Operating Manual

TSCA 120-M/160-L

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Note

The complete documentation for the **TSCA 120-M/160-L** machine consists of the following components:
- Operating Manual
- EC declaration of conformity as part of this Operating Manual
- Spare parts catalogue on a data carrier.

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Declared values without tolerances are merely approximations.
The photos do not correspond in all details to the condition of the machines delivered.

Contents

1 Safety Information 1-1

1.1 Introductory Comments 1-1

1.1.1 Warning signs on the machine 1-1
1.1.2 Warning notes in instructions 1-1
1.1.2.1 Warning symbol 1-1
1.1.2.2 Hazard stages 1-1

1.2 Use and Application of this Machine 1-2

1.2.1 Proper use 1-2
1.2.2 Improper use 1-2
1.2.3 Modifications and alterations 1-2

1.3 Who May Operate the Machine? 1-2

1.4 Required Personal Protection Equipment 1-2

1.5 Protective Devices 1-3

1.5.1 Danger points protected by protective devices with cutouts. 1-3
1.5.2 Work sequences secured by protective devices with cutouts 1-3
1.5.3 Protective covers 1-3
1.5.4 What effect do protective devices A to D have? 1-3
1.5.5 All protective devices must be checked! 1-3
1.5.6 How can the protective devices be checked? 1-4
1.5.7 Electronic hand wheel function 1-4

1.6 Setting Up, Servicing, Cleaning, Maintenance and Repair Work on the Machine 1-4

1.6.1 Who may carry out this work? 1-4
1.6.2 What must be observed and done before starting with such work? 1-4
1.6.3 Cleaning the machine 1-5
1.6.4 Work on electrical equipment 1-5
1.6.4.1 Machine connection 1-5
1.6.4.2 Frequency / Servo converter 1-6
1.6.5 Working with process materials 1-6

1.7 Residual Risks 1-6

1.7.1 Risk of tripping 1-6
1.7.2 Electrical risks 1-6
1.7.3 Risk of contusion when closing the front cover 1-6
1.7.4 Risk of contusion when closing the protective lid 1-6
1.7.5 Risk of contusion when closing the clip head 1-6
1.7.6 Risk of impact when closing the clip head 1-7
1.7.7 Risk of contusion when closing the product outlet 1-7
1.7.8 Risk of cutting when changing the cutter 1-7
1.7.9 Adjusting the dosage unit speed 1-7

1.7.10 Transporting the TSCA 1-7
1.7.11 Closing and separating area 1-7
1.7.12 Film inlet side 1-7
1.7.13 Product outlet side 1-7
1.7.14 Electronic hand wheel function 1-8
1.7.15 Automatic operation 1-8
1.7.16 Stuffing process 1-8
1.7.17 Stuffing process in automatic operation 1-8
1.7.18 Changing over from Automatic On to Automatic Off 1-8
1.7.19 Risk of burning at the seal station 1-8
1.7.20 Risk of contusion at the seal station 1-9
1.7.21 Risk of crushing at film roll unwinder 1-9
1.7.22 Switch cabinet 1-10
1.7.23 Clamping core 1-10

1.8 Moving Machine and Additional Equipment 1-10

1.8.1 Measures before moving 1-10
1.8.2 Loading and unloading 1-10
1.8.3 Removal of transport packaging 1-10
1.8.4 Disposal of packaging materials 1-10
1.8.5 Castors 1-11
1.8.6 Front doors 1-11

2 Machine Description 2-1

2.1 Applications 2-1
2.2 Sealing 2-1
2.3 Closing and Clipping Process in the Clip Module 2-1
2.4 Film Counter 2-1
2.5 Shirr Switch 2-1
2.6 Ink Jet Printer (Option) 2-1
2.7 Hot Stamping Printer (Option) 2-2
2.8 Print Mark Control (Option) 2-2

3 Installation of the Machine 3-1

3.1 Note 3-1
3.2 Required Protective Equipment 3-1
3.3 Machine Location 3-1
3.3.1 Moving the machine to its location 3-1
3.4 Machine connection 3-2

3.5 Installation of the Filling System 3-4
3.5.1 Adjustment elements for seal band and film transport 3-4
3.5.2 Positioning of sealing unit 3-4
3.5.3 Positioning the stuffing horn 3-5
3.6 Connecting the Filling Machine 3-5
3.6.1 Adjusting the product inlet height 3-5
3.6.2 Connecting TSCA and filling machine 3-5
3.7 Setting the Operating Pressure 3-6
3.8 Inner brake and outer brake 3-6
3.8.1 Inner brake 3-6
3.8.2 Outer brake 3-7
4 Indicators and controls 4-1
4.1 Operating panel 4-1
4.2 Easy-Touch display 4-2
4.3 Program structure 4-2
4.4 Operator level 4-3
4.4.1 Basic selection screen of the Operator level 4-3
4.4.2 Meaning and function of icon selection buttons in the Operator menu 4-4
4.4.3 Manual function buttons 4-4
4.4.4 Clip loading position/Change positions 4-5
4.4.5 Loading a product program 4-5
4.4.6 Deleting a product program and copying a product program from/to a USB stick 4-6
4.4.7 “Current messages” screen 4-6
4.4.8 Language selection 4-9
4.4.9 Maintenance - Lubrication 4-9
4.4.9.1 Lubrication 4-9
4.4.10 Displaying service information 4-10
4.5 Maintenance level 4-12
4.5.1 Basic selection screen in the Maintenance level 4-12
4.5.2 Meaning and function of icon selection buttons in the Maintenance menu 4-13
4.5.3 Entering product data 4-14
4.5.4 Clip reel and die (RFID page) 4-15
4.5.5 Product counters 4-15
4.5.6 Speed, knife 4-16
4.5.7 Knife, shirr, rings 4-17
4.5.8 Separator opening, clip pressure 4-17
4.5.9 Conveyor 4-18
4.5.10 Pneumatic casing brake 4-19
4.5.11 Oil/water sprayers 4-19
4.5.12 Basic sealing, filling system, clipping process, clipping process mode screen 4-20
4.5.12.1 Possible combinations of clipping process control and clipping process mode 4-21

4.5.12.2 Sealing settings, electronic jam switch, part 1 4-22
4.5.12.3 Sealing settings, electronic jam switch, part 2 4-23
4.5.12.4 Sealing settings, film counter, part 1 4-24
4.5.12.5 Sealing settings, film counter, part 2 4-25
4.5.12.6 Sealing settings, mechanical jam switch, part 1 4-26
4.5.12.7 Sealing settings, mechanical jam switch, part 2 4-27
4.5.12.8 Filling system 4-28
4.5.12.9 Clipping machine controls stuffer and clipping process mode is start-stop 4-29
4.5.12.10 Clipping machine controls stuffer and clipping process mode is continuous 4-30
4.5.12.11 Clipping machine controls stuffer and clipping process mode is overspreading 4-31
4.5.12.12 Portion length controls clipping machine/stuffer and clipping process mode is start-stop 4-32
4.5.12.13 Portion length controls clipping machine/stuffer and clipping process mode is overspreading 4-33
4.5.12.14 Clip mark controls stuffer and clipping process mode is start-stop 4-34
4.5.12.15 Clip mark controls stuffer and clipping process mode is overspreading 4-35
4.5.12.16 Dosing pump controls clipping process and clipping process mode is start-stop 4-36
4.5.12.17 Navigation using the quick selection buttons 4-37
4.5.13 Start-stop velocity profile 4-38
4.5.14 Velocity profile for continuous mode 4-39
4.5.15 Velocity profile for overspreading 4-40
4.5.16 Film break 4-41
4.5.16.1 Setting film break control 4-41
4.5.17 Printer 4-42
4.5.17.1 Possible printer operating modes 4-42
4.5.18 Simulator 4-43
4.5.19 Loading a product program 4-43
4.5.20 Date/Time 4-44

4.6 Service level 4-44

4.6.1 Adjusting the rotation angle for machine functions and additional equipment 4-45
4.6.2 Example: Compiling and saving a product program 4-45
4.6.3 USB connection for back-up and retrieval of product programs 4-47
4.6.4 Screen configuration level 1 or 2 4-48
4.6.5 Reading and saving product programs through the USB connection 4-48

4.7 List of possible error messages 4-49

5 Start-up 5-1

5.1 Note 5-1

5.2 Start-up check list 5-1

5.3 Shutting the machine down 5-1

5.4 Filling the clip magazine 5-2

5.4.1 Setting the braking force on the clip magazine 5-2
5.4.2 Inserting the clip stick 5-2
5.4.3 Converting the clip transport 5-3

5.5 Changing the die and punch 5-3
5.6 Changing the separator knife 5-5
5.7 Changing the spreading (manual) 5-6
5.8 Adjusting the clip guide for different clip sizes 5-8
5.9 Setting the separator hole 5-9
5.10 Closing pressure 5-9
5.10.1 Adjust the closing pressure 5-9
5.11 Starting up the automatic GSA looper 5-10
5.12 Central lubrication 5-11
5.12.1 Inserting the lubricant cartridge 5-11
5.12.2 Bleeding the grease pump 5-11
5.12.3 Manually triggering the lubrication process 5-12
5.13 Inserting the film 5-12
5.13.1 Producing the film tube 5-15
5.14 Replacing the sealing belt 5-16
5.15 Splice detection 5-17
5.15.1 Reading process 5-17
7 Product Testing 7-1
7.1 Note 7-1
7.2 Preparing the Product Test 7-1
7.3 Product Testing Before Production 7-1
7.3.1 Inspect the film travel 7-1
7.3.2 Inspect the sealing seam 7-2
7.4 After Completed Product Testing 7-2
8 Troubleshooting 8-1
8.1 Note 8-1
8.1.1 Before starting work 8-1
8.1.2 After Completed Work 8-1
8.2 List of Possible Faults and Alarms 8-2
9 Cleaning and Maintenance 9-1
9.1 General Information 9-1
9.1.1 Working with process materials 9-1
9.1.2 Disposal of process materials 9-1

9.2 Before Cleaning and Care Work 9-1
9.2.1 Taking machine out of operation 9-1
9.2.2 Preparing the machine for cleaning 9-1
9.3 Cleaning Process 9-3
9.4 After Cleaning Work 9-4
9.5 Control, Inspection and Maintenance 9-4
9.5.1 Control work: 9-4
9.5.2 Inspection and maintenance work 9-4
10.1 Technical Data 10.1-1
10.1.1 Dimensions and weight 10.1-1
10.1.2 Pneumatic connection 10.1-1
10.1.3 Electrical connection 10.1-1
10.1.4 Noise Level 10.1-1
10.1.5 Film length, film width and film hose diameter 10.1-2
10.1.5.1 Dimensions of the film roll 10.1-2
10.1.5.2 Flat film width 10.1-2
1.6 Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer 1.6-1
1.6.1 Alpina 1.6-1
1.6.2 Asgo 1.6-2
1.6.3 Cato 1.6-3
1.6.4 Frey 1.6-3
1.6.5 Germo 1.6-4
1.6.6 Handtmann 1.6-4
1.6.7 Ideal 1.6-6
1.6.8 Iozzelli 1.6-6
1.6.9 Karl Schnell 1.6-7
1.6.10 Kraemer & Grebe 1.6-8
1.6.11 Marlen 1.6-9
1.6.12 Metaquina Twinvac 1.6-10
1.6.13 Piereder 1.6-10
1.6.14 Rex 1.6-11

1.6.15 Risco Brevetti 1.6-12
1.6.16 Schrofner 1.6-13
1.6.17 Schwerdtel 1.6-14
1.6.18 SIA 1.6-15
1.6.19 Tecmaq 1.6-15
1.6.20 Tecnotrip 1.6-16
1.6.21 Velati 1.6-16
1.6.22 Vemag 1.6-17
1.6.23 Sonderverbindungsteile / special connections parts 1.6-18
1.6.24 Verbindungsrohr (200 mm) Fasspresse, komplett 63840
Connecting tube (200 mm) drum press, assembly 63840 ..... 1.6-18
1.6.25 Anschlusskabel Fasspresse, komplett 100985A
Connection cable drum press assembly 100985A 1.6-19
1.6.26 Fasspressensteuerung komplett 146285B
Drum press control assembly 146285B 1.6-20
1.6.27 Initiatorsteuerung komplett 55920
Proximity switch control assembly 55920 ..... 1.6-22

1 Safety Information

1.1 Introductory Comments

This Poly-clip machine is built in accordance with the present state of the art and the applicable accident prevention regulations.

However, this machine may

- present danger to life and limb of the user or of a third party;
- cause impaired production and impairment of other assets of the user if the machine
  - is operated or maintained by untrained staff
  - and/or is used improperly or is used for a different purpose from that intended.

• Note

Any person who is entrusted with commissioning, operation, care, maintenance and repair of this machine must first have read and understood the Operating Instructions and in particular the Safety Information chapter.
In addition, the general safety and accident prevention regulations must be observed.

1.1.1 Warning signs on the machine

The following table displays the warning signs on the machine and explains their meaning.

Warning sign	Explanation/position on the machine
	Warning of dangerous electrical voltages Position: Protective cover of the switch cabinet Switch off the main switch before opening the housing!
	Warning: temperatures up to 250° Position: Seal bar
	Warning: Risk of contusion Position: Film transport

- Warning signs on the machine refer to possible danger points and must be observed in any case.
- Warning signs must not be removed from the machine.
- Damaged and illegible warning signs must be replaced immediately.

1.1.2 Warning notes in instructions

In the various instructions you will find warning notes before specific actions that may involve hazards and risks.
Here, you are explained how a warning note is structured and what it means.

1.1.2.1 Warning symbol

In the following the warning symbol is displayed. Warning notes with this symbol warn the users from injury hazards and even death. Please always observe this information in order to prevent any risks.

1.1.2.2 Hazard stages

The warning symbol in connection with a signal word represents a specific hazard stage:

Warning symbol and signal word	Explanation	Probability
DANGER	If this hazard is not avoided, death or severe (irreversible) injuries will be the consequence.	Imminent
WARNING	If this hazard is not avoided, death or severe (irreversible) injuries may be the consequence.	Possibly
CAUTION	If this hazard is not avoided, moderately severe or slight injuries (reversible) and possibly property damage may be the consequence.	Possibly
ATTENTION	If this hazard is not avoided, property damage may be the consequence.	Possibly

Example for a warning note:

Warning:Injurieswhenliftingheavy film rolls

You may do yourself injury while lifting and there is a risk of contusion when lifting film rolls with a weight of more than 25 kg without lifting aids.

- Film rolls weighing more than 25 kg must only be placed onto the tensioning shaft with the help of lifting equipment.
- Wear safety shoes.

1.2 Use and Application of this Machine

1.2.1 Proper use

The TSCA is intended for sealing of films from a roll to form a fillable film hose in various calibre sizes and for closing the filled film hose and separating of both small portions and large calibre sausages.
Room temperature at place of use 0°C to 50 °C.

1.2.2 Improper use

This machine must not be taken into operation without stuffer horn system, casing brake and without discharge tray at the product outlet.
The stuffer horn system comprises stuffer horn, sealing pipe and molding shoulder.
The machine must not be operated without its covers.
The machine is not suitable for use in potentially explosive atmospheres. The operator must check whether the machine is suitable for processing his/her specific potentially explosive materials.

1.2.3 Modifications and alterations

a Unauthorised modifications or alterations to the machine, as well as attachment or installation of additional equipment or other models that are not sold by Poly-clip System are not permitted due to safety reasons. Any welding or cutting work at the base frame are also prohibited - any such work must only be carried out by Poly-clip System.

b Protective devices prevent operators from reaching into danger points during operation of the machine and must not be removed, modified or bypassed.

c The safety of the machine may be impaired by clips and spare parts which do not meet the standards specified by Poly-clip System and which have not been supplied by Poly-clip System.
Therefore, only original Poly-clip System clips may be used with the machine and only original Poly-clip System spare parts may be attached or installed.

In case of unauthorised modifications or alterations (a and b), use of non-original Poly-clip System clips (c) and attachment or installation of non-original Poly-clip System spare parts (c) the EC declaration of conformity for this machine will become null and void.

1.3 Who May Operate the Machine?

- Only trained and authorised staff may operate this machine.
- Training must be carried out in accordance with the Operating Instructions, in particular the Safety Information chapter, direct at the machine.
- During training the danger points on the machine and all possible dangerous situations which may occur during operation of the machine must be explained to the operators direct at the machine (see section 1.7).
- The machine must only be operated by one member of staff at a time.

1.4 Required Personal Protection Equipment

Please always read the product data sheets about the consumable goods used with the machine - you can obtain the product data sheets from the suppliers of the respective consumables. The product data sheets will contain additional information about the required personal protection equipment. Always use the required and recommended personal protection equipment - it serves for your own safety.

- Goggles

During cleaning of the machine with the steam jet.

- Safety shoes

Safety shoes are required during assembly and installation of the machine, during insertion of heavy film rolls, during disassembly and transport of the machine.

- Hearing protection

Hearing protection must be worn in work places with a noise level equal to or higher than 85 dB(A).

- Protective equipment for electrical specialists

The mandatory protective equipment must be worn by electrical specialists.

- Lifting equipment

For lifting of larger and heavier loads, a lifting aid is required, e.g. for insertion of film rolls with a weight of more than 25 kg.

1.5 Protective Devices

• Note

The installed protective devices are provided for standing operation!

1.5.1 Danger points protected by protective devices with cutouts.

A Product outlet, by means of a protective screen.

B Separating area, by means of a protective lid at the front.

Fig. 1-1 A Protective screen
B Protective lid

1.5.2 Work sequences secured by protective devices with cutouts

C Open product outlet.

D Open clip head.

1.5.3 Protective covers

The protective cover at the switch cabinet prevents reaching into the area in which live parts are present.

1.5.4 What effect do protective devices A to D have?

If one of the protective devices A to D is triggered - for example when the protective screen at the product outlet is lifted, the clip head or the product outlet is opened, or the protective lid is opened - an electric circuit is interrupted. The machine stops immediately and is no longer operational.
The following message is displayed in the text display area on the control panel: „170.6 Safety guard", also see section 4.7.

1.5.5 All protective devices must be checked!

- Before each start-up of the machine!
- Before any work is started on the machine!
- After all setting up, servicing, cleaning, maintenance and repair work on the machine!
- Verification of presence and correct function!

1.5.6 How can the protective devices be checked?

Prerequisite: The machine is ready for operation.
For the test, the protective devices
A, B, C and D (see 1.5.1 and 1.5.2) are to be triggered one after the other.
Example: To check protective device **A** at the product outlet:
- Lift protective screen at product outlet.

Fig. 1-2

The machine is no longer ready for operation.

- Close protective screen.
The displayed message „170.6 Safety guard“ disappears.
The machine is again ready for operation.

- If the test result differs from that described above, the machine must be taken out of operation immediately and the maintenance staff must be called.
- The machine must only be operated under the prerequisite that all protective devices are installed and function correctly.

1.5.7 Electronic hand wheel function

Using the two-hand operation on the control panel, the machine can be run forwards or backwards in slow operation mode.
The machine will stop immediately if any of the two-hand operation buttons is released.
While the safety circuit of all safety devices (A and B) and of all work sequences (C and D) is inoperative, the "electronic hand wheel function" is activated.
All protective devices can be opened and the clip head and sausage outlet can be swung out.
Never reach into the machine during operation.

1.6 Setting Up, Servicing, Cleaning, Maintenance and Repair Work on the Machine

1.6.1 Who may carry out this work?

Cleaning and maintenance work must only be carried out by instructed operators.

Installation work, production change, maintenance and repair work may only be carried out by trained and expert persons.

1.6.2 What must be observed and done before starting with such work?

Setting up, servicing, cleaning, maintenance and repair work must only be carried out **when the machine has stopped.**

- The main power supply must be disconnected at the machine.
- Swivel the lever at the heating bar to the right (position red dot). See Fig. 1-3.
- The main compressed air supply must be disconnected at the machine.
- It must be confirmed that the air pressure has been released by operating an air operated device on the machine. For this purpose move release valve (1, Fig. 1-4) on supply connection in the direction of arrow to open.
- The clip machine - stuffing machine control cable must be disconnected.

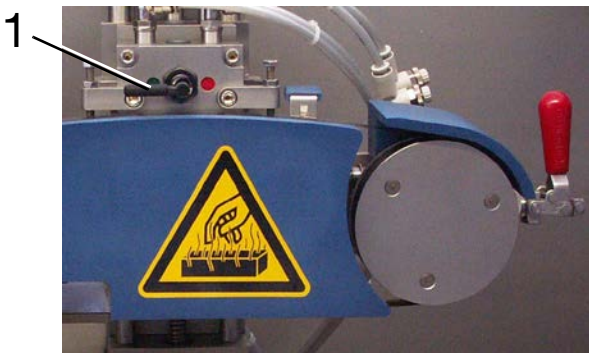


Fig. 1-3 1 Lever

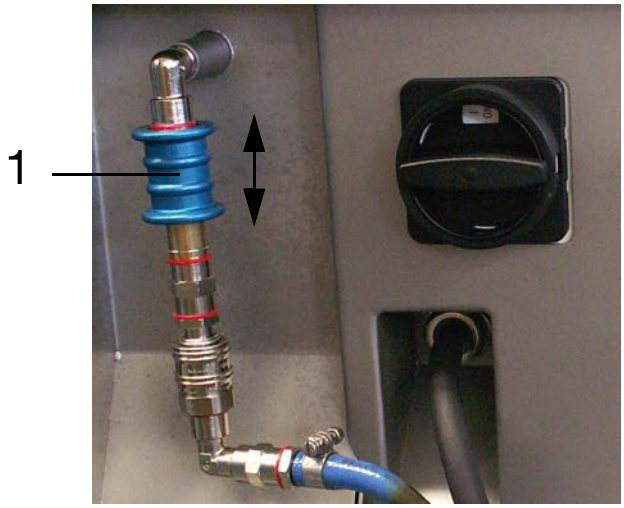


Fig. 1-4 1 Release valve

1.6.3 Cleaning the machine

- The machine must be cleaned in accordance with the local hygiene and accident prevention regulations.
- When using cleaning equipment the safety instructions of the equipment manufacturer must be observed.

1.6.4 Work on electrical equipment

Persons who carry out work at the electrical equipment without authorisation, risk an electric shock.
Work on electrical equipment of the machine must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.
A qualified electrician is a person who is able to assess the work allocated to them and to identify potential hazards on the basis of their electrotechnical qualification, their knowledge and experience and knowledge of the relevant standards and regulations.

Before starting work:
- Isolate,
- Secure against re-connection, (e.g. through a padlock at the main switch)
- Verify isolation from supply,
- Make connection to earth and short-circuit,
- Cover or bar access to neighbouring live parts!

1.6.4.1 Machine connection

- The machine must only be connected to earthed power supplies. Before start-up it must be checked whether the protective earthing conductor functions.
- The machine must not be operated without circuit breaker. The fault current circuit breaker must be all-current sensitive. In wet conditions only the use of all-current sensitive fault-current circuit breakers of type B according to IEC 60755 is permitted.
- A sufficiently protected socket (this does not form part of the scope of supply) must be provided near the machine by the purchaser.

1.6.4.2 Frequency / Servo converter

After disconnection of the Frequency / servo converter from the voltage supply, live parts and power terminals must not be touched immediately because of possibly energized capacitors. Therefore, contact with these elements results in danger to life! The corresponding signs on frequency /servo converters as well as the operating manual of the manufacturer must be complied with during all such work.
All covers and doors must be closed during operation of the machine.

1.6.5 Working with process materials

Observe the manufacturers information on safety and quantities and general regulations in force when working with oil, grease, cleaning agents and other chemical substances.'
Residues from oil, grease, cleaning agents and other chemical substances must be collected in accordance with the legal provisions for recycling or disposal.
Local authority regulations pertaining to waste water disposal apply.

1.7 Residual Risks

1.7.1 Risk of tripping

Cables that are running between the TSCA and other machines must be laid such that there is no danger of tripping and falling.

1.7.2 Electrical risks

Persons who carry out work at the electrical equipment without authorisation, risk an electric shock.
Work on electrical equipment of the machine must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.

There is an electrocution hazard at damaged cables! When moving of machinery, e.g. during cleaning, it must be considered that the machine must not move or stand on cables. Damaged cables must be replaced immediately.

1.7.3 Risk of contusion when closing the front cover

When closing the front cover there may be risk of contusion. Carefully open and close the front cover, carry out work in the area of the front cover as one-man operation.

Fig. 1-5 1 Front cover

1.7.4 Risk of contusion when closing the protective lid

When closing the protective lid there may be risk of contusion. Touch and close the protective lid at the handle rail only. Carry out work in the area of the protective lid carefully and as one-man operation.

Fig. 1-6 Handle rail on the protective lid

1.7.5 Risk of contusion when closing the clip head

Closing of the clip head is pneumatically supported. There are numerous points of contusion for your fingers around the clip head, particularly when the clip head is closed. Carry out work in the area of the clip head carefully and as one-man operation.

1.7.6 Risk of impact when closing the clip head

Closing of the clip head is pneumatically supported. Before opening the clip head make sure no-one is in the swivel range of the clip head. Carry out work in the area of the clip head carefully and as one-man operation.

