	Depending on the task to be performed: ▪ **Qualified electrician** and/or **maintenance technician**
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.
Wear personal protective equipment	

⚠ WARNING

WARNING of crushing and draw-in points

- ► Switch off the main switch and secure it against being switched on again before you start dismantling the protective cover.
- ► Only remove protective covers for cleaning purposes.

Figure 58: Protective cover 1

Open the protective cover of the belt system

c) Unscrew the two screws on the front at the top on the inside of the feet.

Figure 59: Protective cover 2

d) Hold the protective cover with one hand.

e) Unscrew the two screws on the front of the cover.

✓ The protective cover can be pulled out downwards.

ATTENTION: The procedure is identical on the rear side. However, please note that, depending on the module, the compressed air hose must be removed and the connection of the light barrier must be taken into account.

Cleaning the belt system

- ► Clean the belt system and all protective covers with a warm water jet and "P&R cleaning agent".
- ► Reattach the protective cover to the belt system.

16.5 Lubrication

The instructions in this chapter are intended for the following persons	
Person in these instructions	Depending on the task to be performed: ■ **Qualified electrician** and/or **maintenance technician**
Required training and permitted tasks	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.
Wear personal protective equipment	

Several system components are equipped with lubrication points.
All modules have grease nipples at the deflection points of the conveyor belts.

ATTENTION

Use the correct lubricant

► Only use a heat-resistant multi-purpose grease for the food industry as a lubricant, e.g. PURITY FG2 SYNTHETIC (application range -40°C to +200°C).

✓ This will ensure maximum service life for the bearings.

16.5.1 Lubricate the bearing blocks of the belt system

Figure 60: Bearing blocks on the belt conveyor

► Remove the protective covers as described in *Chapter 16.4 Basic cleaning of the belt systems*.

✓ There are 3 bearing blocks on the front

Figure 61: Bearing behind the drive motor

✓ There are two bearing blocks on the sides at the rear and one bearing block behind the motor.

Figure 62: Lubricate with the grease gun

► Clean the grease nipples before lubricating.

► Lubricate all 6 or 4 bearing blocks via the grease nipple using a grease gun.

16.6 Replacing the transport belt

The instructions in this chapter are intended for the following persons	
Person in these instructions	Depending on the task to be performed: ▪ **Maintenance personnel**
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.
Wear personal protective equipment	

⚠ WARNING

Entanglement, winding and hand injuries due to unexpected start-up

Before you begin basic cleaning of the belt system:

- ► Switch off the main switch.
- ► Secure it with a padlock to prevent it from being switched back on.

Risk of burns from hot objects

- ► Do not touch the soldering iron or the melted belt with your fingers
- ► Allow the strip to cool down
- ► When not in use, switch off the soldering iron and allow it to cool down

Hand injuries caused by the drill slipping

- ► Protect your hands with a hand guard when drilling

You can find a video on this at *https://my.hidrive.com/lnk/JrASJiucR*

Figure 63: Welding belts 1

Cutting the conveyor belt to length

- ► Place the conveyor belt around the deflection rollers and cut it with a belt cutter or sharp knife.
- ✓ There must be a 2 mm gap between them when tensioned.

Figure 64: Welding belts 2

Drilling out the Kevlar cord

- ► Drill out the Kevlar cord approx. 5 mm deep from both ends using a 3 mm Ø drill bit.

Figure 65: Welding belts 3

- ► Insert the transport belt into the spaces between the deflection rollers.
- ✓ Belt is without tension

Figure 66: Welding belts 4

- ► Clamp both ends in the welding tongs.
- ► Hold the soldering iron perpendicular to the belt ends and
- ► press them lightly against the soldering iron.
- ✓ The belt becomes hot and runs
- ► Briefly open the soldering tongs and pull the solder Remove the piston and press the welding tongs lightly together.
- ► Tighten the welding tongs slightly.
- ► Allow the welding tongs to cool down for approx. 3 minutes using the transport strap.
- ► Remove the welding tongs.
- ► Remove the excess with a pair of sharp pliers.

Figure 67: Welding the belt 5

- ► Replace the welded transport belt on the deflection roller.

16.7 Perform an emergency stop test

The annual emergency stop test is a functional test of this supplementary protective device. This test is necessary because the protective device is not usually required during trouble-free operation and therefore a functional test may not be carried out for years.

► Therefore, perform the test at least once a year and document the test.

Creating the right conditions

With the exception of emergency stop tests, maintenance and repair work must be carried out with the system safely shut down.

► Switch the system back on for **the emergency stop test**.

Figure 68: Emergency stop button on the control panel

Test emergency stop functions individually

► Press the emergency stop button while the system is running in automatic mode.

✓ All movements are slowed down and switched off.

✓ The red "Acknowledge" indicator light illuminates.

If you can confirm that this is the correct response:

a) Unlock the activated emergency stop button again.

b) Acknowledge the error by pressing the acknowledge button.

Emergency stop buttons are located on all modules of the

system. Test all emergency stop buttons

► Repeat this test with all emergency stop buttons on the individual modules.

► Document the test series.

The test is only complete when you can confirm the correct response for all emergency stop buttons.