1.7.7 Risk of contusion when closing the product outlet

There are numerous points of contusion for your fingers around the product outlet, particularly when the outlet is closed. Carry out work in the area of the product outlet carefully and as one-man operation.

Fig. 1-7 Product outlet

1.7.8 Risk of cutting when changing the cutter

When changing the cutter, you may cut yourself with the sharp blade of the cutter.
Please always carry out work carefully and intently. Do not touch the blade of the cutter.

1.7.9 Adjusting the dosage unit speed

The speed of the dosage unit must be selected such that the operator can remove the finished portions from the TSCA without getting in a hurry.

1.7.10 Transporting the TSCA

For details, see section 1.8.

1.7.11 Closing and separating area

At this point the separating jaws gather the film into a small diameter and the contents (e.g. sausage meat) are squeezed out of the resulting twist. Subsequently the clips are placed around the twist by means of the closing mechanism.
The danger point at the closing and separating area is covered during operation of the machine.

a) at the product inlet side by means of the stuffing horn system and the casing brake;
b) at the front by means of protective device B, the protective lid.
c) at the product outlet side by means of protective device A, the protective screen.

- Before reaching into the machine, it must be stopped. For this purpose the protective screen at the product outlet must be lifted.

1.7.12 Film inlet side

At this point, the closing and separating area danger point is covered by the stuffing horn system and the casing brake.

- Therefore, the machine must never be operated without the stuffer horn system and casing brake.

1.7.13 Product outlet side

At this point, the closing and gathering area danger point is covered by the product outlet and the protective screen.
If the product outlet (protective device with cutout C) is opened or if the protective screen (protective device with cutout A) is lifted, the machine is stopped.

- Never reach underneath the protective screen without first having lifted the protective screen.

  There is great danger of injury at this point.

1.7.14 Electronic hand wheel function

Using the two-hand operation on the control panel, the machine can be run forwards or backwards in slow operation mode.
The machine will stop immediately if any of the two-hand operation buttons is released.
While the safety circuit of all safety devices (A and B) and of all work sequences (C and D) is inoperative, the "electronic hand wheel function" is activated.
All protective devices can be opened and the clip head and sausage outlet can be swung out.

- Never reach into the danger zone during operation.
- The machine must only be operated by one person at a time.

1.7.15 Automatic operation

The product outlet side is partly closed by the emerging product. However, the inside diameter of the product outlet is larger than that of the emerging product.

- Nevertheless, the operator must not reach inside the danger area during operation of the machine.

1.7.16 Stuffing process

The cycle step of separating and closing is started by the clip pulse generated by the stuffer unit.
After each completed stuffing step, the clip machine cycle step takes place.

- The operator must never reach inside the danger areas without first having stopped the machine.

1.7.17 Stuffing process in automatic operation

If, during automatic operation, the stuffer becomes empty during the stuffing process and does not stuff a complete portion, the TSCA remains in "Automatic On" mode.
After completion of the stuffing time selected on the stuffing machine, the clip signal is transmitted to the clip machine despite the portion not being completed.

- The clip machine cycle step is carried out.

• Note

With the stuffer empty, for safety reasons the clip machine should be switched to "Automatic Off" mode or the Emergency-Stop button must be pressed.

1.7.18 Changing over from Automatic On to Automatic Off

During this action the cycle that has already started is not interrupted.
After the stuffing process, the clip pulse starts and completes the clip machine cycle step.
However, the clip pulse also causes changing over of the clip machine to Automatic Off.
No further cycles take place after the started cycle has been completed.

- The operator must never reach inside the danger areas without first having stopped the machine.

1.7.19 Risk of burning at the seal station

With the heating switched on, the seal band will reach up to 180° C during normal operation, depending on the preselected temperature.
The seal band is protected by a protective cover on the front side. However, this protective cover may heat up during continuous operation.
There is a risk of burning when touching. Do not touch seal band and protective cover!

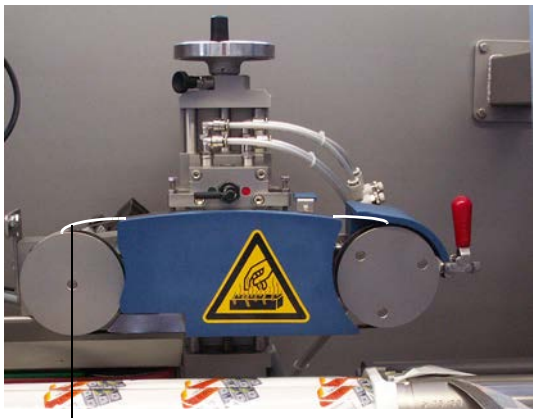


Fig. 1-8 1 Seal band

1.7.20 Risk of contusion at the seal station

Risk of contusion between seal bar (1, Fig. 1-9) and seal pipe (2, Fig. 1-9). Never reach between the seal bar and the seal pipe!

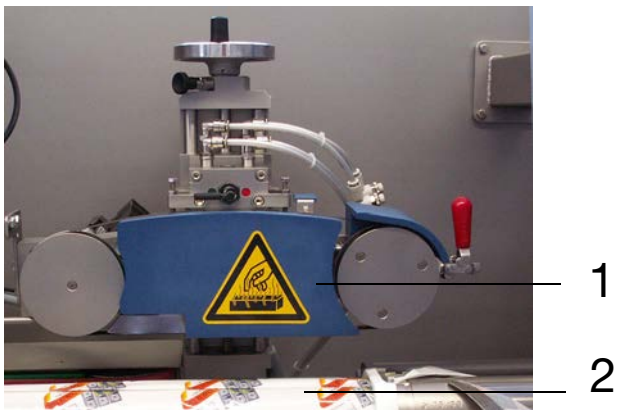


Fig. 1-9 1 Seal bar
2 Seal pipe

Risk of contusion between film transport unit (1, Fig. 1-10) and seal pipe (2, Fig. 1-10). Never reach between the film transport unit and the seal pipe; upon ejection of a portion, the film transport unit will abruptly approach the seal pipe!

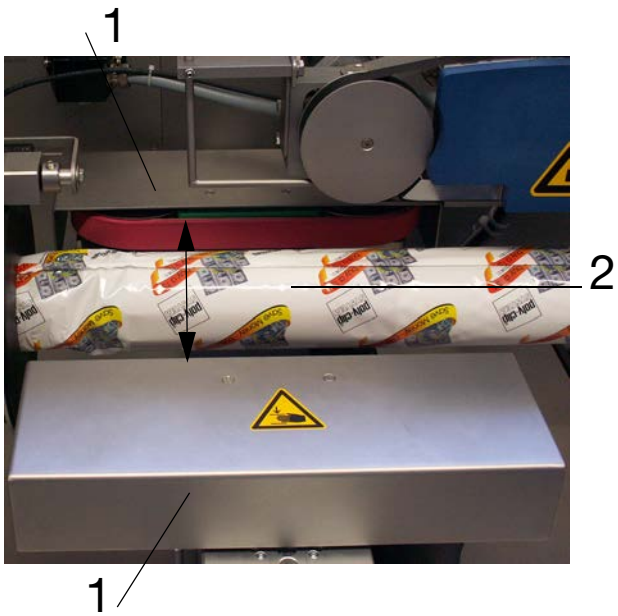


Fig. 1-10 1 Film transport unit
2 Seal pipe

1.7.21 Risk of crushing at film roll unwinder

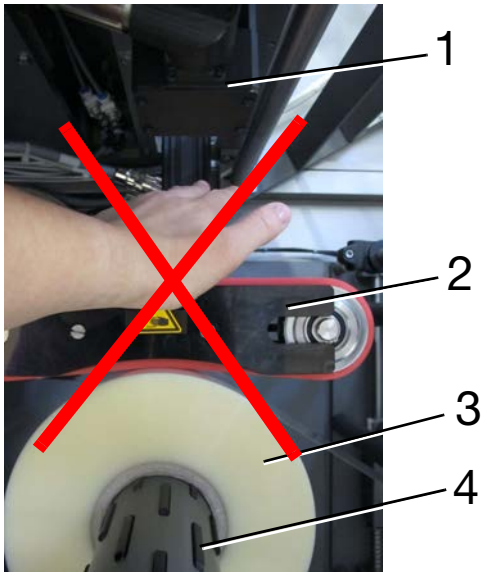


Fig. 1-11 1 Motor
2 Film roll unwinder
3 Film roll
4 Tension core

Danger! Upon actuation, the film roll unwinder (2, Fig. 1-11) moves upwards by means of compressed air. At this point, there is a risk of crushing between the film roll unwinder and the motor (1). Never reach into this zone when the film roll unwinder is actuated!

Fig. 1-12 (here: without film roll)
1 Film roll unwinder
2 Front area od tension core

Caution! Upon renewed actuation of the roll unwinder, the roll unwinder moves downwards without means of compressed air and there is a risk of crushing between the film roll unwinder (1, Fig. 1-12) and the tension core and/or film roll. When lowering the film drive, hold the roll in the front area of the tension core (2) only and not in the area of the tension core onto which the film roll unwinder lowers.

1.7.22 Switch cabinet

• In case of fire

- Do not open the switch cabinet door;
- Disconnect the mains plug!

1.7.23 Clamping core

The bellows of the clamping core may tear or burst when air is blown inside without a roll being placed onto the clamping core.
This may lead to risk of injury due to escaping compressed air or flying rubber parts.

Fig. 1-13 1 Clamping core

1.8 Moving Machine and Additional Equipment

The machine and its additional equipment is very heavy. In order to move the machine on a level surface, minimum two persons are required. The machine can only be moved in a controlled manner on a level surface; on inclined surfaces the machine must be additionally secured. Special care is required when moving the machine across sills or groves.
Suitable points for sliding the machine are the short sides of the machine.
In order to lift the machine, a fork lift with appropriate load-bearing capacities is required.

1.8.1 Measures before moving

- Disconnect the complete power supply of the machine - even for short distances.
- Secure the front doors and covers, see Fig. 1-16.
- Open the left side cover and secure the clip head of the machine with the screw, see Fig. 1-14.

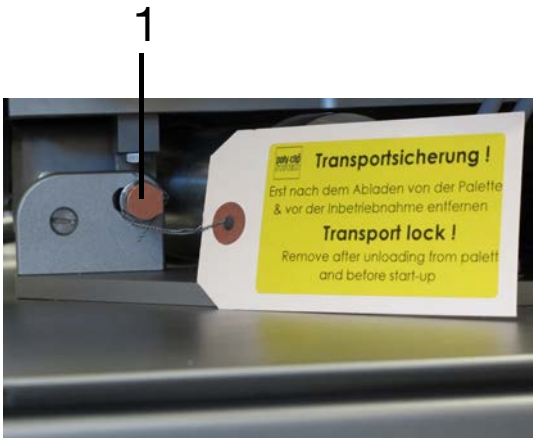


Fig. 1-14 1 Screw

1.8.2 Loading and unloading

- Be careful when loading with or without lifting equipment!
- When loading the machine by means of lifting equipment, ensure that lifting capacity is sufficient.

- Do not stand underneath suspended loads of in the loading area.
  Danger to life!

- Only use suitable transport vehicles with sufficient carrying capacity.
- Secure the load on the transport vehicle so that it is protected against sliding or falling.

1.8.3 Removal of transport packaging

-Remove all parts attached for transport purposes and all packaging before the machine is started up.

- Transport ropes must be secured tightly and will snap off when cut.
  With incorrect handling there is danger of injury.

- All parts or equipment removed fro transport purposes must be properly refitted in accordance with their intended use, before the machine is started up.

1.8.4 Disposal of packaging materials

Packaging materials must be collected in accordance with the legal provisions for recycling and/or disposal.

1.8.5 Castors

The castors are only intended for moving the machine from A to B.
The machine must only be operated with the standing leg lowered.

Fig. 1-15 1 Castor
2 Standing leg

1.8.6 Front doors

- In order to prevent accidental opening of the doors during transport, the two door handles must be firmly tied together.

Fig. 1-16 1 Door securing ties

2 Machine Description

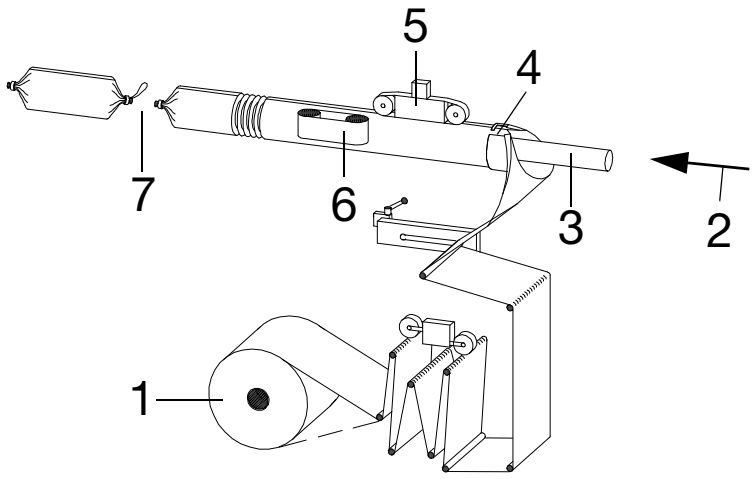


Fig. 2-1 Production sequence diagram
1 Film roll
2 Product inlet
3 Stuffing horn
4 Molding shoulder
5 Seal band
6 Film transport unit
7 Clip module

2.1 Applications

TSCA, the unit comprising of transfer sealing system and automatic double clipper processes all types of conventional film - ordinary film, coated or composite film. The TSCA 120-M can be employed up to calibre 120, the TCSA 160-L up to calibre 160.
The TSCA seals flat film from the roll to produce fillable film hoses that are filled and closed in the integrated clip module.

2.2 Sealing

For sealing the hot revolving seal band is lowered and pressed onto the overlapping film seam to seal it under pressure.
During the sealing process the film is automatically transported by means of the film transport unit.

- Depending on the make of the film used, the required parameters for temperature, contact pressure and sealing time of the seal band must be changed.

2.3 Closing and Clipping Process in the Clip Module

The produced film hose is transported into the clip module, the front end is closed with a clip and filled with the mass.
Then the separator tools are moved towards the hose filled with the mass and a separating and spreading process is carried out.
During the next processing step two clips are simultaneously placed around the resulting film hose twist, so closing the rear end of one portion and the front end of the following portion.
The portions are automatically separated with a cutter.

2.4 Film Counter

The film counter records the film transport by means of a counter wheel and stops the film when the preselected film length has been transported.
The film switch is used as an alternative for the shirr switch.

2.5 Shirr Switch

The shirr switch stops the sealing process when sufficient film supply has been accumulated in front of the clip module.
The shirr switch is used as an alternative for the film counter.

2.6 Ink Jet Printer (Option)

With the ink jet printer the text is entered via a display. It provides an option to connect a PC in order to be able to print graphical elements.
The ink jet printer is also suitable for operation in humid conditions.

2.7 Hot Stamping Printer (Option)

With the hot stamping printer the printing image is created by mechanical typesetting of numbers and letters.
Printing is carried out by melting the hot stamping foil onto the film through exposure to high temperature.

2.8 Print Mark Control (Option)

With print mark control the film printing process is used as a control signal for portioning.
An optical sensor detects the marks printed on the film and by that controls the filling and closing process. (Without the printing mark control the portioning control is performed by the filling machine or the dosage pump.)

3 Installation of the Machine

3.1 Note

- Installation and setup work may only be carried out by qualified and expert persons.
- Work on electrical equipment of the machine must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.
- The chapter Safety Information as well as any applicable local regulations for accident prevention must be complied with during all such work.

3.2 Required Protective Equipment

- Safety shoes are required during assembly and installation of the machine, during insertion of heavy film rolls, during disassembly and transport of the machine.
- The mandatory protective equipment must be worn by electrical specialists.
- For lifting of larger and heavier loads, a lifting aid is required, e.g. for insertion of film rolls with a weight of more than 25 kg.

3.3 Machine Location

Requirements:

- solid and level floor of sufficient stability (slope not more than 3 %) and load-bearing capacity,
- sufficient illumination (at least 500 Lux),
- compressed air and power supply.
- area for safe operation and the daily maintenance of the machine

• Note

With the selection of the machine location please consider the locally valid regulations for accident prevention and waste water.

3.3.1 Moving the machine to its location

Warning: Machine is very heavy

Due to its large weight the machine can be hardly controlled when in motion.

- At least two persons are required for moving the machine in a controlled manner on a level surface. The machine can only be moved in a controlled manner on a level surface; on inclined surfaces the machine must be additionally secured.
- Special care is required when moving the machine across sills or groves.
- Wear safety shoes.

- Remove transportation materials.
- Check that the clip head is arrested and the frond doors are secured.
- With the standing legs retracted the machine can be moved to the place of installation by means of steering rollers.
  Suitable points for sliding the machine are the short sides of the machine.
- When positioned at the final place of operation secure the machine against sliding and shifting by extracting the standing legs.

3.4 Machine connection

Hazard through live parts

There is a risk of electrocution in case of incorrect work with the electrical equipment.

Work on electrical equipment must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.

Hazard through live parts

After disconnection of the Frequency / servo converter from the voltage supply, live parts and power terminals must not be touched immediately because of possibly energized capacitors. Therefore, contact with these elements results in danger to life!

- The corresponding signs on frequency / servo converters as well as the operating manual of the manufacturer must be complied with during all such work.
- All covers and doors must be closed during operation of the machine.

- The machine must only be connected to earthed power supplies. Before start-up it must be checked whether the protective earthing conductor functions.
- The machine must not be operated without circuit breaker. The fault current circuit breaker must be all-current sensitive. In wet conditions only the use of all-current sensitive fault-current circuit breakers of type B according to IEC 60755 is permitted.
- A sufficiently protected socket (this does not form part of the scope of supply) must be provided near the machine by the purchaser.
- Cables that are running between the TSCA and other machines must be laid such that there is no danger of tripping and falling.

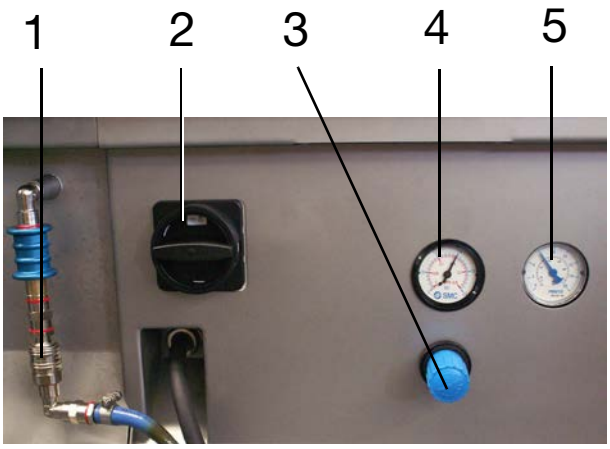


Fig. 3-1

1 Compressed air supply
2 Main switch On / Off
3 Pressure control for lifting of seal bar; standard setting 1.5 bar
4 Manometer for lifting of seal bar
5 Manometer for operating pressure

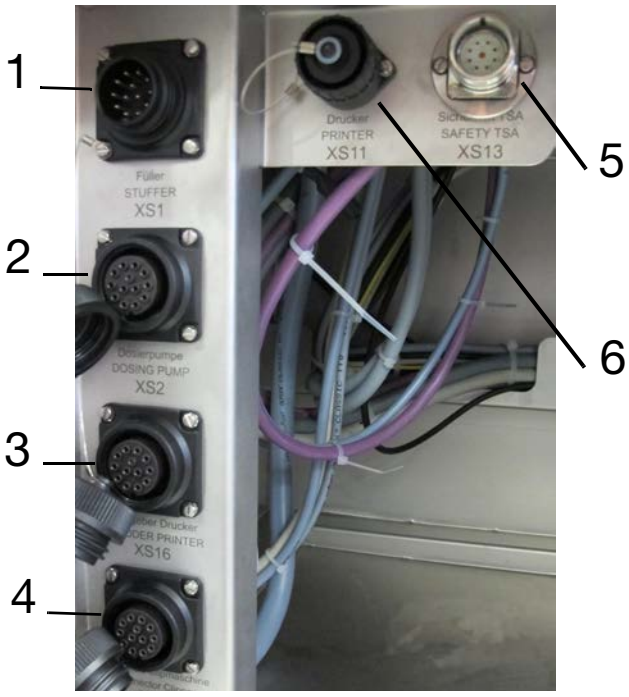


Fig. 3-2

Connections at the back of the machine:
1 Stuffer
2 Dosage pump
3 Encoder Printer
4 Clip machine connection
5 Safety
6 Printer

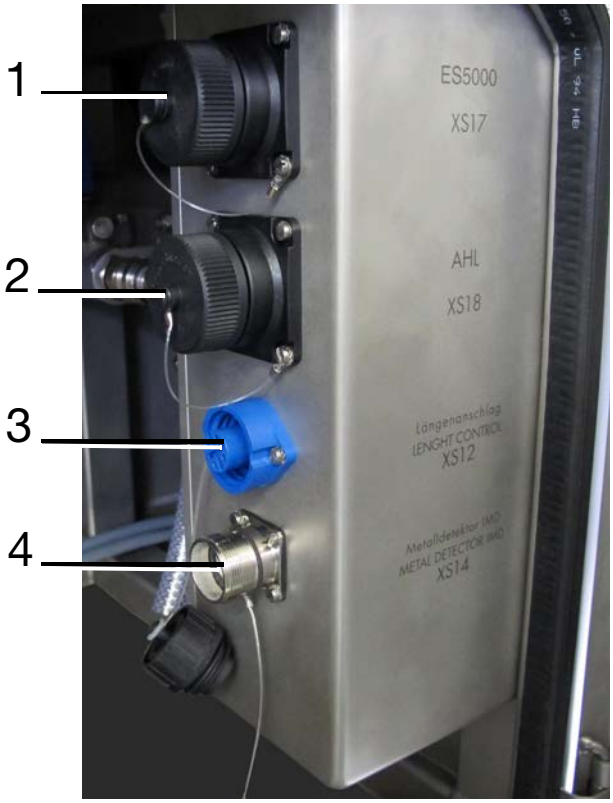


Fig. 3-3

Connections at the left hand side of the machine:
1 ES 5000
2 AHL
3 Length control
4 Metal detector IMD

Fig. 3-4

Connections at the left hand side of the machine:
1 Pneumatically controlled casing brake and Length control

3.5 Installation of the Filling System

3.5.1 Adjustment elements for seal band and film transport

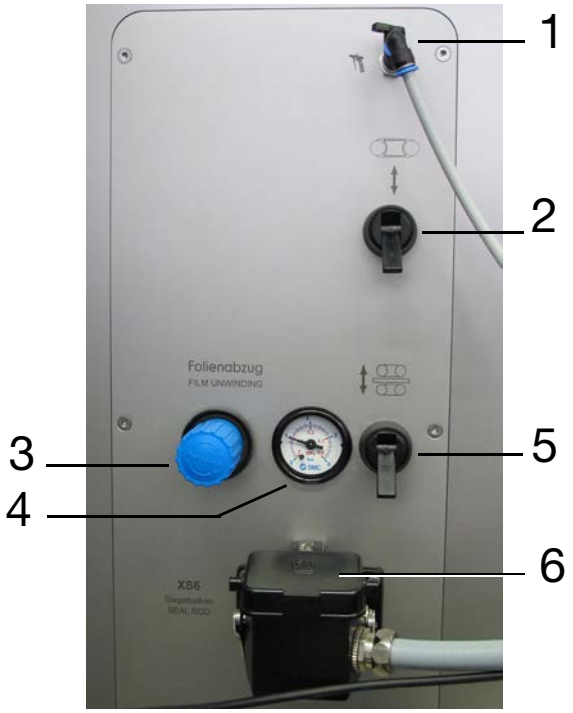


Fig. 3-5

1 Cooling air for sealed seam
2 Toggle switch: Lowering / lifting off the seal bar; for inserting the film
3 Pressure control for film transport; standard setting 1 bar
4 Pressure display for film transport
5 Toggle switch: film transport unit open/close
6 Heating bar plug

The seal pressure is set on the touch panel. See Chapter 4, section 4.5.12.2.

3.5.2 Positioning of sealing unit

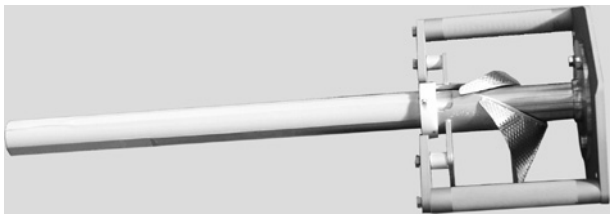


Fig. 3-6 Sealing unit

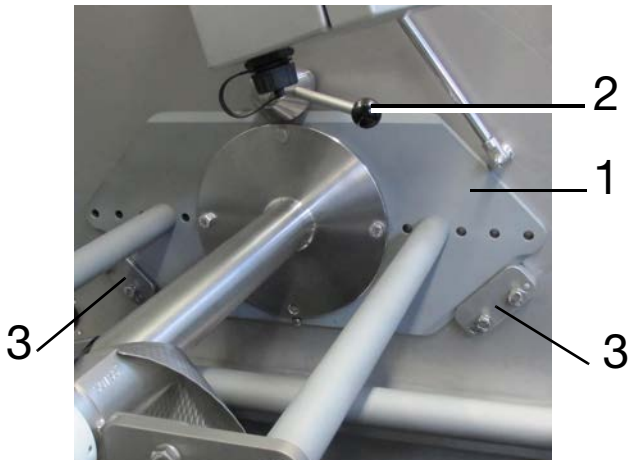


Fig. 3-7
1 Sealing unit, positioned
2 Quick-release fastener, arrested
3 Fixing plates

3.5.3 Positioning the stuffing horn

Fig. 3-8 Stuffing horn

- Slide the stuffing horn into the product inlet to the stop.

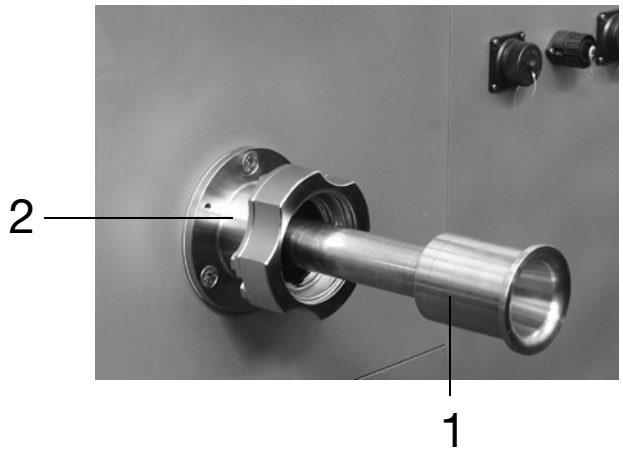


Fig. 3-9 1 Stuffing horn
2 Product inlet

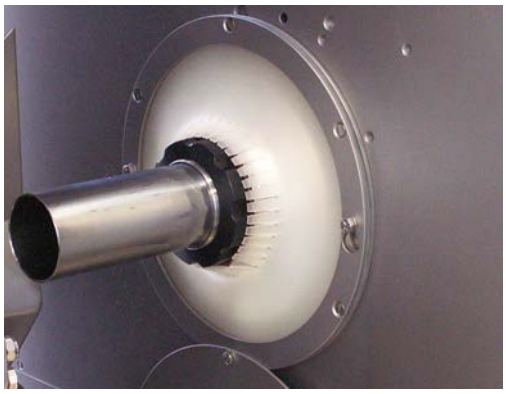


Fig. 3-10 1 Stuffing horn end at the connection area between sealing system and clip module

3.6 Connecting the Filling Machine

• Note

The machine must only be operated with the standing legs extracted.

3.6.1 Adjusting the product inlet height

At every standing leg the height can be adjusted by turning the spindle (1).

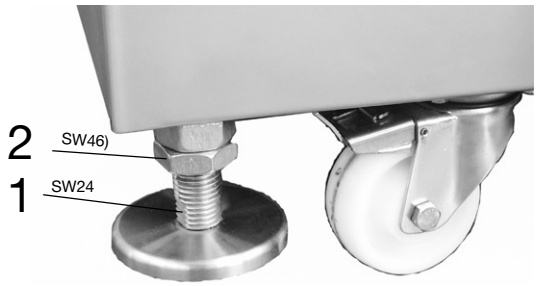


Fig. 3-11 1 Spindle
2 Locking nut

- Release locking nut (2).
- Rotate the spindle (1) until the required height is obtained.

lower > rotate to the right
higher >rotate to the left

- Re-tighten the locking nut.

3.6.2 Connecting TSCA and filling machine

- Screw the connection sleeve into the stuffer connection.
- Screw the connection nut to the connection sleeve.
- When the product inlet height is correctly set, the connection nut can be tightened without much effort.

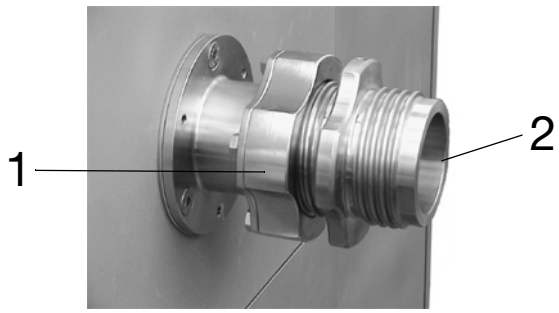


Fig. 3-12 1 Connection nut
2 Connection sleeve

3.7 Setting the Operating Pressure

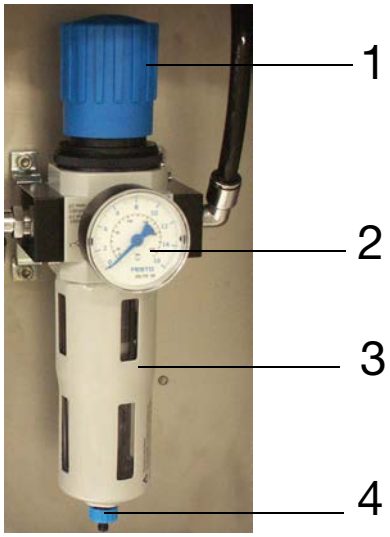


Fig. 3-13

1 Rotating knob for air pressure control
2 Manometer
3 Air filter
4 Condensate discharge, fully automatic

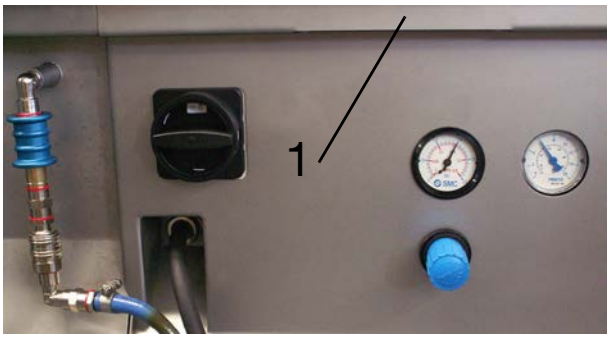


Fig. 3-14 1 Handle rail

- Open the lid at the handle rail (1, Fig. 3-14).
- Switch on the compressed air supply.
- Read the air pressure at the manometer.
- Lift and rotate the rotating knob at the air filter until an operating pressure of 5 to 7 bar is indicated at the manometer.

3.8 Inner brake and outer brake

The inner brake is used instead of the outer brake. This means you must use either an inner brake, or an outer brake with inner ring. The inner brake must not be used in conjunction with an outer brake.

3.8.1 Inner brake

You will recognise the inner brake by the fact that the size of the cylindrical outer surface is considerably smaller in relation to the conical outer surface (see Fig. 3-15). In addition, inner brakes used in meat processing have 1-2 brake rings, depending on the design.

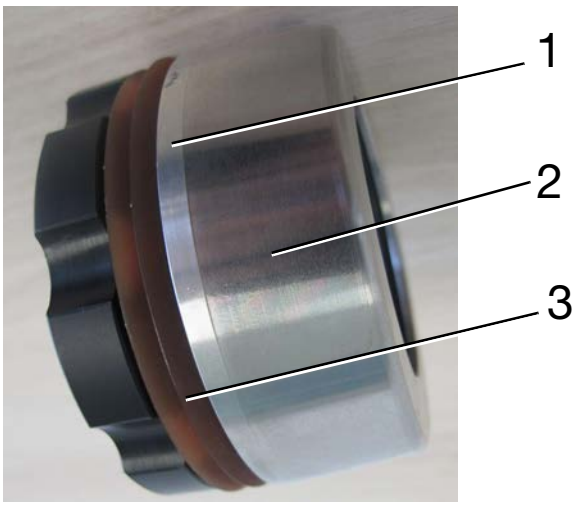


Fig. 3-15 Here: adjustable inner brake
1 Cylindrical surface
2 Conical surface
3 Brake ring

3.8.2 Outer brake

The outer brake must always be used with an inner ring.

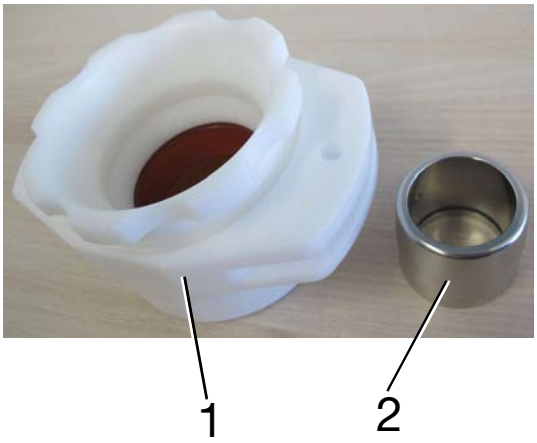


Fig. 3-16 1 Outer brake
2 Inner ring

You will recognise the inner ring by the fact that the size of the cylindrical outer surface is slightly larger in relation to the conical outer surface.

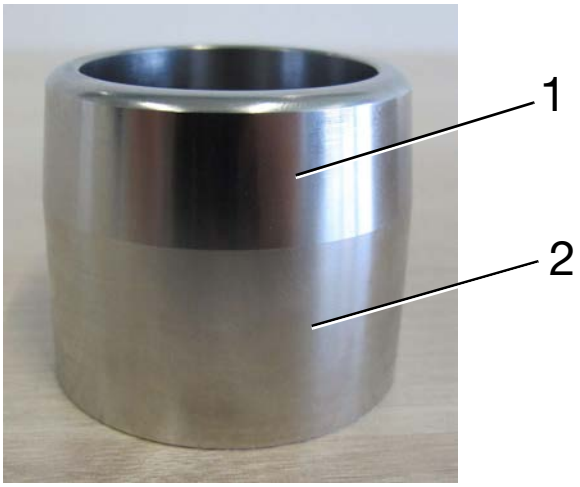


Fig. 3-17 Inner ring
1 Conical surface
2 Cylindrical surface

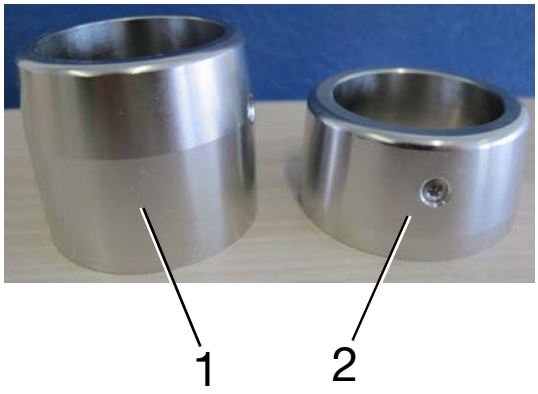
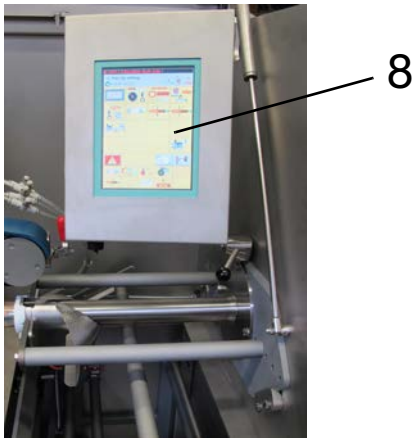


Fig. 3-18 1 Inner ring for outer brake
2 Inner brake for sealants (without brake ring)

4 Indicators and controls

4.1 Operating panel



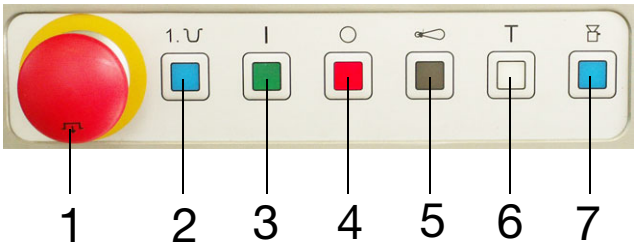


Fig. 4-1 Operating panel

1 Emergency Stop pushbutton

2 First Clip illuminated button (two-hand operation)

First function: Place first clip (two-hand operation) The "First Clip" button (2) and the two-hand button (9) must be pressed and held simultaneously within 0.5 seconds.
Second function: Clip signal lamp, indicator light, blue

3 Automatic On illuminated button

Indicator light, green

4 Automatic Off illuminated button

First function: Swing clip head out
Second function: Indicator light, red

5 Loop transport manual

6 Film transport manual

7 Switch-on button for stuffer

First function: By pressing the button, the stuffer receives a stuffing signal until the button is released.
Second function: Clip signal display

8 Control panel display

Here, the operating status of the machine, error messages and function menus are displayed.

9 Two-hand button (two-hand operation)

First function: Place first clip. The two-hand button (9) and the "First clip" illuminated button (2) must both be pressed simultaneously within 0.5 seconds.
Second function: Swing clip head in

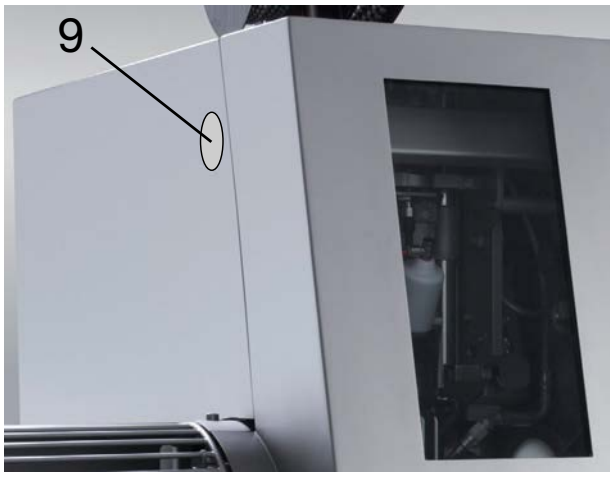


Fig. 4-2 9 Two-hand button on the clip module (product outlet side)

10 Electronic hand wheel function

Two-hand operation with open safety circuit.
With open protective equipment, the cycle step of the machine can be operated forwards or backwards at slow speed.
Forwards: Simultaneously press the two-hand button (9) and button (2, blue).
Backwards: Simultaneously press the two-hand button (9) and button (3, green).
The machine will stop immediately if one of the buttons is released.

4.2 Easy-Touch display

Once the machine is switched on, the integrated program menu is activated and the screen shown in Fig. 4-3, for example, is displayed on the touchscreen.
To change the menu level, the icon selection button (1) (Key) must be pressed.
A menu screen for entering the password is displayed (see chapter 4.3).

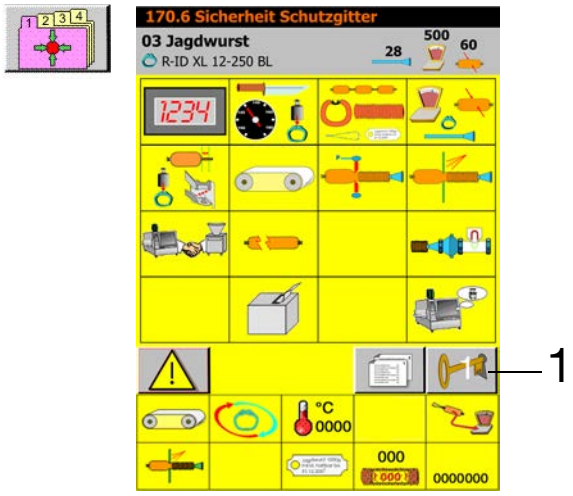


Fig. 4-3 Operator menu basic selection screen
1 Icon selection button - Change user level

If the menu button is not pressed for 3 minutes, the screen will dim.
Touching the touchscreen will display the last shown menu screen.

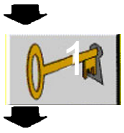
- The icons and number fields displayed in a menu screen serve as visual selection, input, display or function buttons.
- To select or execute a function, touch the corresponding icon button and press lightly.
- Once the icon button has been pressed, the function symbolised is activated and the button is highlighted.

4.3 Program structure

The program is divided into 3 password-protected user levels for different user activities.

1 Operator level (password 1111)
2 Maintenance level (password 9391)
3 Service level (password 7419)

To select the appropriate menu level, press the icon selection button (Key) in the basic selection screen.



- The currently active user level is displayed.

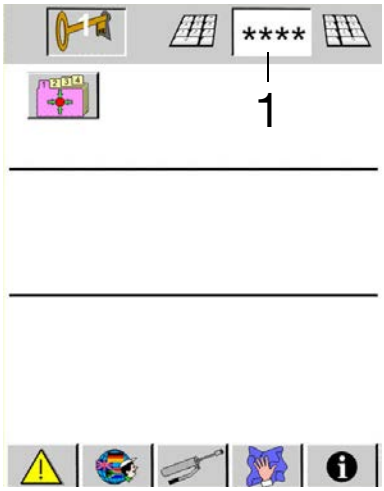


Fig. 4-4 Password input

To enter the password, press the password input field.

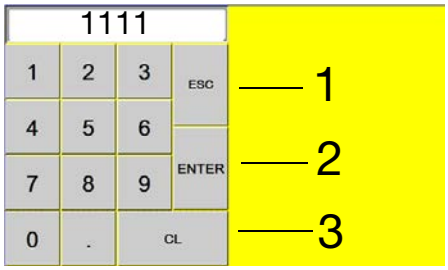


Fig. 4-5 1 Quit without saving
2 Save and exit input keyboard
3 Clear input

Once the password has been entered, the corresponding password input and icon selection screen is displayed.

4.4 Operator level

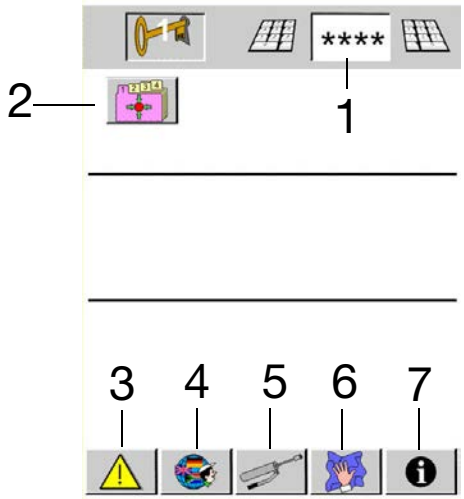


Fig. 4-6 Password input/icon selection screen of the Operator level
2-7 = icon selection buttons

1 Password input field
2 Select the Operator level basic selection screen
3 Message icon and icon selection button for error message display
4 Icon selection button - Language selection
5 Icon selection button - Lubrication plan, or interval control for central lubrication version
6 Icon selection button - Clean touchscreen graphic display
7 Icon selection button - Display service information

4.4.1 Basic selection screen of the Operator level

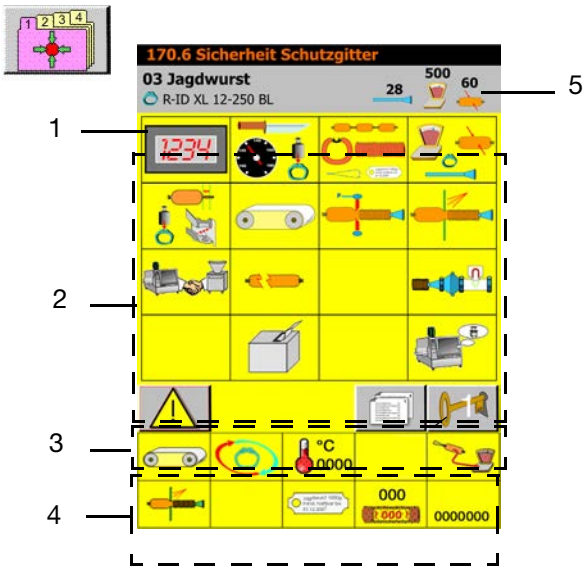
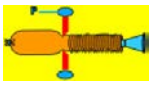
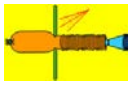
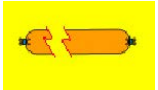
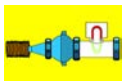


Fig. 4-7 + Increase value (+)
- Decrease value (-)
(only visible if servo adjustment installed)

1 Current product data display
2 Icon selection buttons for selecting the appropriate menu screens for setting the functional parameters of the machine and additional (optional) equipment
- Only icon selection buttons for additional equipment actually installed will be displayed!

3 Icon selection buttons
4 Function buttons - manual machine functions (see Fig. 4-8)
5 Button for calling up the “Current messages” screen (Fig. 4-12)

4.4.2 Meaning and function of icon selection buttons in the Operator menu

Icon	Meaning/Function
	- Product counter
	- Speeds - Knife - Clip pressure - Separator hole
	- Knife counter - Shirred casing counter
	- Loop counter - Label counter Only when option is installed.
	- Portion weight - Calibre - Clip size - Stuffing horn
	- Separator hole - Clip pressure
	- Conveyor Only visible when option is installed.
	- Casing brake Only visible when option is installed.
	- Oil sprayers Only visible when option is installed.
	- Stuffer coupling Selection of the type of Stuffer-TSCA signal exchange
	- Film break monitoring Only visible if configured.
	- Metal detector Only visible when option is installed.
	- Printer

Icon	Meaning/Function
	- Simulator Only visible when operation is enabled.
	- Message icon and icon selection button - Error message display
	- Icon selection button - Product program
	- Icon selection button - Change user level, - Display of the active user level (password required)

4.4.3 Manual function buttons

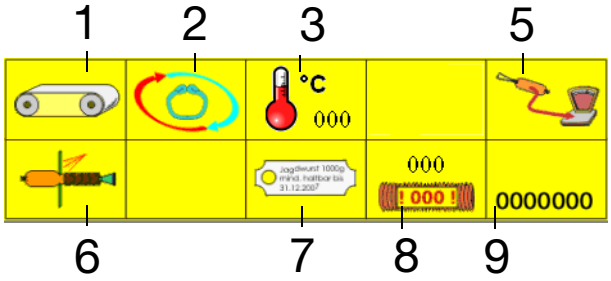


Fig. 4-8 Function buttons - manual machine functions

1 Conveyor On/Off

2 Call up the “Clip loading position/Change positions” screen

3 Heating On (green background)/Off (yellow background)

5 At the AHL, remove a portion for weighing (only visible with AHL)

6 Manually operate oil/water sprayers

7 Label transport, manual

8 Reset shirr counter to 0
Target value = black
Actual value = red

9 Clear film counter/electronic jam switch

4.4.4 Clip loading position/Change positions

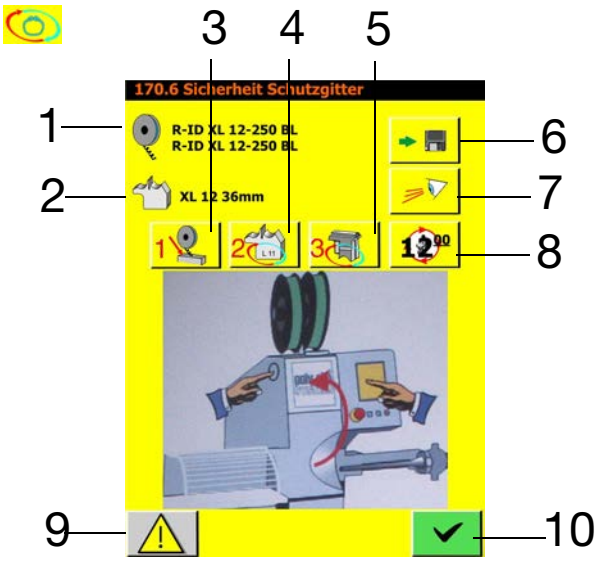


Fig. 4-9

1 Clip size detected
2 Die size detected
3 Move to clip loading position
The button must be pressed with the safety circuit closed.
4 Move to die change position
The button must be pressed with the safety circuit closed.
5 Move to punch change position
The button must be pressed with the safety circuit closed.
6 Save RFID data
7 Read RFID data manually
8 Move to home position
The button must be pressed with the safety circuit closed.
9 Message icon and icon selection button - Error message display
10 Finish process and exit screen. The machine moves into the home position. The RFID data is read automatically.

• Note

If buttons 3, 4, 5 or 8 are flashing, this means that the respective position was not reached because, for example, the safety circuit was opened. In this case, the corresponding button will need to be pressed again with the safety circuit closed. The machine will then start moving to the required position again.