Operation of the system is only permitted if the annual test is successful.

If you cannot confirm and document the correct response:

► Inform your supervisor immediately.

► Have the emergency stop function checked and repaired by a trained specialist before working on or with the system.

17 Disassembly and disposal

The instructions in this chapter are intended for specially trained personnel.	
Person in these instructions	Depending on the task to be performed: ■ **Qualified electrician** and/or **maintenance technician** 
Required training and permitted activities	See *section 1.3.3 Repair and maintenance personnel* in this operating manual.
Wear personal protective equipment	

⚠ WARNING

Danger from electric current

The system operates at high voltage.

► **Never** open the control cabinet, the control system or other electrical equipment if you are **not a trained electrician**.

Meet requirements

Disassembly must be carried out with the system safely shut down.

► Switch off the system and secure the main switches against being switched on again.
To do this, follow the instructions in *Chapter 13, Switching off the belt conveyor.*

► Disconnect
- all supply connections to the system
- the modules from each other.

To do this, follow the instructions in Chapter 14, "Disconnecting the belt conveyor system" in this operating manual.

⚠ WARNING

Insufficiently qualified personnel can cause personal injury and property damage.
Disassembly work requires the knowledge of a trained specialist and may only be carried out by specially trained personnel.
This manual cannot provide such knowledge.

Disposal

Know the rules and regulations for disposal

- Once materials have been separated, send components for recycling.
- Have the materials separated for the components
  - steel,
  - non-ferrous metals,
  - plastics and
  - electrical waste.
- Ensure that industry-specific and local regulations are followed when disposing of the various materials.
- When handling oils and greases, observe
  - the safety data sheets applicable to the product and
  - the regulations for environmental protection.

Logo: Recycling

Dispose of individual parts safely

- Have the materials disposed of in accordance with local regulations or
- return the components to the manufacturer.
- Never dispose of electrical or electronic components in household waste.

18 Emergency service, customer service

To resolve technical problems and malfunctions on the conveyor belt system, please contact the service team at Frisch Spritzmatic GmbH.

Frisch Spritzmatic GmbH
Ramminger Straße 4
D- 89129 Öllingen

Tel: +49 (0)7345 20095 0

Web: www.frisch-spritzmatic.de

Email: info@frisch-spritzmatic.de

19 EC Declaration of Conformity

in accordance with **EC Directive 2006/42/EC on machinery, Annex II 1 A,** EU Official Journal L 157/24 dated 9 June 2006

We, the undersigned manufacturer, hereby declare under our sole responsibility that the equipment described below, in its design and construction as well as in the version we have placed on the market, complies with the provisions and requirements of the above-mentioned directive and thus with the relevant harmonisation legislation of the Union.

We further declare the conformity of the following equipment with the safety objectives of the EU

Directive

Low Voltage Equipment 2014/35/EU, Annex I EU OJ L 96/357 of 29 March 2014, as well as compliance with the essential requirements of the EU Directive

Electromagnetic Compatibility "EMC" 2014/30/EU, Annex I EU OJ L 96/79 dated 29 March 2014.

Continue explain we the correspondence of the following listed with with the safety objectives of the EU Directive for

Electrical Equipment "Low Voltage" **2014/35/EU, Annex I** EU OJ L 96/357 of 29 March 2014

All parts of the machine that come into contact with food also comply with the requirements of the EU regulations on **food materials** and **plastics**

REGULATION (EC) No. 1935/2004, OJ L 338/4 of 13 November 2004,

REGULATION (EU) No. 10/2011, EU OJ L 12/1 of 15 January 2011

and their amending regulations, as well as on good manufacturing practice for food materials and articles

REGULATION (EC) No 2023/2006, OJ L 384/75 of 29 December 2006

System designation	**Belt conveyor system 2100 / 1900 / 7000**
Identification	Type plates on the control cabinets
Year	2026
Manufacturer and address	**Frisch Spritzmatic GmbH** **Ramminger Straße 4** **D- 89129 Öllingen**
Authorised representative for documentation	Jürgen Frisch
Applied harmonised standards, in particular	**Safety of machinery and equipment** EN ISO 12100:2010 – Risk assessment EN ISO 13849-1:2023 – SRP/CS EN ISO 13849-2:2012 – SRP/CS EN ISO 13850:2015 – Emergency stop EN ISO 13854:2019 – Minimum distances EN ISO 13857:2019 – Safety distances EN ISO 14118:2018 – Unexpected start-up EN ISO 14120:2015 – Separating protective devices EN ISO 19353:2019 – Fire protection EN ISO 4414:2010 – Pneumatic systems EN 619:2022 – Continuous conveyors and systems EN 1672-2:2005+A1:2009 – Food processing machinery EN 60204-1:2018 – Electrical equipment **Electromagnetic compatibility** EN 61000-6-3:2011-09 – Emission EN 55011:2018-05 – Immunity EN 61800-3:2018-04 – Variable speed drive systems Part 3: **Technical documentation** EN IEC / IEEE 82079-1:2021 – Requirements for instruction manuals

Jürgen Frisch – Managing Director

The hand-signed original document is part of the product documentation.