4.4.5 Loading a product program

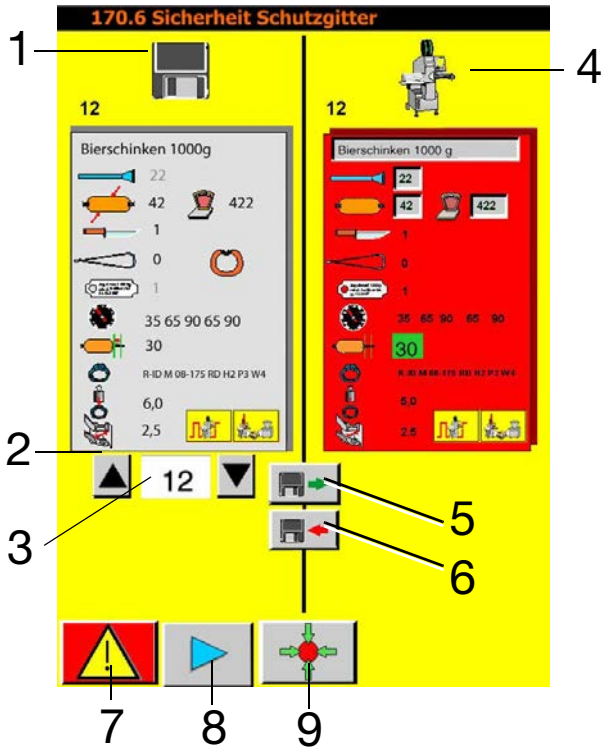


Fig. 4-10 Loading and saving a product program

1 Display of all product data in the selected product program
2 Buttons for scrolling up or down to select a product program
3 Field for entering the product program required
4 Display of the product program loaded and activated
5 Load the selected product program
6 Save the parameters set as a new product program in the selected saving location. ATTENTION: All existing parameters in this saving location will be overwritten!
7 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.
8 Scroll image sequence -> takes you to Clear product program and copy from/to USB stick screen (see Fig. 4-11)
9 Back to basic selection screen of the Operator level

4.4.6 Deleting a product program and copying a product program from/to a USB stick

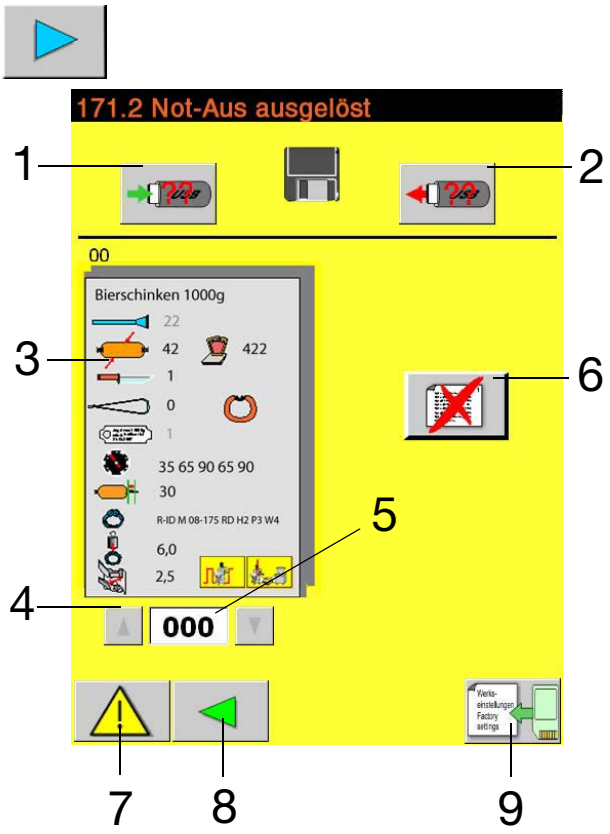


Fig. 4-11 Clearing the product program and copying from/to a USB stick

1 Transfer product programs to a USB stick
2 Read product programs from a USB stick:
ATTENTION: all existing recipes will be overwritten!
3 Current program data
4 Buttons for scrolling up or down to select a product program
5 Field for entering the product program required
6 Clear the selected product program
7 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.
8 Scroll image sequence, “back”
9 Load factory setting:
- loads the last saved machine configuration and all recently saved recipes
- existing program data are overwritten

4.4.7 “Current messages” screen

The icon selection button flashes when notes or error messages are pending.
- To display them, press the icon selection button.

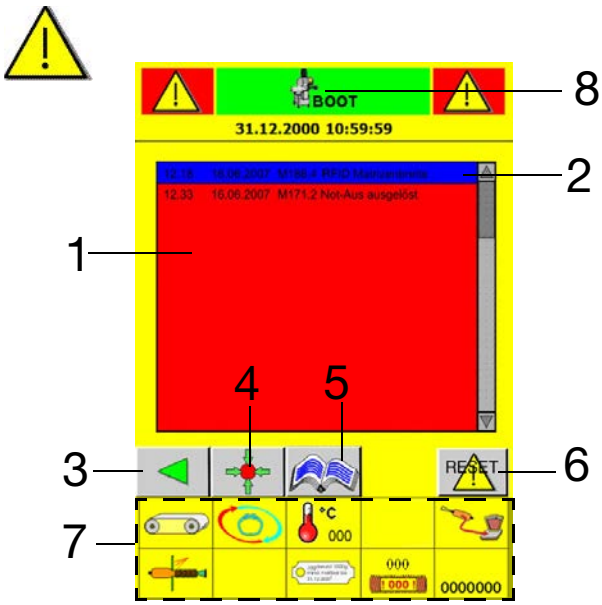
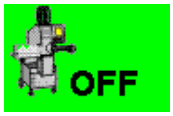
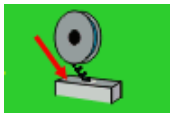
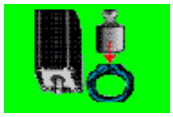
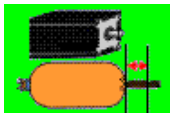
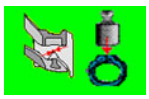


Fig. 4-12

1 Display field for current messages
2 Selected message, blue
Press twice = display message image (Fig. 4-13)
3 Scroll image sequence, “back”
4 Back to basic selection screen of the Operator level
5 Call up “Alarm history 1” screen
6 Clear resolved error messages
7 Function buttons - manual machine functions
8 Display of the operating mode (see following table)

Icon	Operating mode
	Boot
	Off, but ready for operation
	Read RFID
	Place first clip
	Automatic mode
	Clip loading position/ Punch change position/ Die change position
	Jog mode
	Set clip pressure
	Adjust spreading
	Automatic lubrication running
	“Manual lubrication” position

	Stop due to error
	Setting separator hole

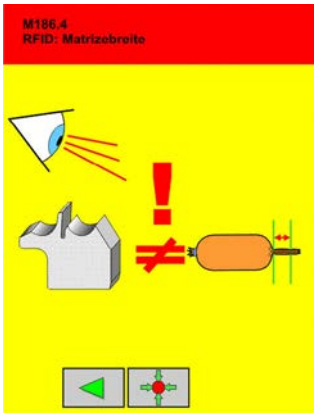


Fig. 4-13 Message image – selected message, blue

The message images for the individual errors are automatically displayed when the incident occurs. The message image can also be called up from the list (Fig. 4-12) by double tapping the message.

- To display Alarm history 1, press the icon selection button (5, Fig. 4-12).

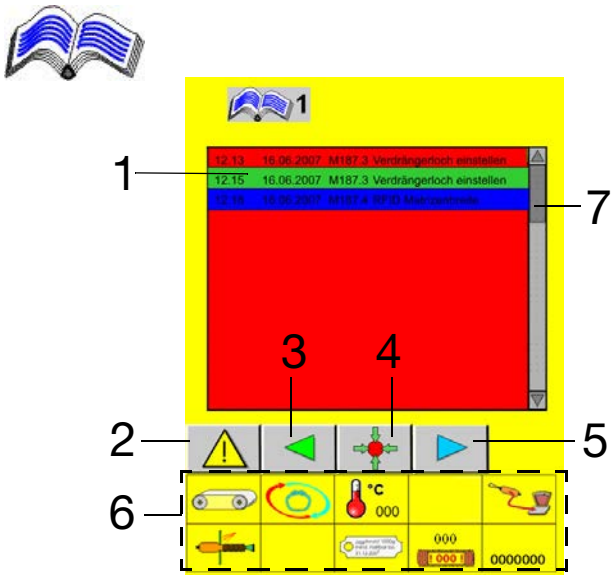


Fig. 4-14

Only fault messages are displayed in Alarm history 1.

1 Message displays
Red display = original message
Green display = resolved message
Blue display = selected message

2 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.

3 Scroll image sequence, “back”

4 Back to basic selection screen of the Operator level

5 Call up “Alarm history 2” screen

6 Function buttons - manual machine functions

7 Slider for moving within the history

- To display Alarm history 2, press the icon selection button (5, Fig. 4-14).

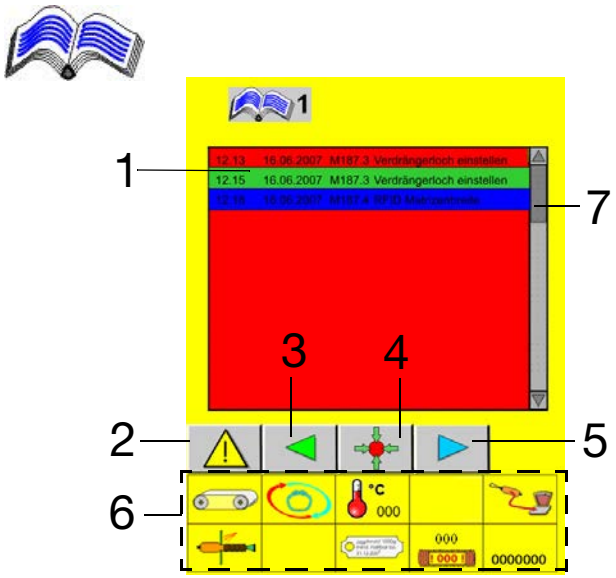


Fig. 4-15

All messages are displayed in Alarm history 2.

1 Message displays
Red display = original message
Green display = resolved message
Blue display = selected message

2 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.

3 Scroll image sequence, “back”

4 Back to basic selection screen of the Operator level

5 Call up the “System messages” screen

6 Function buttons - manual machine functions

7 Slider for moving within the history

For list of possible error messages, see chapter 4.7.

4.4.8 Language selection

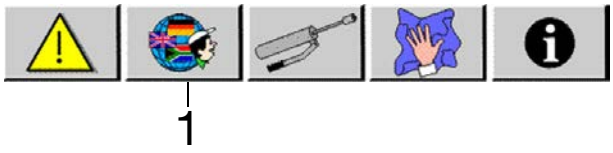


Fig. 4-16

- Press the icon selection button (1).

Fig. 4-17

1 Display of the currently active language
2 Switch: one language forwards
3 Switch: one language back
4 Message icon and icon selection button for error message display
5 Icon selection button for password input and selection screen

4.4.9 Maintenance - Lubrication

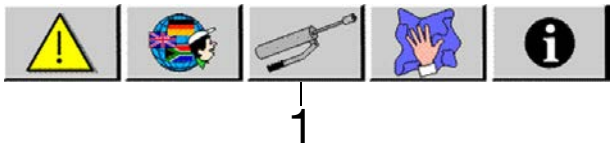


Fig. 4-18

- Press the icon selection button (1).

4.4.9.1 Lubrication

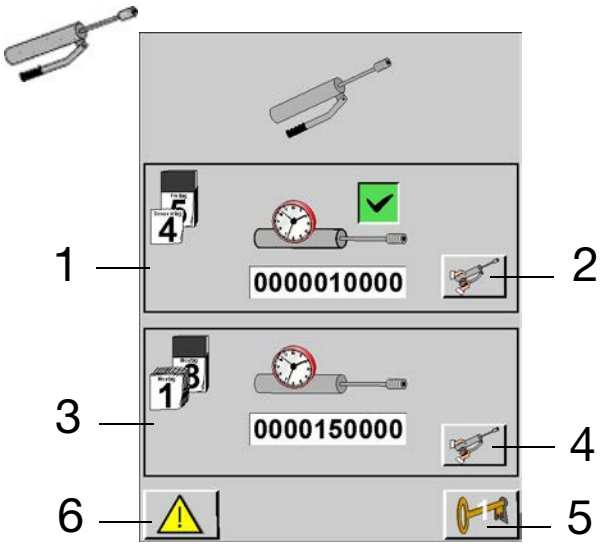


Fig. 4-19

1 Lubrication, automatic (daily)

As soon as the set number of machine cycles is reached, the lubrication process is automatically started and performed. The following message is shown in the display window: “Starting lubrication process”.

2 If this button is pressed, the automatic lubrication process is started regardless of any automatic activation.

3 Lubrication, manual (weekly)

When the set number of machine cycles is reached, the following message appears in the display window: “Lubricate machine”.

4 Button for calling up the image sequence for manual lubrication.

5 Back to password input and selection screen

6 Message icon and icon selection button for error message display

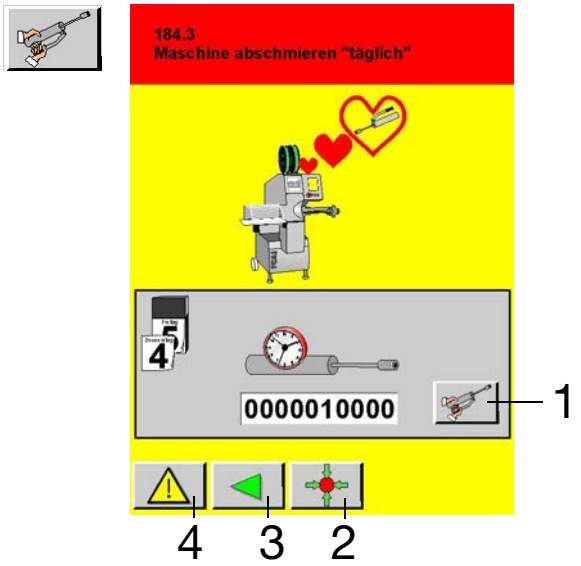


Fig. 4-20

1 Start automatic lubrication process
2 Back to basic selection screen of the Maintenance level
3 Scroll image sequence, “back”
4 Message icon and icon selection button for error message display

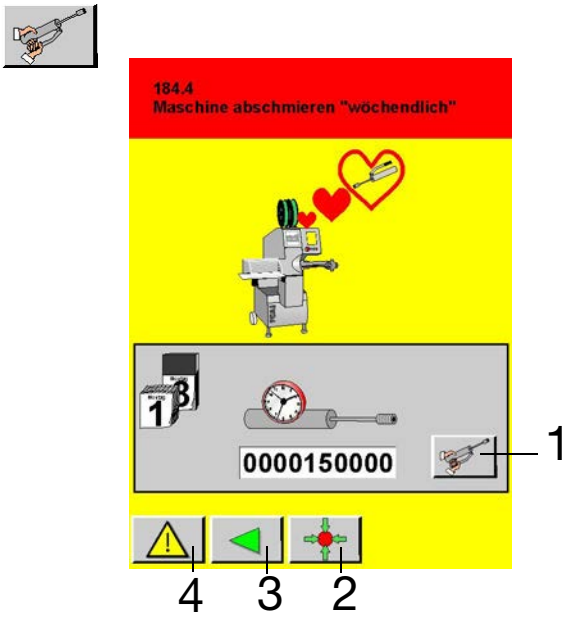


Fig. 4-21

1 Call up image sequence for manual lubrication
2 Back to basic selection screen of the Maintenance level
3 Scroll image sequence, “back”
4 Message icon and icon selection button for error message display

4.4.10 Displaying service information

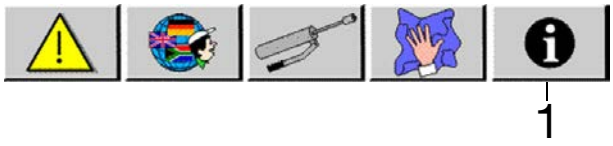


Fig. 4-22

- Press the icon selection button (1). Information about the machine is displayed.

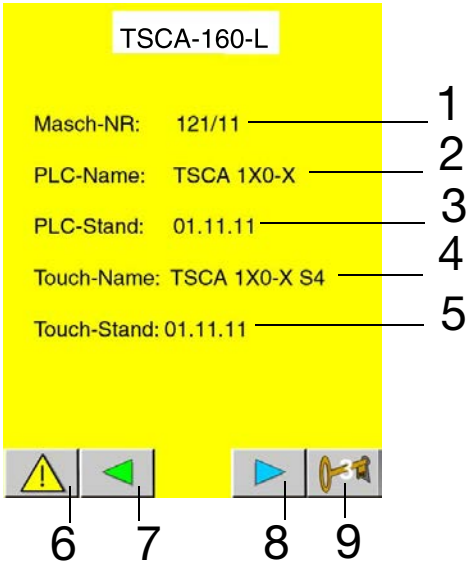


Fig. 4-23

1 Machine number
2 Name of PLC
3 Status of PLC
4 Name of touch panel software
5 Status of touch panel software
6 Message icon and icon selection button for error message display
7 Scroll image sequence, “back”
8 Scroll image sequence, “forwards”
9 Back to password input and selection screen

- Press the icon selection button (8, Fig. 4-23).
  The address of Poly-clip Germany is displayed.

Fig. 4-24

1 Message icon and icon selection button for error message display
2 Scroll image sequence, “back”
3 Scroll image sequence, “forwards”
4 Back to password input and selection screen

- Press the icon selection button (3, Fig. 4-24).

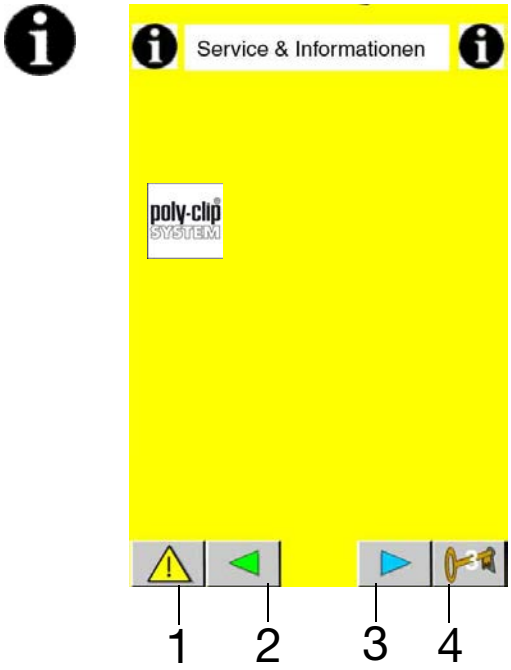


Fig. 4-25

1 Message icon and icon selection button for error message display
2 Scroll image sequence, “back”
3 Scroll image sequence, “forwards”
4 Back to password input and selection screen

4.5 Maintenance level

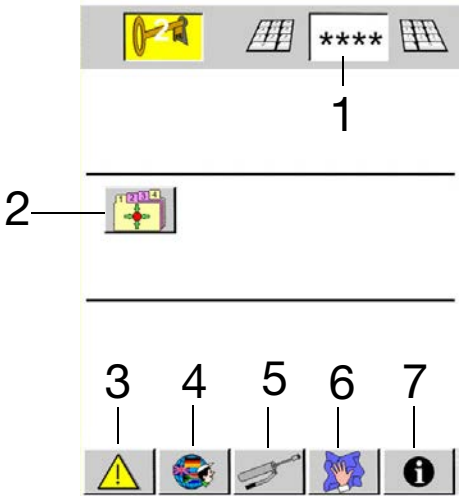


Fig. 4-26 Password input and selection screen of the Maintenance level
2-9 = icon selection buttons

1 Password input field
2 Icon selection button
Basic selection screen - Maintenance level
3 Message icon and icon selection button for error message display
4 Icon selection button - Language selection
5 Icon selection button - Lubrication plan
6 Icon selection button - Clean touchscreen graphic display
7 Icon selection button - Service information

4.5.1 Basic selection screen in the Maintenance level

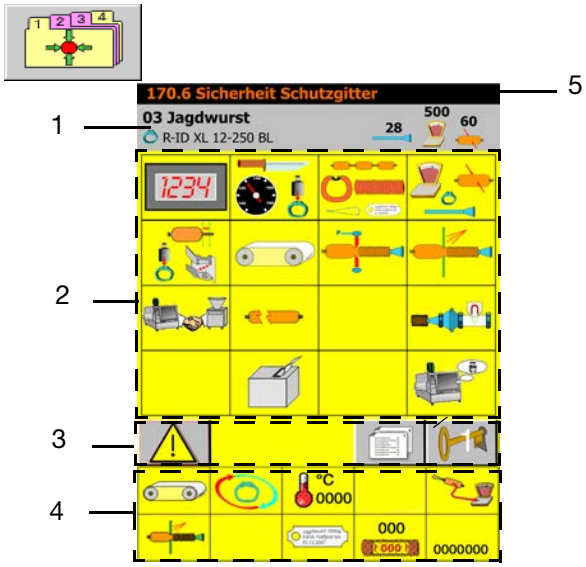
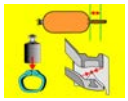
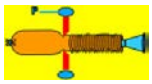
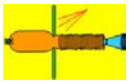
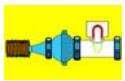


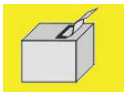
Fig. 4-27

1 Current product data display
2 Icon selection buttons for selecting the appropriate menu screens for setting the functional parameters of the machine and additional (optional) equipment
- Only icon selection buttons for additional equipment actually installed will be displayed!

3 Icon selection buttons
4 Function buttons - manual machine functions (see Fig. 4-8 in the Operator level)
5 Button for calling up the “Current messages” screen (Fig. 4-12)

4.5.2 Meaning and function of icon selection buttons in the Maintenance menu

Icon	Meaning/Function
	- Product counter
	- Speeds - Knife - Clip pressure - Separator hole
	- Knife counter - Shirred casing counter
	- Loop counter - Label counter Only when option is installed.
	- Portion weight - Calibre - Clip size - Stuffing horn
	- Separator hole - Clip pressure
	- Conveyor Only visible when option is installed.
	- Casing brake Only visible when option is installed.
	- Oil sprayers Only visible when option is installed.
	- Stuffer coupling Selection of the type of Stuffer-TSCA signal exchange
	- Film break monitoring Only visible if configured.
	- Metal detector Only visible when option is installed.

Icon	Meaning/Function
	- Printer
	- Simulator Only visible when operation is enabled.
	- Message icon and icon selection button - Error message display
	- Icon selection button - Poduct program

4.5.3 Entering product data

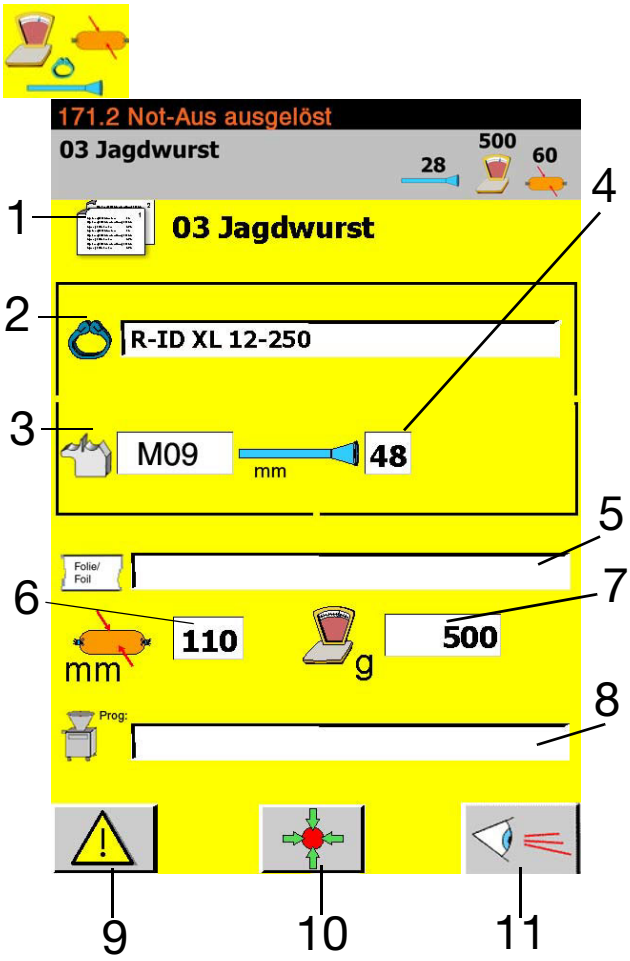


Fig. 4-28 “Enter and change basic data in the product program” menu screen

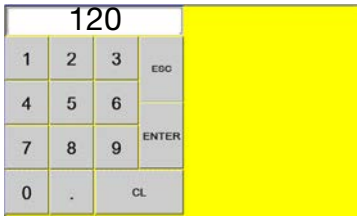
1 Display of current product program
2 Clip size*
3 Die type*
4 Stuffing horn diameter*
5 Film type*
6 Calibre*
7 Portion weight*
8 Stuffer program number*
9 Message icon and icon selection button - Error message display
10 Back to basic selection screen of the Maintenance level
11 Scroll to the RFID page (see Fig. 4-29)

• Note

* It is possible to enter this data (e.g. clip size) in the input fields. However, this only makes sense if the data is maintained!

Writing and changing product data

- Touch and press number field with white background.



- Enter number value.
- The saved number value is displayed in “Current product data display”.

4.5.4 Clip reel and die (RFID page)

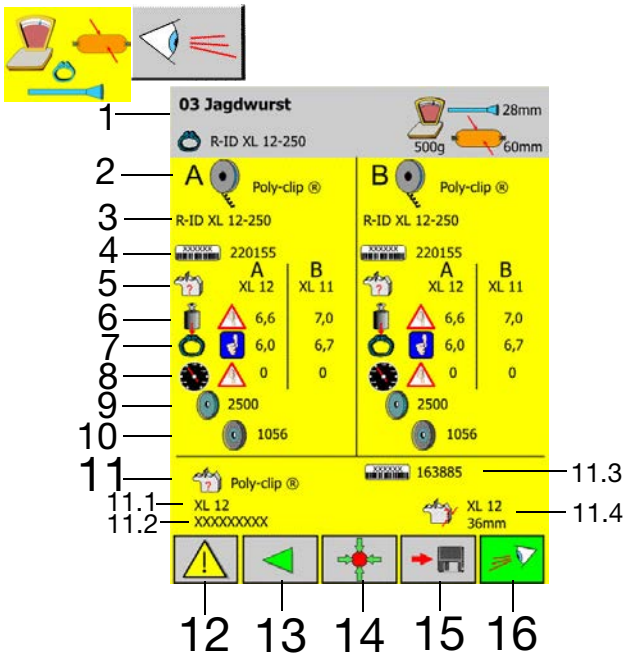


Fig. 4-29

1 Current product data display
2 Clip manufacturer
3 Clip size detected
4 Article number of clip
5 Permissible die sizes (A/B)
6 Maximum clip height
7 Optimal clip height
8 Speed limit
9 Clip quantity on full clip reel
10 Clip quantity still available
11 Die manufacturer
  11.1 Die size
  11.2 Manufacturer name
  11.3 Article number of die
  11.4 Die size and width
12 Message icon and icon selection button - Error message display
13 Scroll image sequence, “back”
14 Back to basic selection screen of the Maintenance level
15 Save read RFID data in PLC
16 Re-read RFID data: Clip name and die name are corrected to the read value, see 2, Fig. 4-28.

4.5.5 Product counters

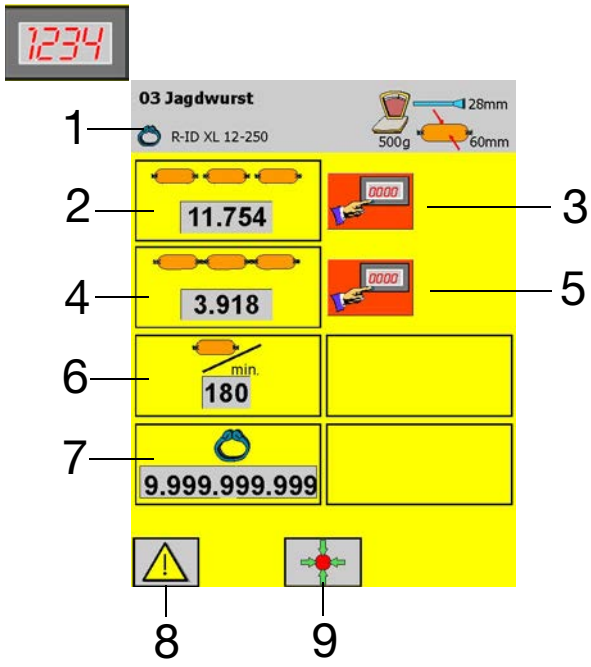


Fig. 4-30

1 Current product data display
2 Portion counter
3 Reset portion counter to zero
4 Chain counter
5 Reset chain counter to zero.
6 Production speed display
7 Counter for all executed clip cycles
8 Message icon and icon selection button - Error message display
9 Back to basic selection screen of the Maintenance level

4.5.6 Speed, knife

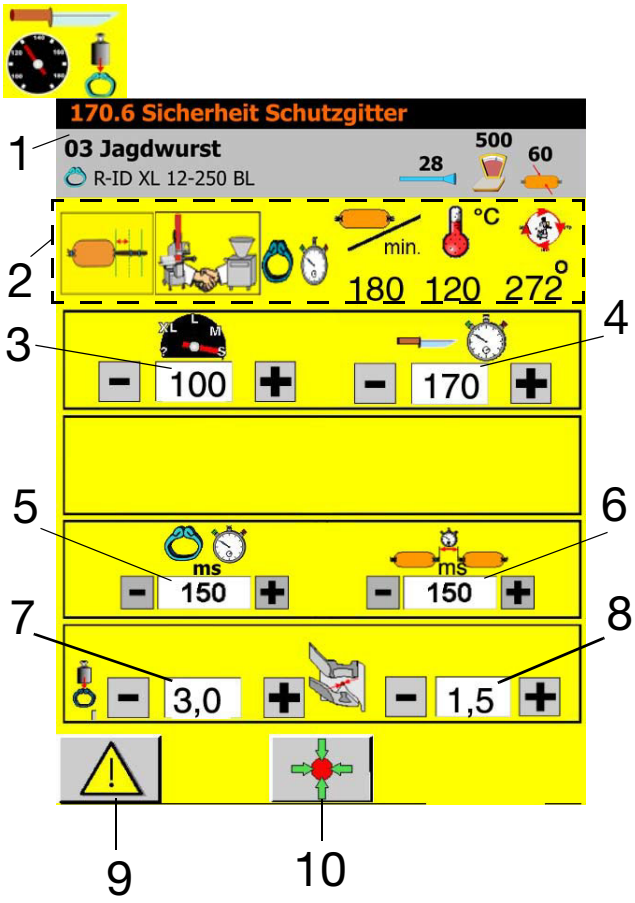
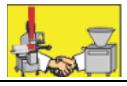
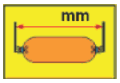
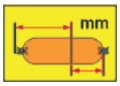
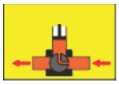


Fig. 4-31 + Change values (+)
- Change values (-)

1 Current product data display
2 Operating mode display

Possible clipping process modes	
Icon	Meaning/Function
	- Overspreading
	- Continuous mode
	- Start-stop

Possible clipping process controls	
Icon	Meaning/Function
	- Clipping machine controls stuffer
	- Portion length control controls clipping machine/ stuffer
	- Clip mark controls stuffer
	- Pump controls clipping process

Depending on the selected clipping process mode and clipping process control, not all of the following icons are available.

3 Speed in revolutions per minute
4 The rotation angle position at which the knife should cut is set here. Adjustment range 160°-220° (factory setting)
5 Set duration of clip pulse delay
6 Set duration of stuffer pause
7 Set clip height
8 Set separator hole
9 Message icon and icon selection button - Error message display
10 Back to basic selection screen of the Maintenance level

4.5.7 Knife, shirr, rings

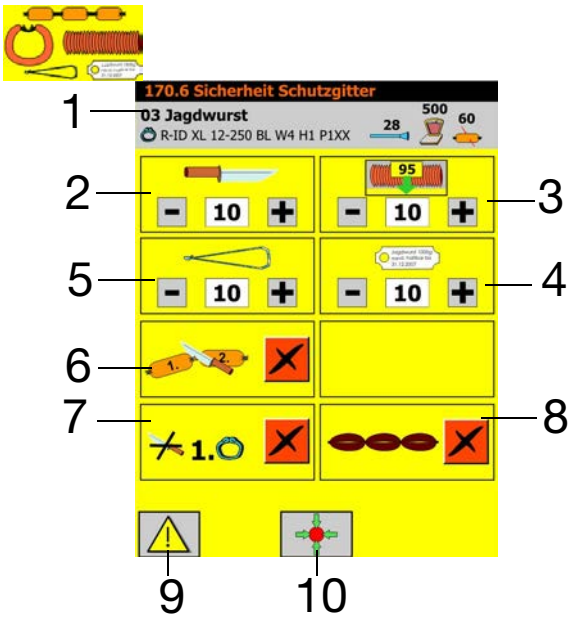


Fig. 4-32 + Change values (+)
- Change values (-)

1 Current product data display

2 Knife counter
for producing sausage chains

3 Casing shirr counter
When the set number of portions is reached, the machine switches to “Automatic Off”. The current count is displayed in the shirred casing. By pressing the shirred casing, the current count can be taken as the target value.

4 Label counter
Only visible when option is installed.

5 Loop counter
Only visible when option is installed.

6 Automatically cut off first portion
On, green/Off, red
Only visible when option is installed.

7 First clip without cutting
On, green/Off, red
Only visible when option is installed.

8 Clip blocking
On, green/Off, red
Only visible when option is installed.

9 Message icon and icon selection button - Error message display

10 Back to basic selection screen of the Maintenance level

4.5.8 Separator opening, clip pressure

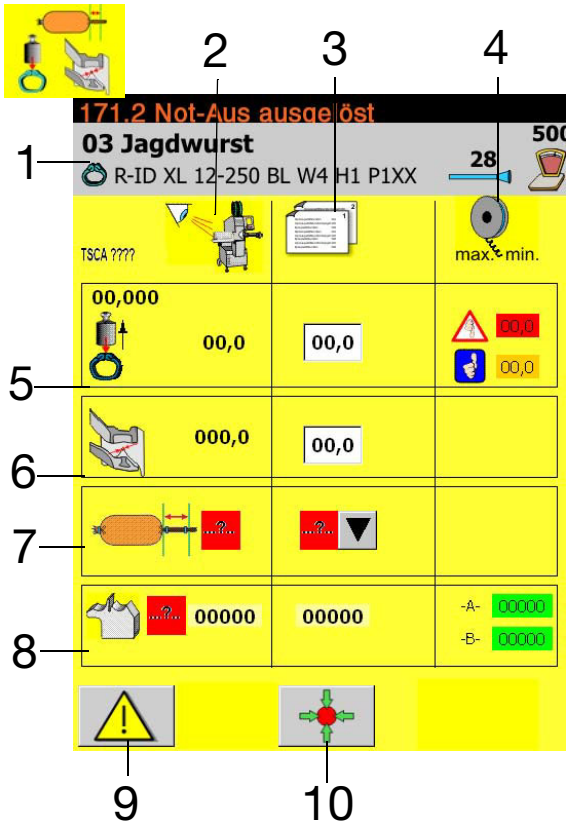


Fig. 4-33 + Change values (+)
- Change values (-)

1 Current product data display

2 The values measured by the machine are displayed in this column

3 The values saved in the product program are displayed in this column. These values can be changed by touching the input fields.

4 The maximum values that can be set are displayed in this column.

5 Clip height
The changed value is automatically set.

6 Separator hole size

7 Spreading

8 Die

9 Message icon and icon selection button - Error message display

10 Back to basic selection screen of the Maintenance level

4.5.9 Conveyor

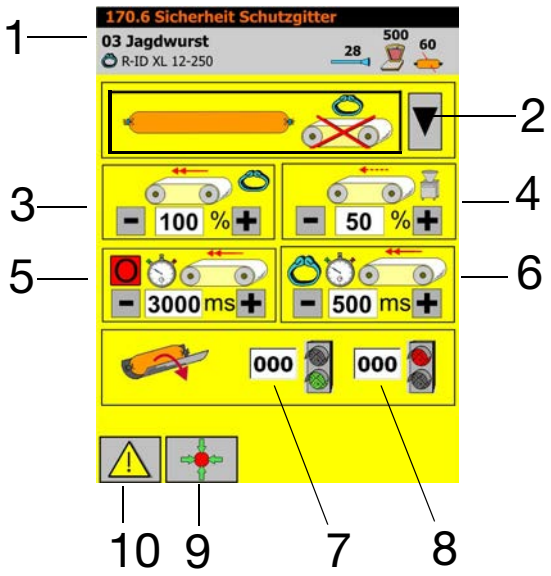
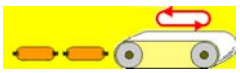


Fig. 4-34 + Change values (+)
- Change values (-)

1 Current product data display

2 Conveyor operating mode display. The operating mode can be changed using the selection arrow.

Possible operating modes for the conveyor	
Icon	Meaning/Function
	- Continuous (for short portions)
	- Stop during stuffing (for sausage chains)
	- Stop during clipping (for very long portions)

Depending on the selected operating mode, not all fields 3 to 6 may be available.

3 Conveyor speed; fast speed

4 Conveyor speed; slow speed
Adjustment range 20-100% (factory setting)

5 Set overrun time
Conveyor – fast speed after switch-off

6 Set overrun time
Conveyor – fast speed after clipping

7 Only when option is installed:
Rotation angle position at which the ejection tray is tilted down

8 Only when option is installed
Rotation angle position at which the ejection tray is moved back up

9 Back to basic selection screen of the Maintenance level

10 Message icon and icon selection button - Error message display

4.5.10 Pneumatic casing brake

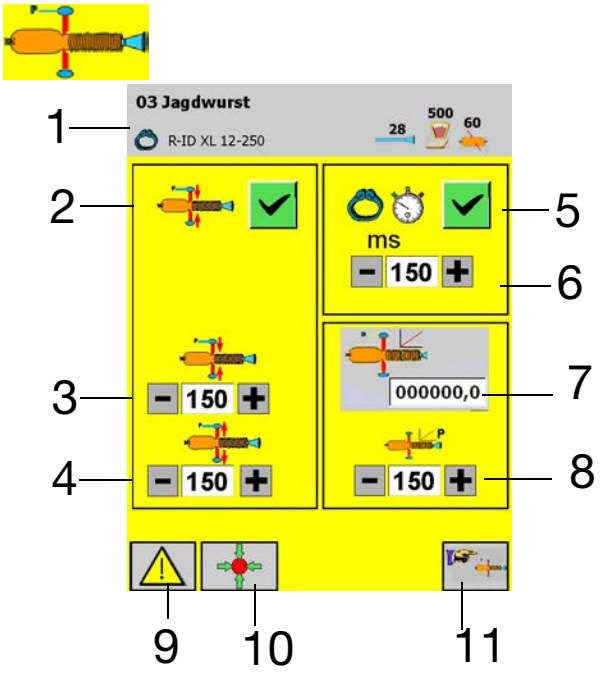


Fig. 4-35 + Change values (+)
- Change values (-)

1 Current product data display

2 Pneumatic casing brake On, green/Off, red

3 Set point in time when the pneumatic casing brake should close.

4 Set point in time when the pneumatic casing brake should open.

5 Clip delay On, green/Off, red

6 Set clip delay time

7 Only when option is installed:
Set how fast the casing brake should reach the target pressure.

Higher value: fast

Lower value: slow

8 Only when option is installed: Set target pressure for casing brake

9 Message icon and icon selection button - Error message display

10 Back to basic selection screen of the Maintenance level

11 Manually operate pneumatic casing brake.
The casing brake operates for as long as the button is pressed.

4.5.11 Oil/water sprayers

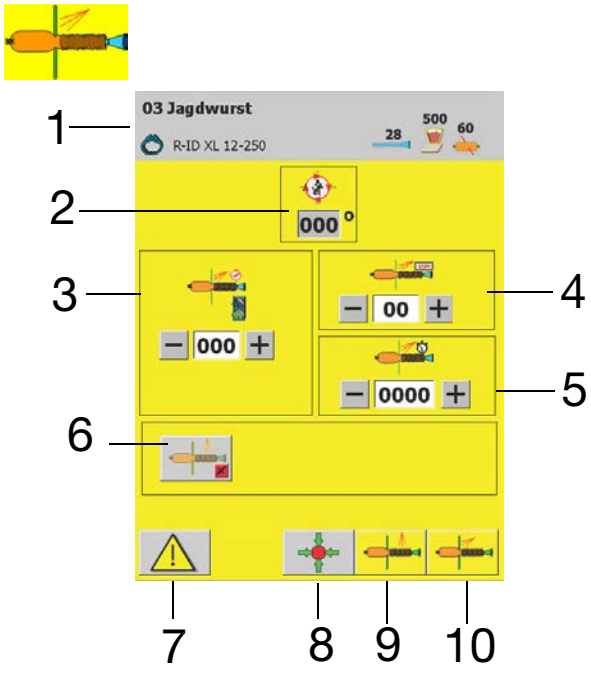


Fig. 4-36 + Change values (+)
- Change values (-)

1 Current product data display

2 Display of current machine rotation angle

3 Set machine rotation angle at which the oil/water sprayers should be switched on

4 Set after how many clips the oil/water sprayers should be switched on.

5 Set duration of on-time.

Adjustment range 0-999 ms

6 Option: Additional spraying of film before casing brake
On, green/Off, red

7 Message icon and icon selection button - Error message display

8 Back to basic selection screen of the Maintenance level

9 Option: Manually trigger additional spraying of film before casing brake

10 Manually trigger oil/water sprayers

4.5.12 Basic sealing, filling system, clipping process, clipping process mode screen

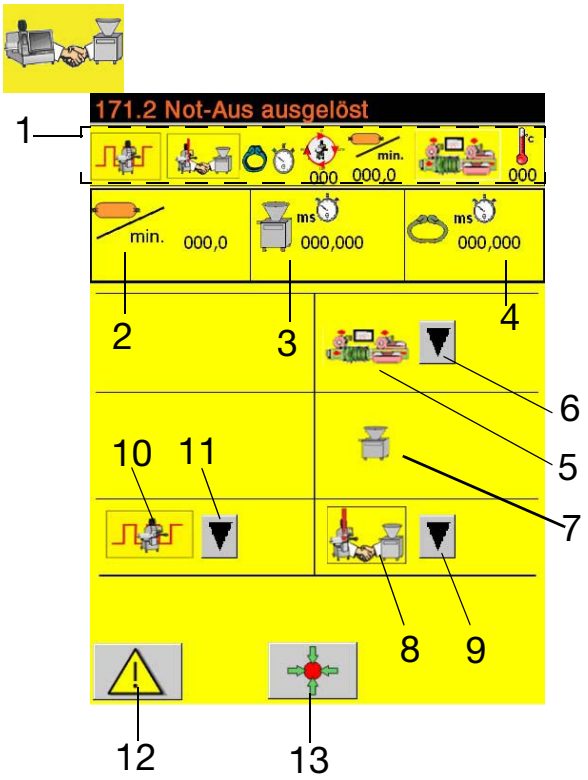


Fig. 4-37 Basic sealing, filling system, clipping process screen

1 Display: Operating mode
2 Display: Portions per minute
3 Display: Stuffer runtime
4 Display: Time required for closing and sealing

5 Active operating mode for sealing (here, electronic jam switch):
Press to go to other settings for the selected operating mode

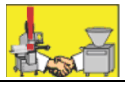
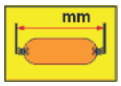
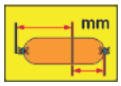
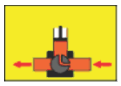
Possible operating modes for sealing	
Icon	Meaning/Function
	- Electronic jam switch: The electronic jam switch is configured in level 4 and cannot be toggled.
	- Film counter
	- Mechanical jam switch

6 The selection arrow can be used to switch operating modes for sealing (only between mechanical jam switch and film counter).

7 Selected filling system (here, stuffer):
Press to go to other settings for the selected operating mode

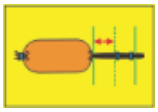
Possible filling systems	
Icon	Meaning/Function
	- Stuffer
	- Pump with Poly-clip initiator control
	- Dosage pump switching after completion of Schwerdtel function

8 Selected clipping process control (here, clipping machine controls stuffer):
Press to go to other settings for the selected operating mode

Possible clipping process controls	
Icon	Meaning/Function
	- Clipping machine controls stuffer
	- Portion length control controls clipping machine/ stuffer
	- Clip mark controls stuffer
	- Pump controls clipping process

9 The clipping process control can be changed using the selection arrow.

10 Selected clipping process mode (here, start-stop): Press to go to other settings for the selected operating mode

Possible clipping process modes	
Icon	Meaning/Function
	- Start-stop
	- Continuous mode
	- Overspreading

11 The clipping process mode can be changed using the selection arrow

12 Message icon and icon selection button - Error message display

13 Back to basic selection screen

• Note

The screen in Fig. 4-37 is an example. Which icon is actually displayed at positions 5, 7, 8 and 10 depends on the following factors:

- Machine configuration
- Selected operating mode for sealing,
- Selected clipping process control,
- Selected clipping process mode.

The clipping process control (position 8) and the clipping process mode (position 10) can only be set in reference to each other (see section 4.5.12.1).

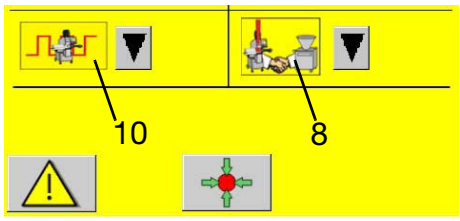


Fig. 4-38 Section from Fig. 4-37:
8 Selected clipping process control
10 Selected clipping process mode

4.5.12.1 Possible combinations of clipping process control and clipping process mode

	Yes	Yes	Yes	Yes	Yes
	Yes	No	No	No	No
	Yes	Yes	Yes	No	No

4.5.12.2Sealing settings, electronic jam switch, part 1

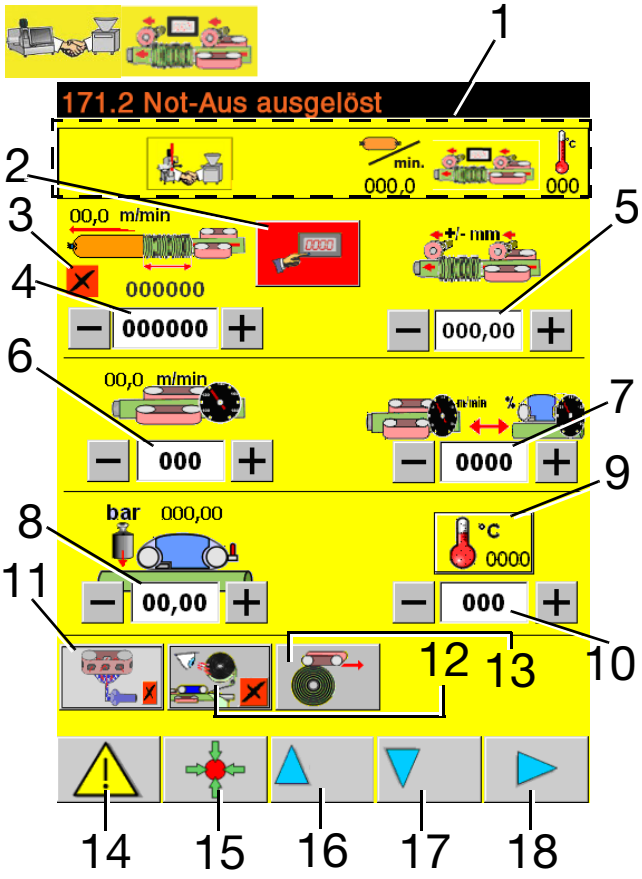


Fig. 4-39 Electronic jam switch part 1

1 Display: Operating mode

2 Press to reset film buffer

3 Display: Film buffer

(Cross on a red background: in invalid working range)
(Tick on a green background: in valid working range)

4 Maximum filling of film buffer (gathering) before sealing is finished

5 Film buffer correction; to be used if the film buffer fill level is constantly increasing/decreasing

If buffer keeps increasing:
Enter +XX.YY mm.
If buffer keeps decreasing:
Enter -XX.YY mm

6 Film drive sealing speed in m/min

7 Input field: Percentage deviation of the sealing belt speed from the film drive speed

To correct the sealing belt speed:

Sealing belt speed faster than film drive: +XX%
Sealing belt speed matches film drive speed: 00%
Sealing belt speed slower than film drive speed: -XX%

8 Input field: Sealing pressure
The current sealing pressure is displayed above the icon.

9 Display: Current sealing temperature

Button for switching the heating on (green background)/off (yellow background)

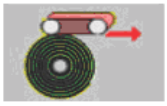
10 Input field: Sealing temperature

11 Option:
Button for activating the vacuum at the film drive (tick on a green background)/deactivating the vacuum (cross on a red background)

12 Option:
External tape (only when configured in level 4):

External tape monitoring
On (tick on a green background)/
Off (cross on a red background)

13 Direction of rotation of film pre-unwinding

	- forwards
	- backwards

14 Message icon and icon selection button - Error message display

15 Back to basic selection screen

16 Quick selection button: Press to go directly to the settings for the selected clipping process control (here: clipping machine controls stuffer)

17 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)

18 Scroll to Sealing settings, electronic jam switch, part 2 (see Fig. 4-40)

4.5.12.3Sealing settings, electronic jam switch, part 2

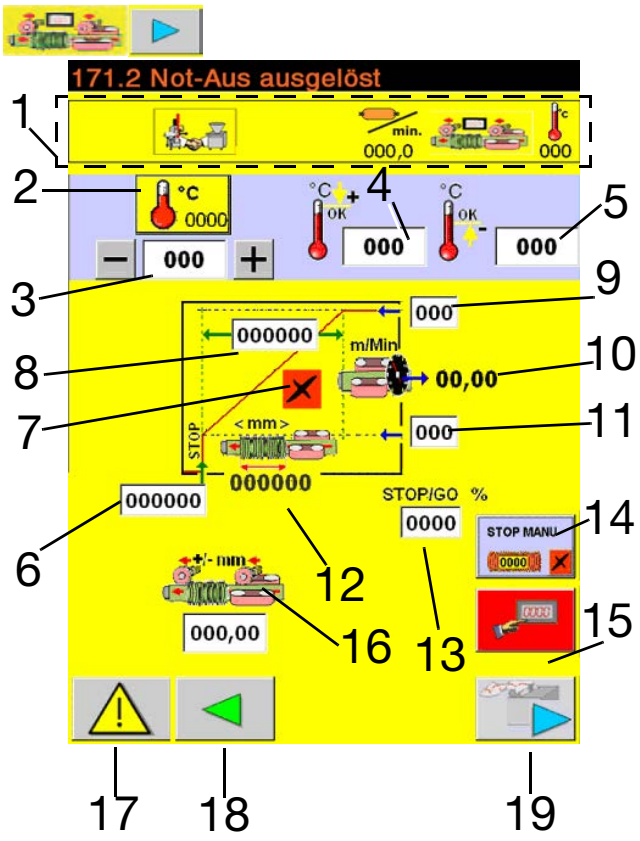


Fig. 4-40 Electronic jam switch part 2

1 Display: Operating mode

2 Display: Current sealing temperature

Button for switching the heating on (green background)/off (yellow background)

3 Input field: Sealing temperature

4 Input field: Max. permissible upwards deviation of sealing temperature

5 Input field: Max. permissible downwards deviation of sealing temperature

6 Input field: Maximum permissible length of sealed film

7 Display: Jam switch in valid working range (tick on a green background)/in invalid working range (cross on a red background)

8 Film brake distance in mm

(Buffer full MINUS brake distance = buffer empty)

9 Sealing speed (film drive) in m/min (for empty buffer)

10 Display: Film speed target value

11 Input field: Lowest permissible sealing speed

12 Display: Jam switch position

13 Start/stop hysteresis, sealing procedure

14 End manual sealing function

Cross on a red background: Manual sealing does NOT end with film buffer full
Cross on a green background: Manual sealing ends with buffer full

15 Press to reset film buffer

16 Film buffer correction

17 Message icon and icon selection button - Error message display

18 Back to “Electronic jam switch part 1” screen (Fig. 4-39)

19 Opens other settings (only works in Service level)

4.5.12.4Sealing settings, film counter, part 1

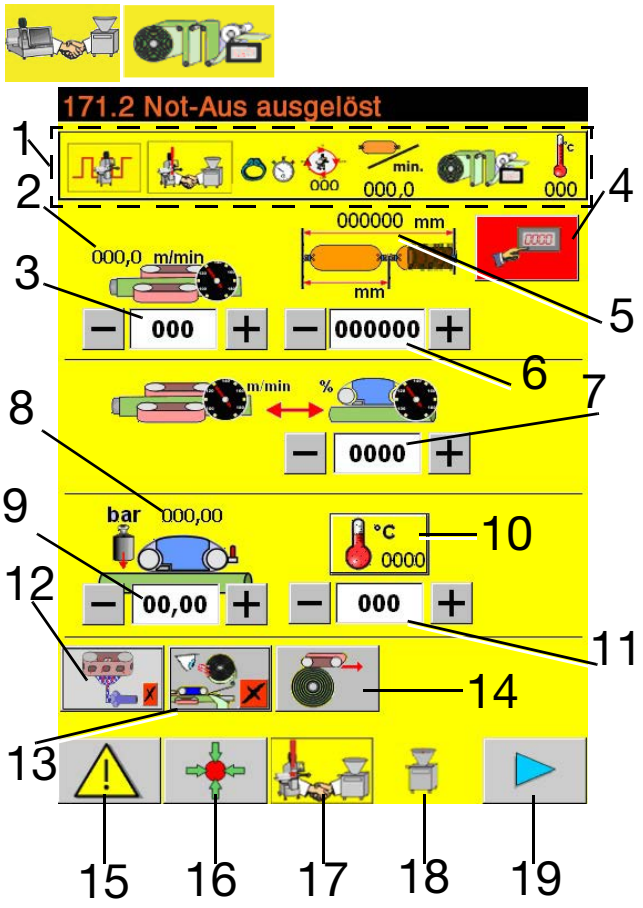


Fig. 4-41 Film counter part 1

1 Display: Operating mode

2 Display: Current sealing speed

3 Input field: Sealing speed

4 Press to reset film buffer

5 Display: Current fill level of film counter (gathering)

6 Input field: Portion length target value

7 Input field: Percentage deviation of the sealing belt speed from the film drive speed
To correct the sealing belt speed:

Sealing belt speed faster than film drive: +XX%
Sealing belt speed matches film drive speed: 00%
Sealing belt speed slower than film drive speed: -XX%

8 Display: Current sealing pressure

9 Input field: Sealing pressure

10 Display: Current sealing temperature

Button for switching the heating on (green background)/off (yellow background)

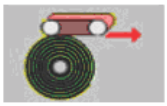
11 Input field: Sealing temperature

12 Option:
Button for activating the vacuum at the film drive (tick on a green background)/deactivating the vacuum (cross on a red background)

13 Option:
External tape (only when configured in level 4):

External tape monitoring
On (tick on a green background)/
Off (cross on a red background)

14 Direction of rotation of film pre-unwinding

	- forwards
	- backwards

15 Message icon and icon selection button - Error message display

16 Back to basic selection screen

17 Quick selection button: Press to go directly to the settings for the selected clipping process control (here: clipping machine controls stuffer)

18 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)

19 Scroll to sealing settings, film counter, part 2 (see Fig. 4-42)

4.5.12.5Sealing settings, film counter, part 2

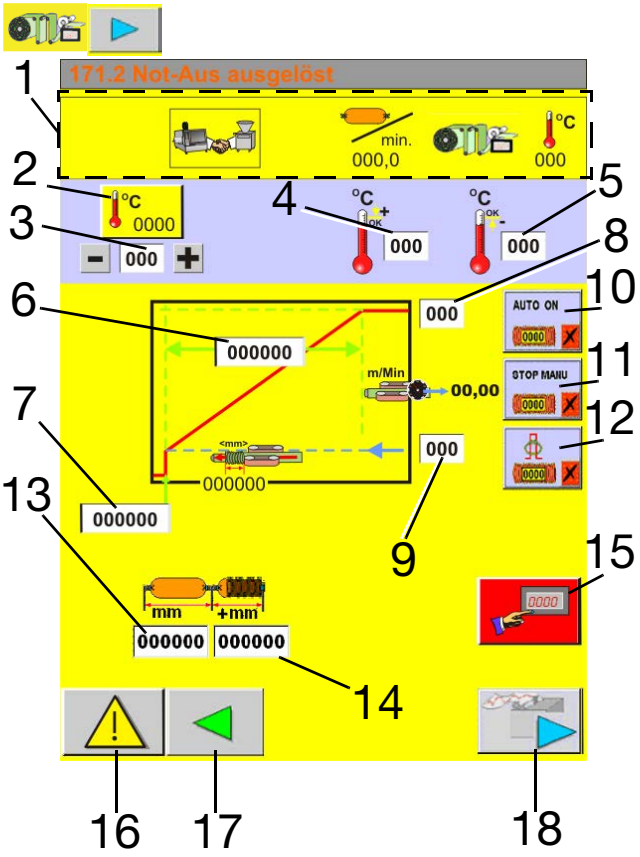


Fig. 4-42 Film counter, part 2

1 Display: Operating mode

2 Display: Current sealing temperature

Button for switching the heating on (green background)/off (yellow background)

3 Input field: Sealing temperature

4 Input field: Max. permissible upwards deviation of sealing temperature

5 Input field: Max. permissible downwards deviation of sealing temperature

6 Input field: Film brake distance in mm

(Buffer full MINUS brake distance = buffer empty)

7 Film buffer full in mm

8 Film drive sealing speed in m/min for buffer empty

9 Minimum sealing speed (film drive) in m/min for buffer full

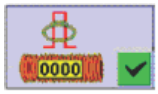
10 Button for sealing the portion length set in Fig. 4-42, 13 by pressing Automatic On

Activate function (tick on a green background)/ deactivate function (cross on a red background)

11 Button for manually sealing the film until the portion length set in Fig. 4-42, 13 is reached.

Activate function (tick on a green background)/ deactivate function (cross on a red background)

12 Function for clearing film counter with each clip pulse

	- Each clip pulse reduces the film buffer by one portion length; the remaining amount in the buffer is evaluated.
	- Each clip pulse sets the film counter to 0000; the portion length or remaining amount in the buffer is not evaluated.

13 Input field: Target portion length

14 Excess length, offset to portion length:

Maximum buffer amount
= portion length + excess length

15 Press to reset film buffer

16 Message icon and icon selection button - Error message display

17 Back to “Film counter part 1” screen (Fig. 4-41)

18 Opens other settings (only works in Service level)

4.5.12.6Sealing settings, mechanical jam switch, part 1

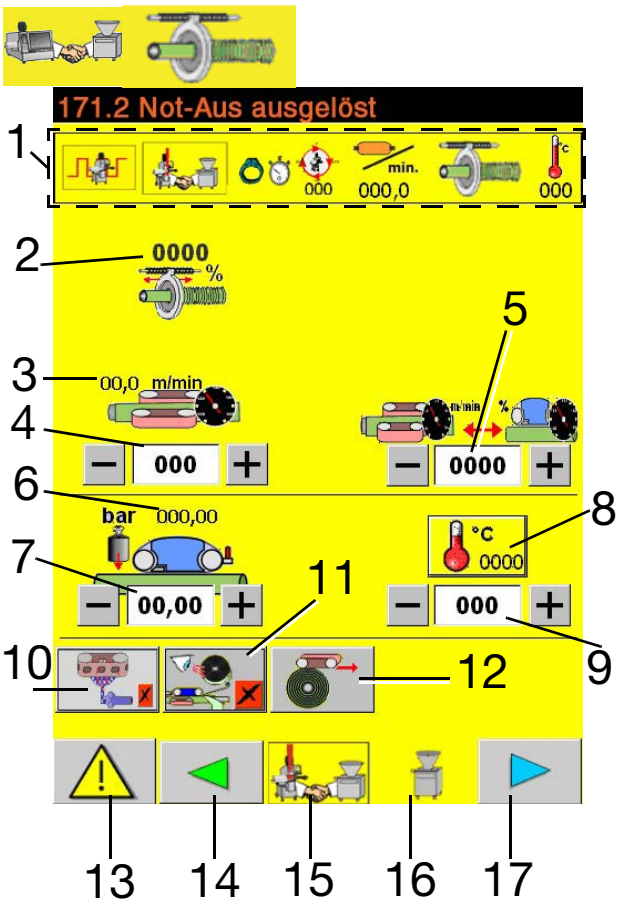


Fig. 4-43 Mechanical jam switch part 1

1 Operating mode

2 Actual position of film buffer

3 Display: Current sealing speed

4 Input field: Sealing speed

5 Input field: Percentage deviation of the sealing belt speed from the film drive speed

To correct the sealing belt speed:

Sealing belt speed faster than film drive: +XX%
Sealing belt speed matches film drive speed: 00%
Sealing belt speed slower than film drive speed: -XX%

6 Display: Current sealing pressure

7 Input field: Sealing pressure

8 Display: Current sealing temperature

Button for switching the heating on (green background)/off (yellow background)

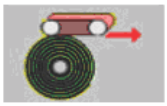
9 Input field: Sealing temperature

10 Option:
Button for activating the vacuum at the film drive (tick on a green background)/deactivating the vacuum (cross on a red background)

11 Option:
External tape (only when configured in level 4):

External tape monitoring
On (tick on a green background)/
Off (cross on a red background)

12 Direction of rotation of film pre-unwinding

	- forwards
	- backwards

13 Message icon and icon selection button - Error message display

14 Back to basic selection screen

15 Quick selection button: Press to go directly to the settings for the selected clipping process control (here: clipping machine controls stuffer)

16 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)

17 Scroll to Sealing settings, mechanical jam switch, part 2 (see Fig. 4-44)

4.5.12.7Sealing settings, mechanical jam switch, part 2

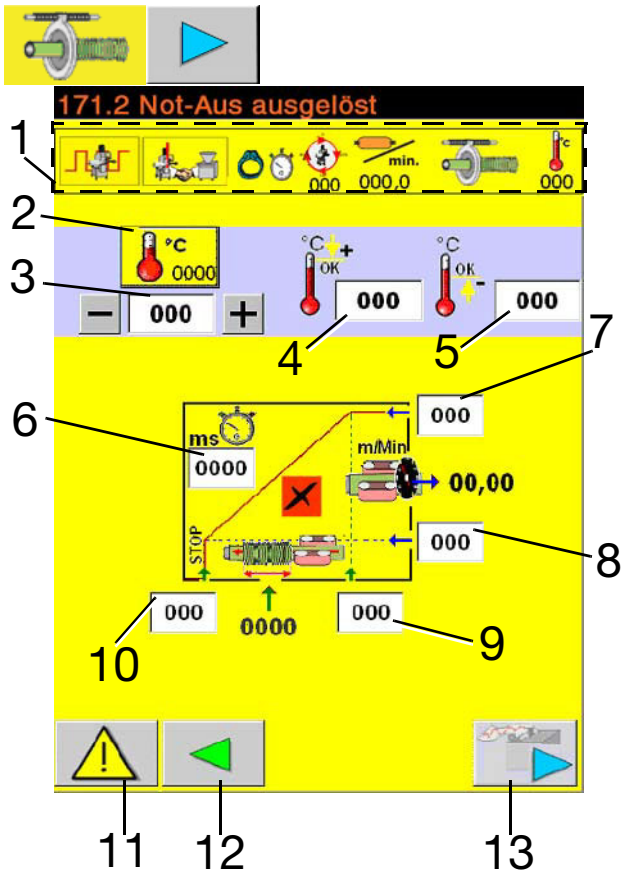


Fig. 4-44 Mechanical jam switch, part 2

1 Display: Operating mode
2 Display: Current sealing temperature
Button for switching the heating on (green background)/off (yellow background)
3 Input field: Sealing temperature
4 Input field: Max. permissible upwards deviation of sealing temperature
5 Input field: Max. permissible downwards deviation of sealing temperature
6 Sensor reaction delay (in ms)
7 Film drive sealing speed in m/min for buffer empty
8 Minimum sealing speed (film drive) in m/min for buffer empty
9 Film buffer empty in %
10 Film buffer full in %
11 Message icon and icon selection button - Error message display
12 Back to “Mechanical jam switch part 1” screen (Fig. 4-43)
13 Opens other settings (only works in Service level)

4.5.12.8Filling system

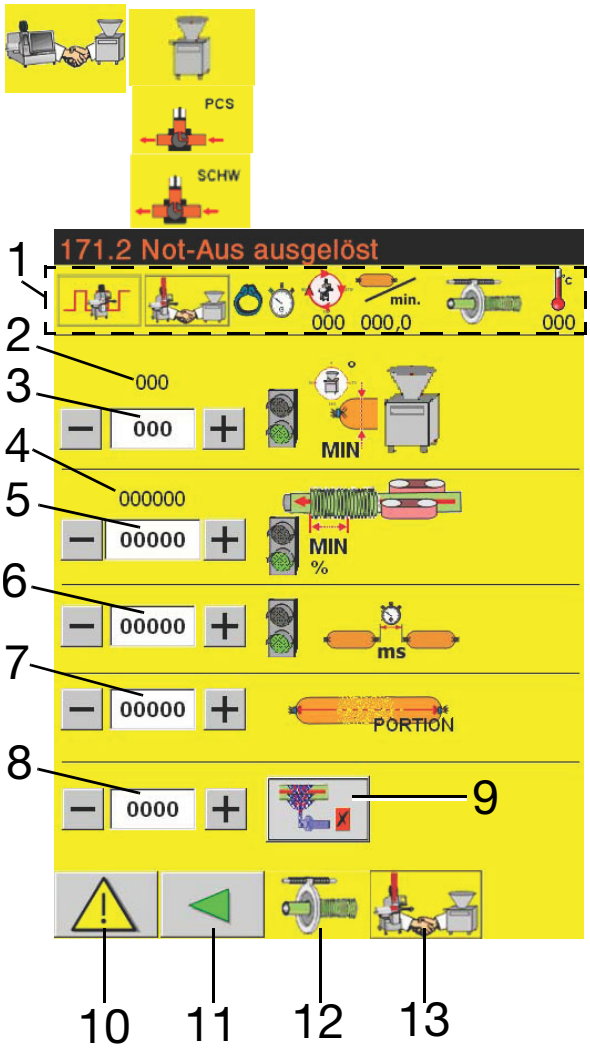


Fig. 4-45 Filling system settings

1 Display: Operating mode

2 Display: Current position of clipping machine

3 Input field: Position at which the stuffer should start

4 Display: Actual value for sealed film [mm with film counter]; [% with jam switch]

5 Input field: Target value for sealed film before the stuffer can start [mm with film counter]; [% with jam switch]

6 Input field: Stuffer delay [ms]

7 Multiple dosing pump strokes:
Number of pump strokes before the clipping process is selected
(only visible if dosage pump operating mode is selected)

8 Option:
Input field: Delay, in ms, before a vacuum is created at the stuffing horn

9 Option:
Button for creating a vacuum at the stuffing horn
Activate function (tick on green background)/ deactivate function (cross on red background)

10 Message icon and icon selection button - Error message display

11 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)

12 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: mechanical jam switch)

13 Quick selection button: Press to go directly to the settings for the selected clipping process control (here: clipping machine controls stuffer)

4.5.12.9 Clipping machine controls stuffer and clipping process mode is start-stop

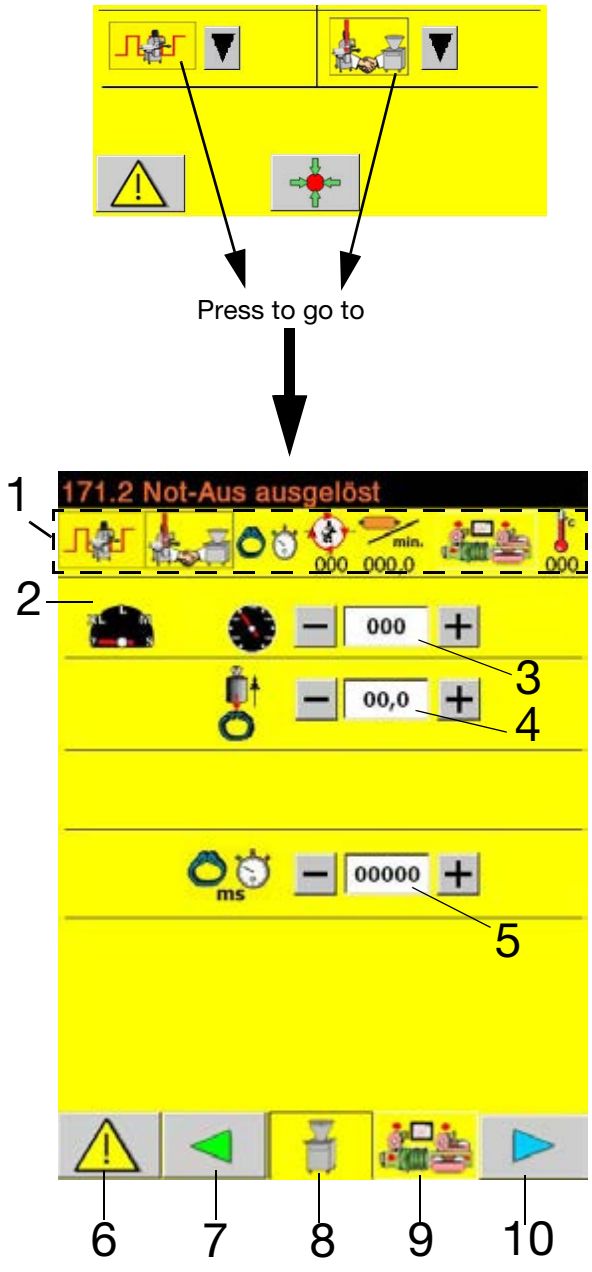


Fig. 4-46

1 Operating mode display
2 Clip type display
3 Input field: Clipping process speed [rpm]
4 Set clip height
5 Set duration of clip pulse delay
6 Message icon and icon selection button - Error message display
7 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
8 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
9 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: mechanical jam switch)
10 Scroll to velocity profile for the start-stop operating mode (see Fig. 4-55)

4.5.12.10 Clipping machine controls stuffer and clipping process mode is continuous

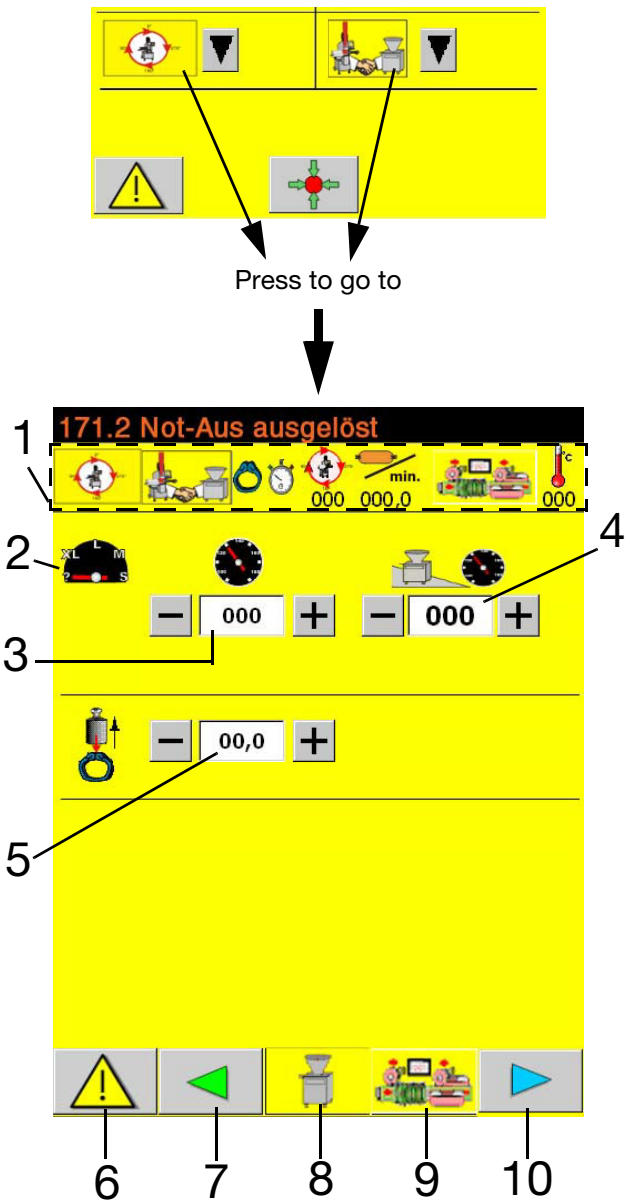


Fig. 4-47

1 Operating mode display
2 Clip type display
3 Input field: Clipping process speed [rpm]
4 Input field: Clipping process speed during stuffing output [rpm]
5 Input field: Clip height
6 Message icon and icon selection button - Error message display
7 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
8 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
9 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: mechanical jam switch)
10 Scroll to velocity profile for the continuous operating mode (see Fig. 4-57)

4.5.12.11 Clipping machine controls stuffer and clipping process mode is overspreading

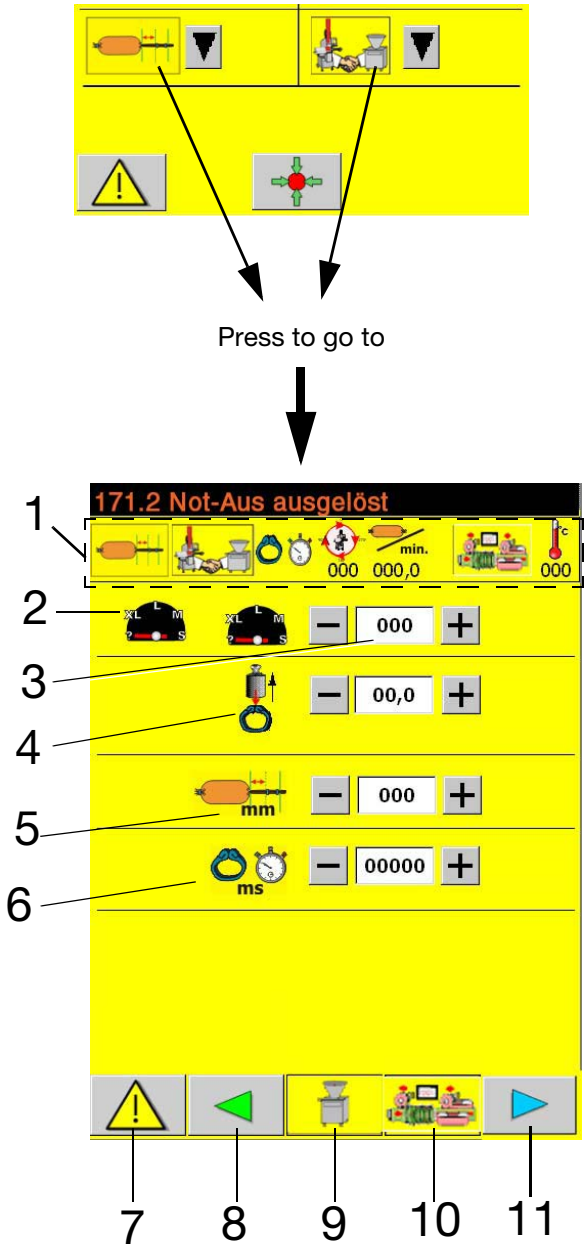


Fig. 4-48

1 Display: Operating mode
2 Clip type display
3 Set speed in revolutions per minute
4 Set clip height
5 Set overspreading
6 Set duration of clip pulse delay
7 Message icon and icon selection button - Error message display
8 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
9 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
10 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)
11 Scroll to velocity profile for the overspreading operating mode (see Fig. 4-59)

4.5.12.12 Portion length controls clipping machine/stuffer and clipping process mode is start-stop

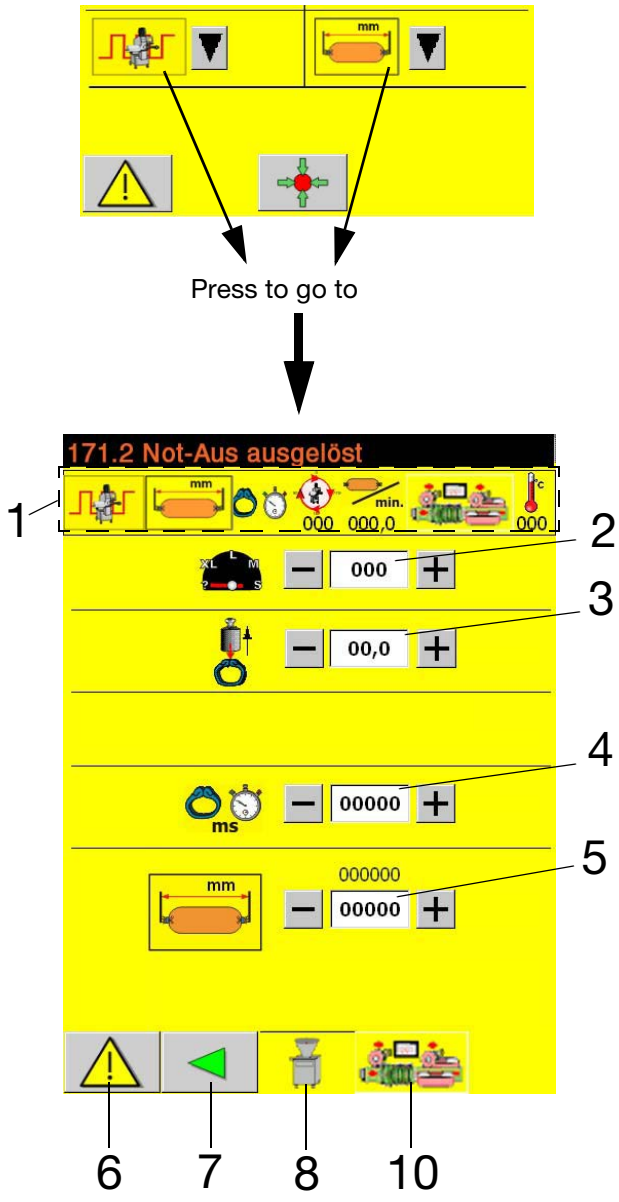


Fig. 4-49

1 Display: Operating mode
2 Set speed in revolutions per minute
3 Set clip height
4 Set duration of clip pulse delay
5 Target portion length: clipping process is triggered after XXXX mm
6 Message icon and icon selection button - Error message display
7 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
8 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
9 Scroll to the sealing settings (depending on the setting made, this could be: Fig. 4-39, Fig. 4-41, or Fig. 4-43)
10 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)

4.5.12.13 Portion length controls clipping machine/stuffer and clipping process mode is overspreading

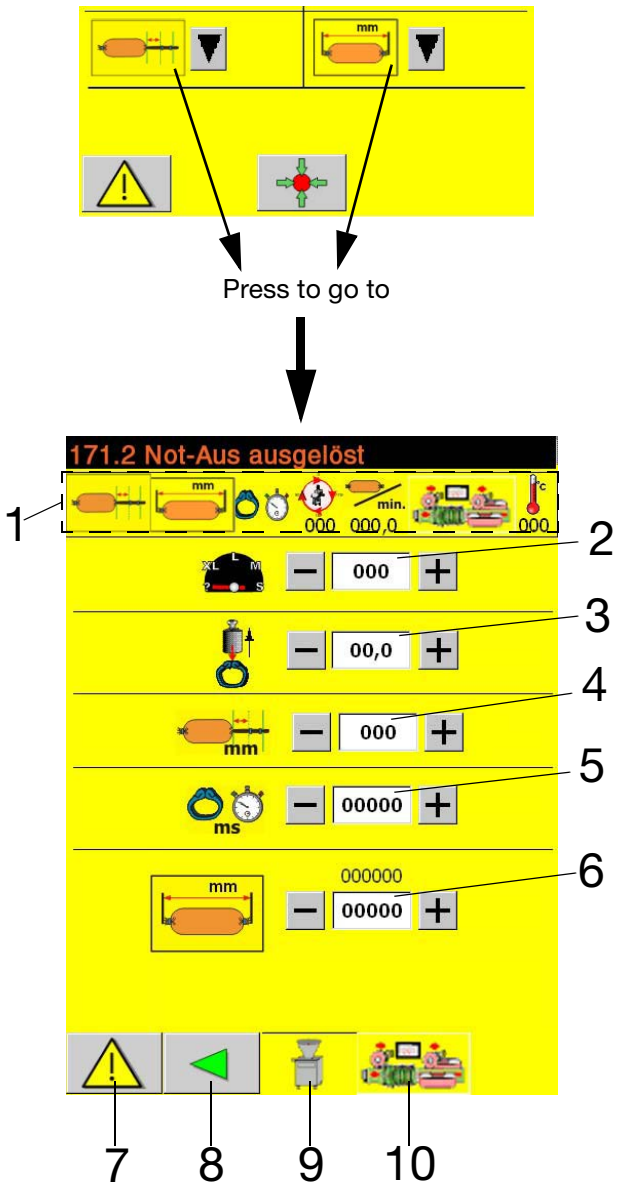


Fig. 4-50

1 Display: Operating mode
2 Set speed in revolutions per minute
3 Set clip height
4 Set overspreading
5 Set duration of clip pulse delay
6 Target portion length: clipping process is triggered after XXXX mm
7 Message icon and icon selection button - Error message display
8 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
9 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
10 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)

4.5.12.14 Clip mark controls stuffer and clipping process mode is start-stop

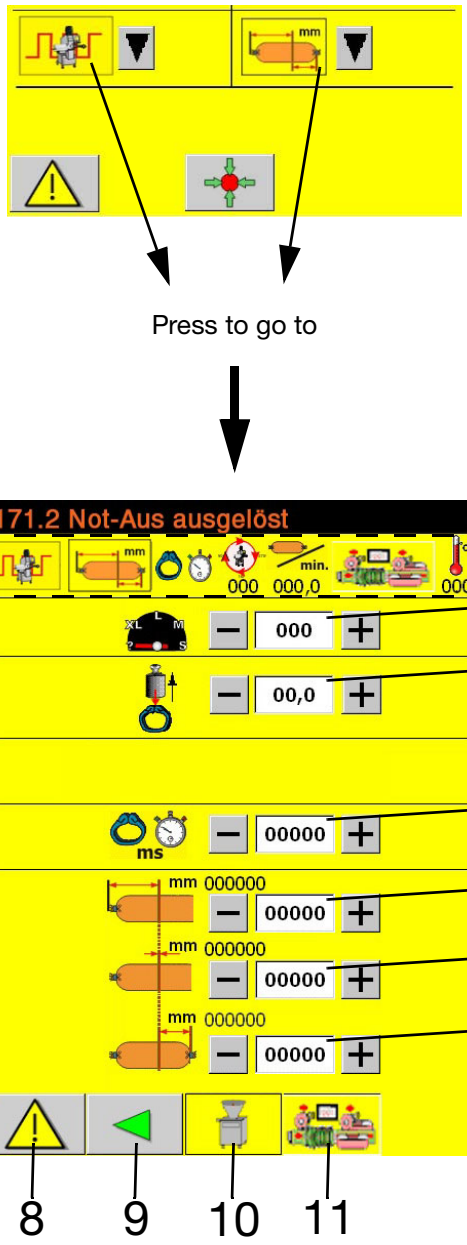


Fig. 4-51

1 Display: Operating mode
2 Set speed in revolutions per minute
3 Set clip height
4 Set duration of clip pulse delay
5 Portion length (in mm) until clip mark is evaluated
6 Minimum width of clip mark (in mm) (minimum width of clip mark imprint)
7 Portion length (in mm) after the clip mark Stuffer overrun in mm
8 Message icon and icon selection button - Error message display
9 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
10 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
11 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)

4.5.12.15 Clip mark controls stuffer and clipping process mode is overspreading

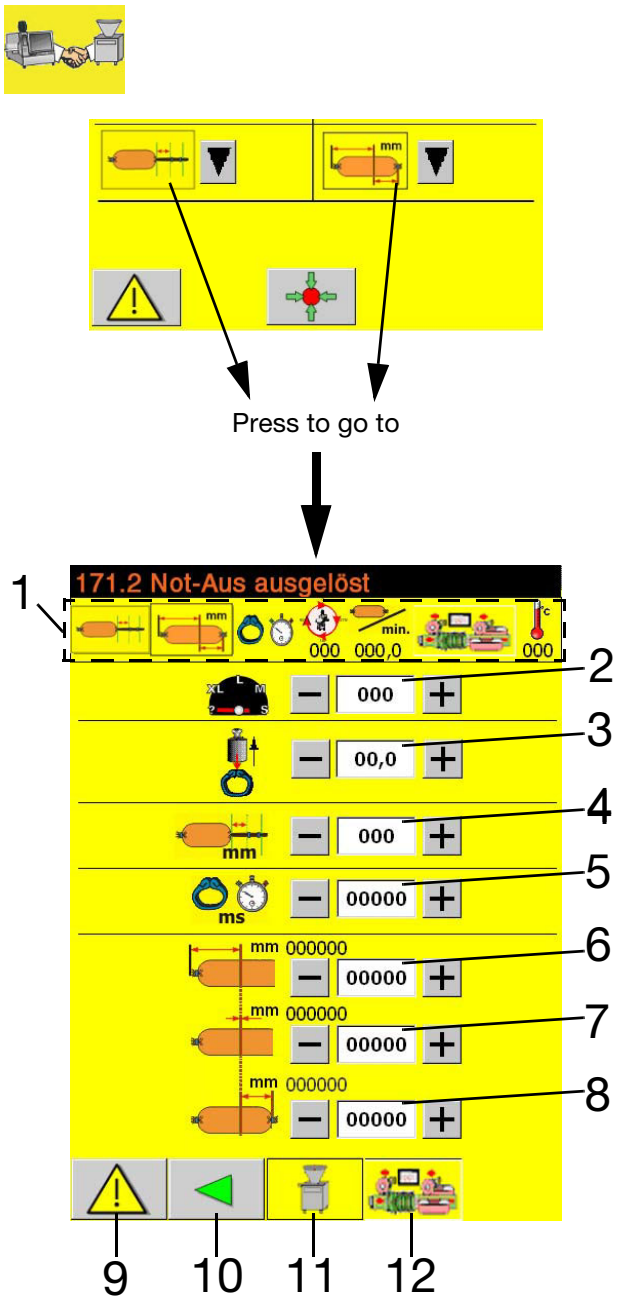


Fig. 4-52

1 Display: Operating mode
2 Set speed in revolutions per minute
3 Set clip height
4 Set overspreading
5 Set duration of clip pulse delay
6 Portion length (in mm) until clip mark is evaluated
7 Minimum width of clip mark (in mm)
(minimum width of clip mark imprint)
8 Portion length (in mm) after the clip mark
Stuffer overrun in mm
9 Message icon and icon selection button - Error message display
10 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
11 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
12 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)

4.5.12.16 Dosing pump controls clipping process and clipping process mode is start-stop

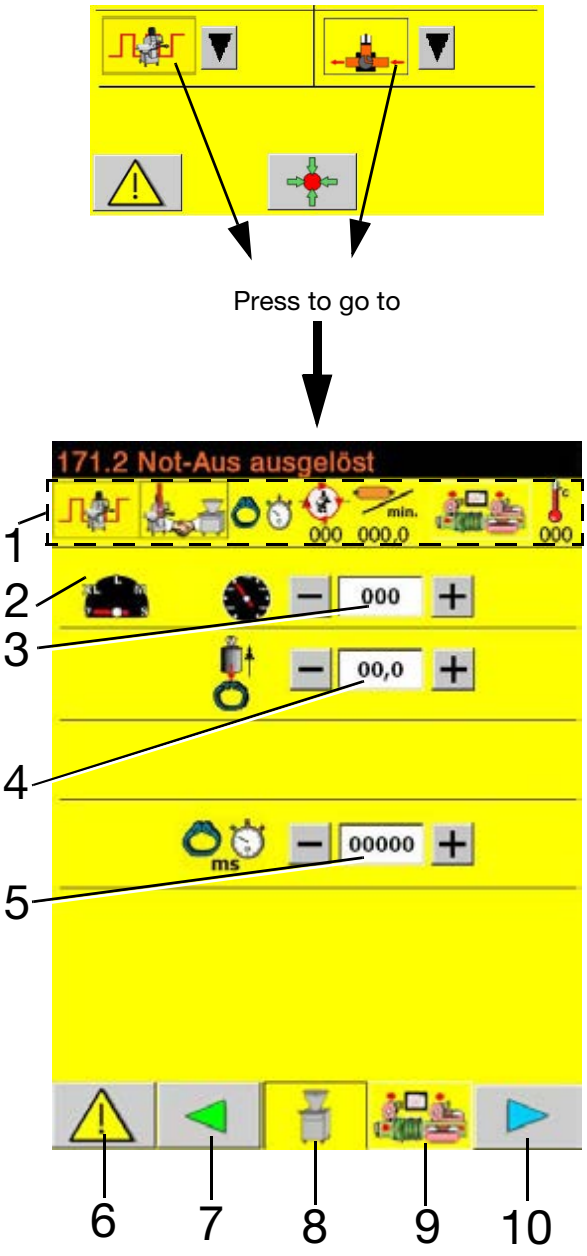


Fig. 4-53 Control clipping process through dosing pump

1 Display: Operating mode
2 Display: Clip type
3 Set speed in revolutions per minute
4 Set clip height
5 Set duration of clip pulse delay
6 Message icon and icon selection button - Error message display
7 Scroll back to basic sealing, filling system, clipping process, clipping process mode screen (see Fig. 4-37)
8 Quick selection button: Press to go directly to the settings for the filling system (here: stuffer)
9 Quick selection button: Press to go directly to the settings for the selected operating mode for sealing (here: electronic jam switch)
10 Scroll to velocity profile for the start-stop operating mode (see Fig. 4-55)

4.5.12.17Navigation using the quick selection buttons

The quick selection buttons (e.g. see 8, Fig. 4-53) make it possible to switch directly between the selected settings for sealing, the filling system and the clipping process control/clipping process mode.

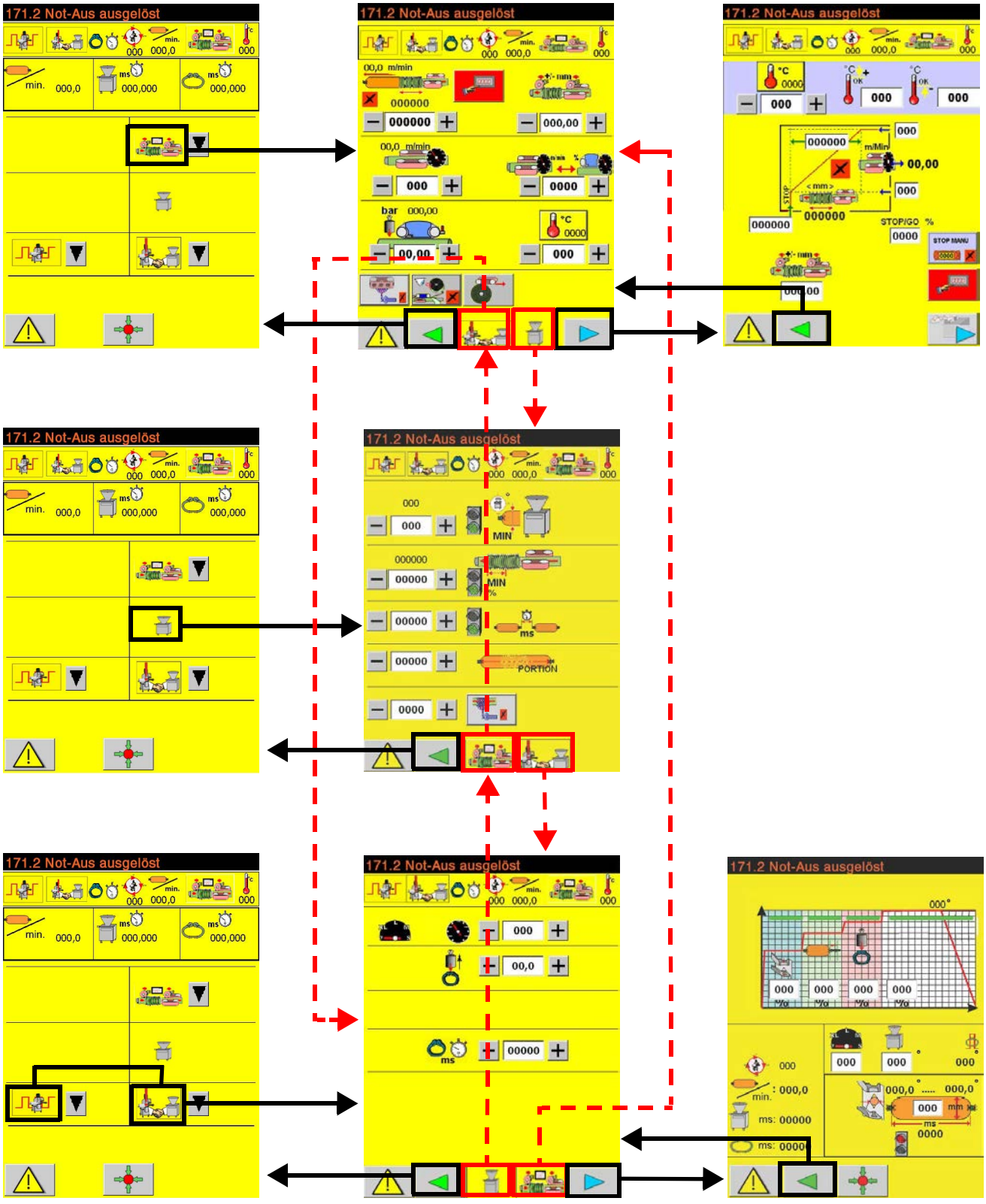


Fig. 4-54 Overview: Navigation using the quick selection buttons

4.5.13 Start-stop velocity profile

From the screens shown in Fig. 4-46 and Fig. 4-53, you can access the velocity profile for the start-stop operating mode by pressing the blue right arrow:

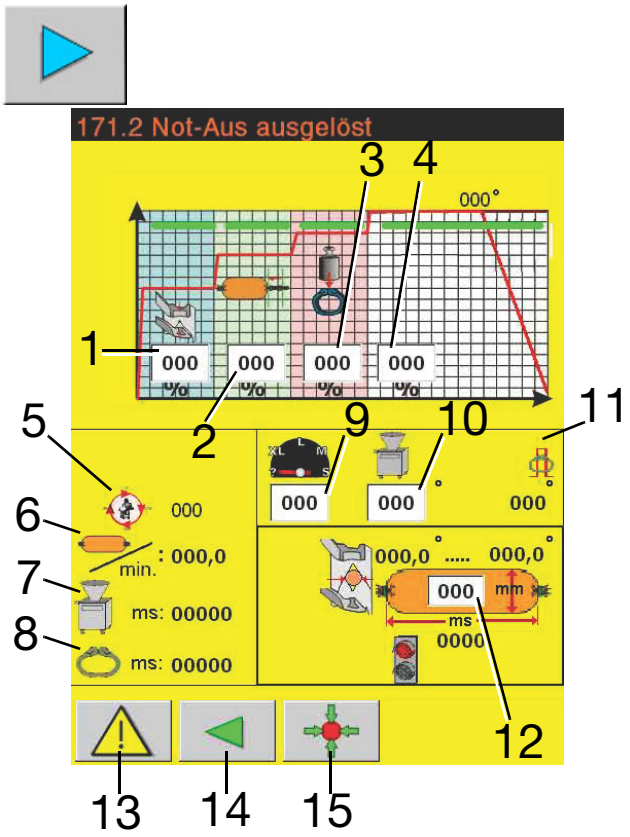


Fig. 4-55 Velocity profile for the start-stop operating mode

1 Input field for speed (%): Separate
2 Input field for speed (%): Spread
3 Input field for speed (%): Clip
4 Input field for speed (%): Remaining distance to stop point
5 Display field: Current machine rotation angle
6 Display field: Portions per minute
7 Display field: Time window between the time the stuffer is switched on and the time the stuffer gives the clip pulse
8 Display field: Time window between the time the stuffer gives the clip pulse and the time the stuffer is switched on
9 Input field: Speed during the clipping process
10 Input field: Rotation angle at which the stuffer starts
11 Display field: Machine rotation angle in which the clip pulse arrives
12 Input field: Target calibre of product

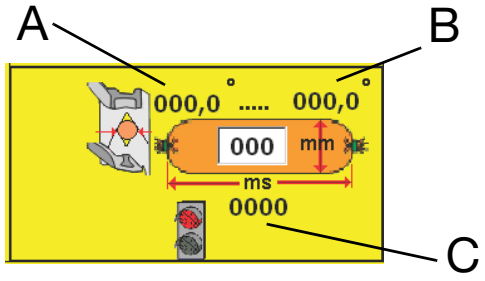


Fig. 4-56 Enlarged section of input field for target calibre of product

A Position during the opening process of the separator from which the separator is open wide enough for the calibre entered to fit through the separator opening
B Position during the closing process of the separator from which the separator is closed enough for the calibre not to be able to fit through the separator opening any more
C Runtime available to the calibre at the speed specified

• Note

Values A to C (Fig. 4-56) are calculated by the machine program based on the target calibre you entered and then displayed here. They should help you improve how you set your filling system.

13 Message icon and icon selection button - Error message display
14 Back
15 Back to basic selection screen - Maintenance level

4.5.14 Velocity profile for continuous mode

From the screen shown in Fig. 4-47, you can access the velocity profile for the continuous operating mode by pressing the blue left arrow:

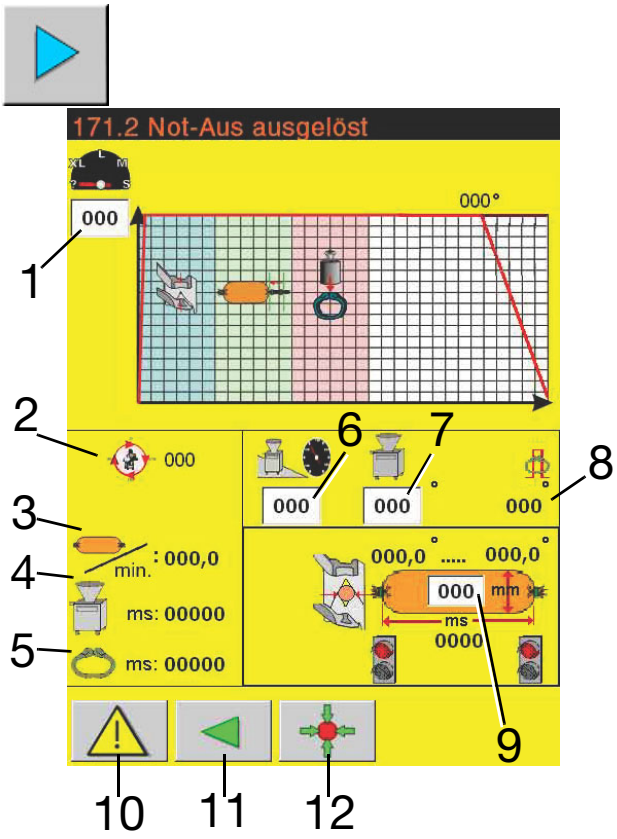


Fig. 4-57 Velocity profile for the continuous operating mode

1 Input field: Speed during the clipping process
2 Display field: Current machine rotation angle
3 Display field: Portions per minute
4 Display field: Time window between the time the stuffer is switched on and the time the stuffer gives the clip pulse
5 Display field: Time window between the time the stuffer gives the clip pulse and the time the stuffer is switched on
6 Revolutions during the stuffing process
7 Input field: Rotation angle at which the stuffer starts
8 Display field: Machine rotation angle in which the clip pulse arrives
9 Input field: Target calibre of product

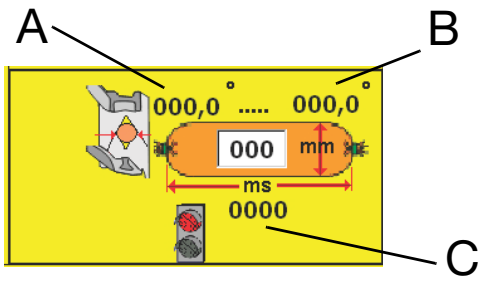


Fig. 4-58 Enlarged section of input field for target calibre of product

A Position during the opening process of the separator from which the separator is open wide enough for the calibre entered to fit through the separator opening
B Position during the closing process of the separator from which the separator is closed enough for the calibre not to be able to fit through the separator opening any more
C Runtime available to the calibre at the speed specified

• Note

Values A to C (Fig. 4-58) are calculated by the machine program based on the target calibre you entered and then displayed here. They should help you improve how you set your filling system.

10 Message icon and icon selection button - Error message display
11 Back
12 Back to basic selection screen - Maintenance level

4.5.15 Velocity profile for overspreading

From the screen shown in Fig. 4-48, you can access the velocity profile for the overspreading operating mode by pressing the blue right arrow:

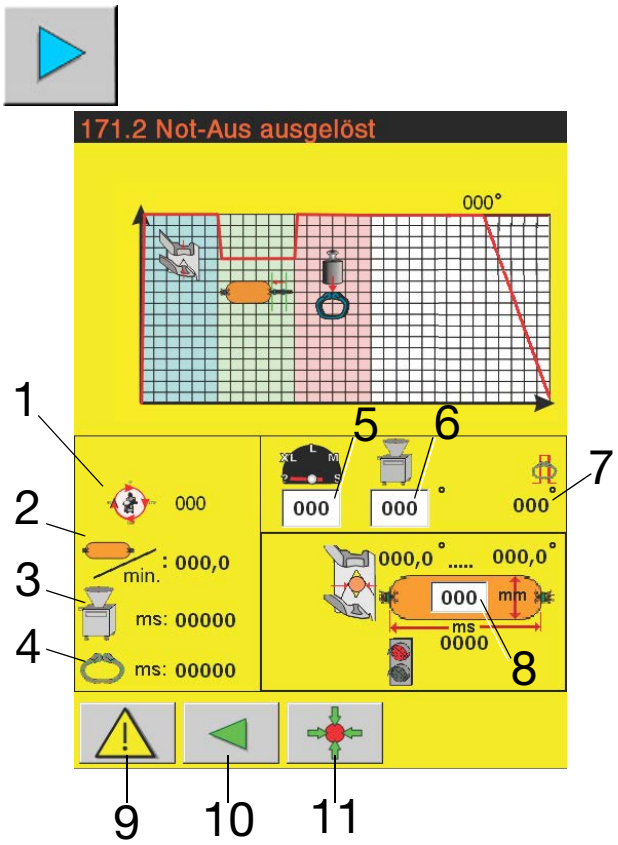


Fig. 4-59 Speed in the operating mode overspreading

1 Display field: Current machine rotation angle
2 Display field: Portions per minute
3 Display field: Time window between the time the stuffer is switched on and the time the stuffer gives the clip pulse
4 Display field: Time window between the time the stuffer gives the clip pulse and the time the stuffer is switched on
5 Speed during the clipping process
6 Input field: Rotation angle at which the stuffer starts
7 Display field: Machine rotation angle in which the clip pulse arrives
8 Input field: Target calibre of product

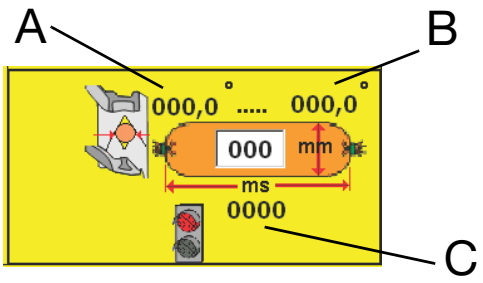


Fig. 4-60 Enlarged section of input field for target calibre of product

A Position during the opening process of the separator from which the separator is open wide enough for the calibre entered to fit through the separator opening
B Position during the closing process of the separator from which the separator is closed enough for the calibre not to be able to fit through the separator opening any more
C Runtime available to the calibre at the speed specified

• Note

Values A to C (Fig. 4-60) are calculated by the machine program based on the target calibre you entered and then displayed here. They should help you improve how you set your filling system.

9 Message icon and icon selection button - Error message display
10 Back
11 Back to basic selection screen - Maintenance level

4.5.16 Film break

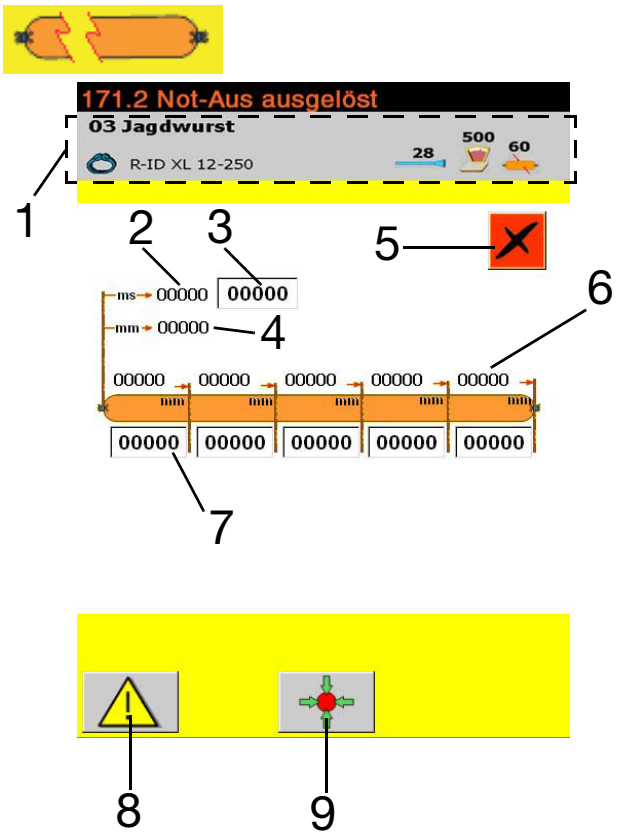


Fig. 4-61 Film break screen

1 Current product data display

2 Actual value display: Stuffing time

3 Field not used here.

4 Actual value display: Portion length

5 Film break monitoring

Activate function (tick on a green background)/ deactivate function (cross on a red background)

6 Actual value displays for time in which the corresponding section of film was drawn off

7 Input field: Target values for time in which the corresponding section of film must be drawn off. The portion length is monitored in 5 sections. For each of the 5 sections, a time is entered within which the corresponding section must be stuffed. If the corresponding film length is not drawn off in the respective time, the control detects a film break and stops the stuffer and/or dosing pump.

8 Message icon and icon selection button - Error message display

9 Back to basic selection screen of the Maintenance level

4.5.16.1 Setting film break control

The target length of the portion depends on the calibre and dosing volume. Only with the operating mode “Portion length controls clipping machine/stuffer” do you yourself enter the target length of the portion depending on the clipping operating mode in screen Fig. 4-49 or Fig. 4-50.

The actual value displays for the stuffing time, portion length and section length (see 2, 4 and 6, Fig. 4-61) work even when the function is switched off.

- Leave the film break control function switched off at first and produce some test portions.
- Use the test values thus obtained to determine the limit values for film break control in field 7, Fig. 4-61. The limit values in field 7 should be set higher than the measured values in field 6 to prevent film break control reacting during normal fluctuations in the stuffing time.

4.5.17 Printer

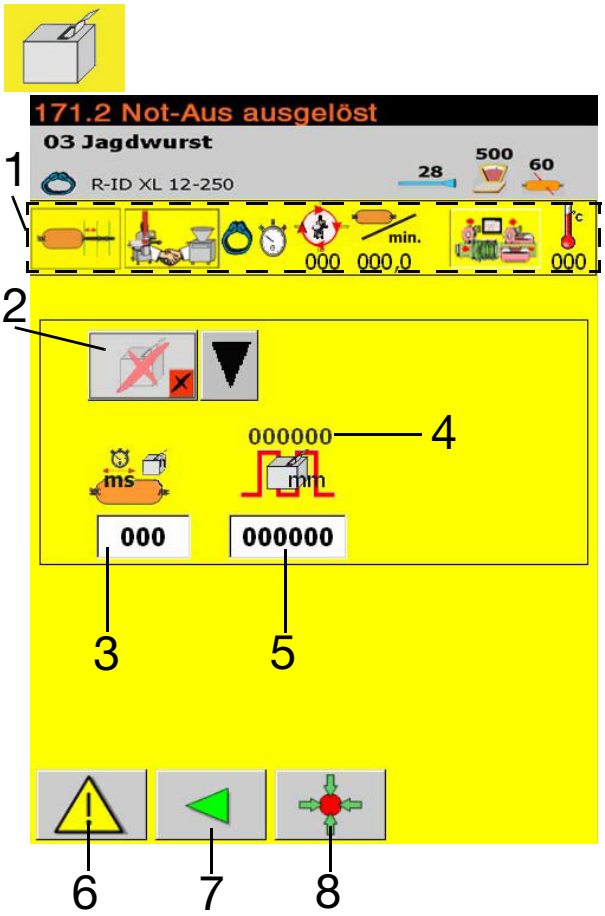
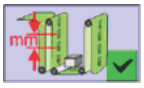
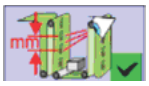


Fig. 4-62 Printer

1 Display: Operating mode
2 Printer cannot be selected
3 Input field: Print time
4 Display: Actual distance between two prints on the film
5 Input field: Target distance between two prints on the film
Field not available with inkjet printers.
6 Message icon and icon selection button - Error message display
7 Back to basic selection screen of the Maintenance level
8 Back to basic selection screen of the Maintenance level

Possible types of printing	
Icon	Meaning/Function
	- Random printing ON: prints continuously at a fixed distance
	- Print mark ON: prints at a fixed distance from a mark on the film
	- Printer OFF

4.5.17.1 Possible printer operating modes

The following combinations of operating modes are possible for the printer:

- Random printing ON or no printer
- Printer OFF
- Random printing or print mark

4.5.18 Simulator

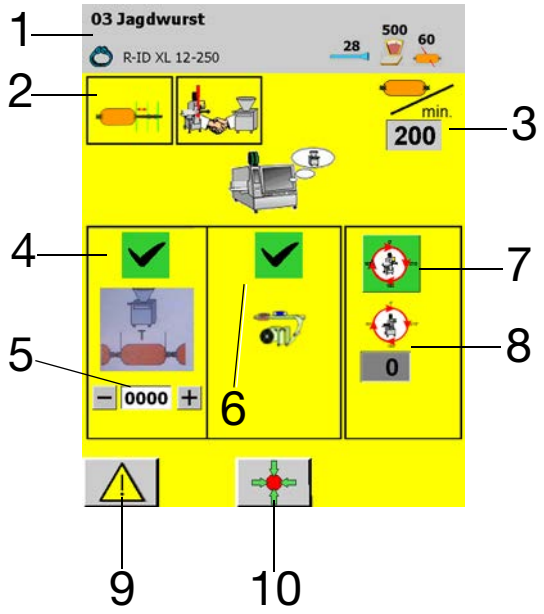


Fig. 4-63 ⊞ Change values (+)
⊟ Change values (-)

The simulator is used for testing the machine without stuffer.

1 Current product data display
2 Display of operating mode and stuffer connection
3 Production speed display
4 Simulator On, green/Off, red
5 Set stuffing time
6 Film welding On, green/Off, red
7 Cam-controlled auxiliary functions (knife, loop, etc.) On, green/Off, red. This function also operates in jog mode, independently of simulator operation.
8 Display of current machine rotation angle
9 Message icon and icon selection button - Error message display
10 Back to basic selection screen of the Maintenance level

4.5.19 Loading a product program

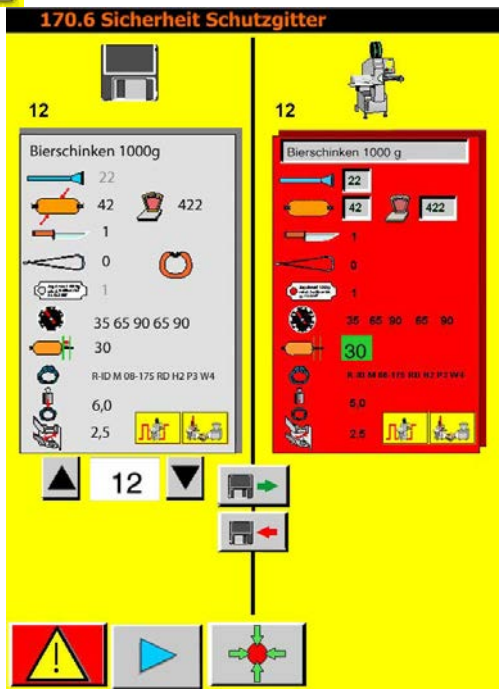


Fig. 4-64

For screen description, see section 4.4.5.

4.5.20 Date/Time

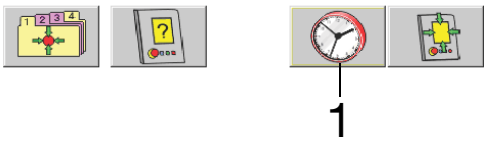


Fig. 4-65

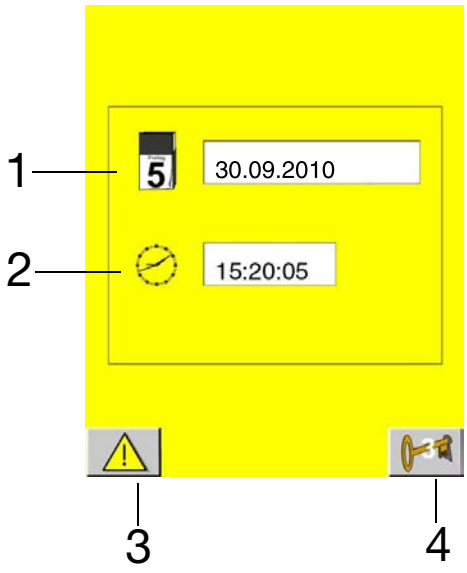


Fig. 4-66

1 Input field: Set date
2 Input field: Set time
3 Message icon and icon selection button - Error message display
4 Icon selection button - Change user level

- The date and time are required for correct allocation of error messages in the error history.

4.6 Service level

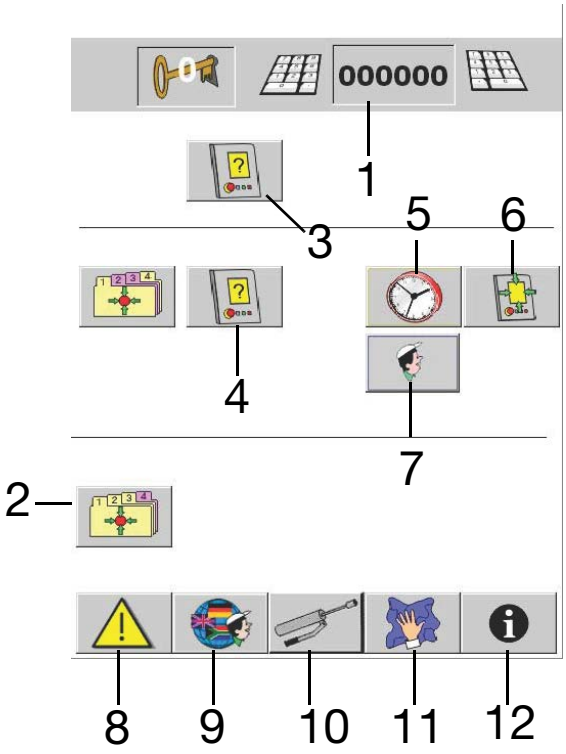


Fig. 4-67 Password input and selection screen of the Service level

1 Password input field
2 Icon selection button
Basic selection screen - Service level
3 Icon selection button - Screen configuration for level 1 (Operator)
4 Icon selection button - Screen configuration for level 2 (Maintenance)
5 Icon selection button - Calendar/time
6 Icon selection button - Touchscreen calibration
7 Set the rotation angle for machine functions and additional equipment (takes you to Fig. 4-68)
8 Message icon and icon selection button for error message display
9 Icon selection button - Language selection
10 Icon selection button - Lubrication plan
11 Icon selection button - Clean touchscreen
12 Icon selection button - Service information

4.6.1 Adjusting the rotation angle for machine functions and additional equipment

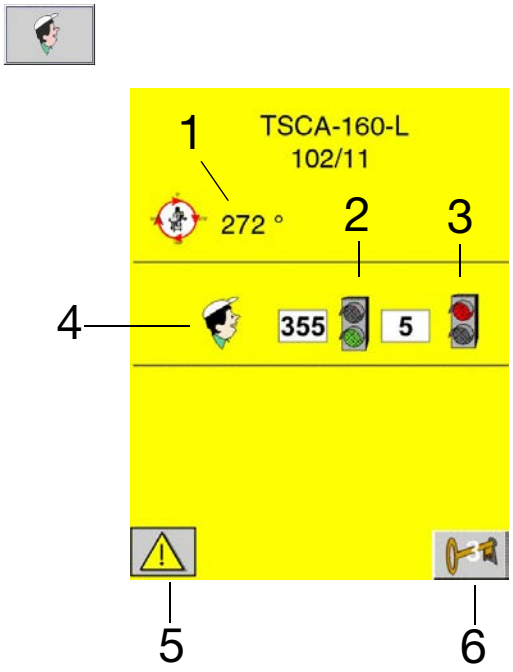


Fig. 4-68

1 Display of the current machine rotation angle
2 Under the green light, the rotation angles for switch-on are displayed and adjusted
3 Under the red light, the rotation angles for switch-off are displayed and adjusted
4 Only when option is installed:
Freely programmable cam for any applications
5 Message icon and icon selection button - Error message display
6 Icon selection button - Change user level

4.6.2 Example: Compiling and saving a product program

1) Checking/changing counter settings

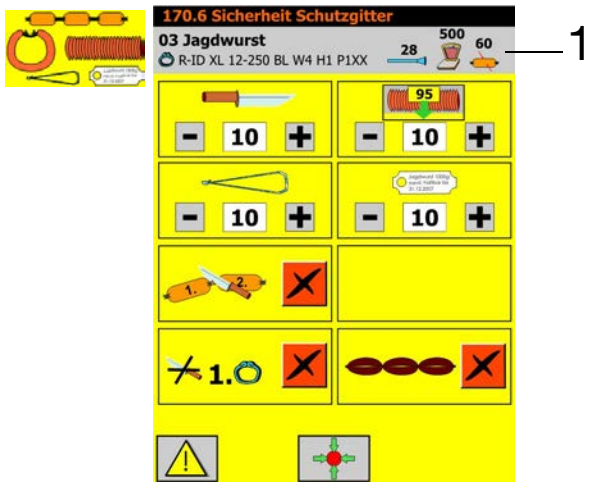


Fig. 4-69 Knife, shirr, rings

1 Display product data

2) Checking/changing product data

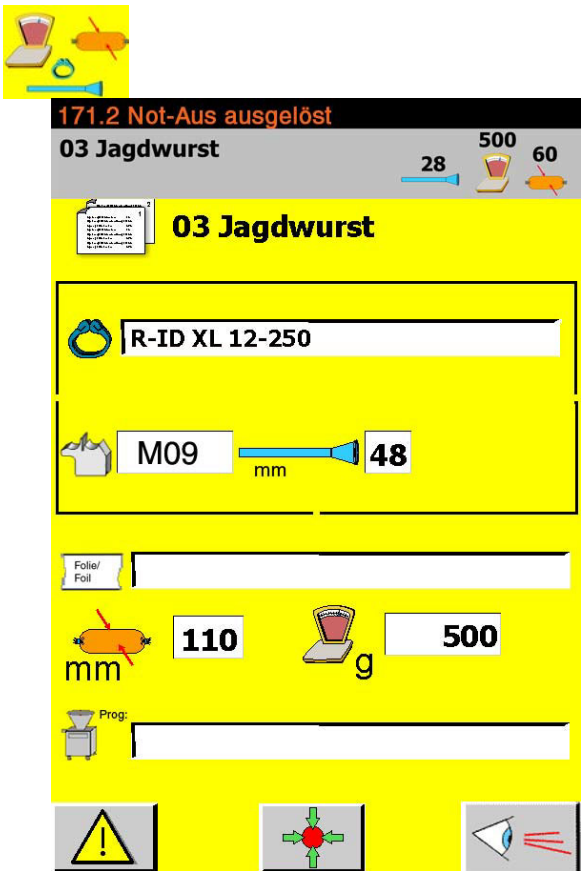


Fig. 4-70 Product data

3) Reading and saving data on RFID page

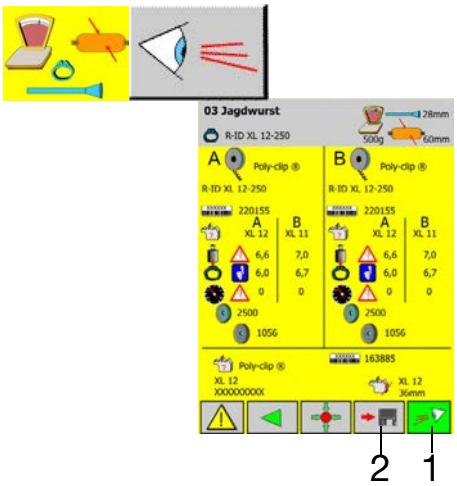


Fig. 4-71 RFID page

- Press button (1) to read the RFID data.
- Check the read data.
- Press button (2) to save the read data.

4) Writing and saving a product program

Product programs can only be saved in Service level (see Page 4-2).

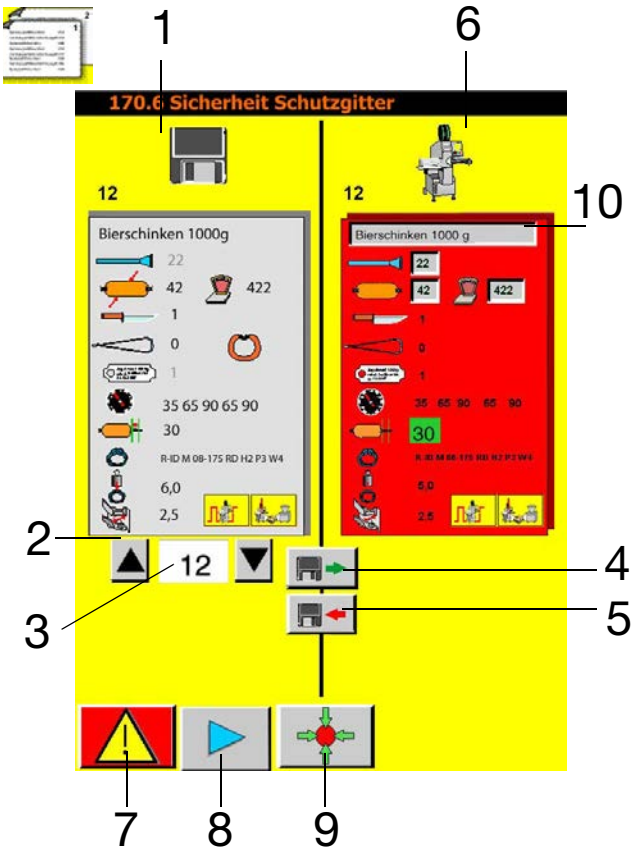


Fig. 4-72

1 Display of the selected product program
2 Buttons for scrolling up or down to select a product program
3 Field for entering the product program required
4 Load the selected product program
5 Save the parameters set as a new product program in the selected saving location. ATTENTION: All existing parameters in this saving location will be overwritten!
6 Display of the product program loaded and activated
7 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.
8 Back to basic selection screen of the Maintenance level
9 Browse image sequence -> USB connection

10 Input field for product name

- All white fields can be amended. When you touch a field, the input keyboard appears.

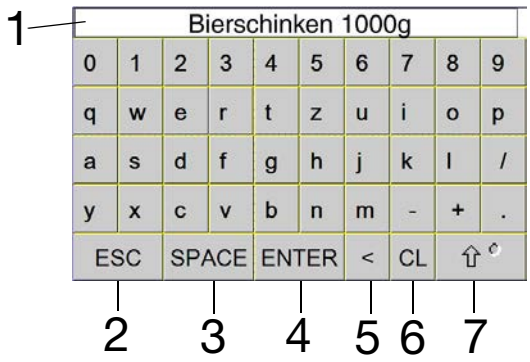


Fig. 4-73 Input keyboard
1 Text window
2 Quit without saving
3 Blank space button
4 Save and exit input keyboard
5 Delete last letter
6 Clear input
7 Button for selecting upper/lower case

- Using the input keyboard to write the name of the product program in the text window and save it.
- Press the save program button (5, Fig. 4-72).

The program data loaded in the machine's current main memory are saved under the product program name displayed in the selection window.

4.6.3 USB connection for back-up and retrieval of product programs

Fig. 4-74 1 USB connection with protective shutter on the underside of the operating panel

Attention! The memory sticks must have a sufficient transmission speed - only use branded products! You can order a suitable memory stick under art. no. 182117.

4.6.4 Screen configuration level 1 or 2

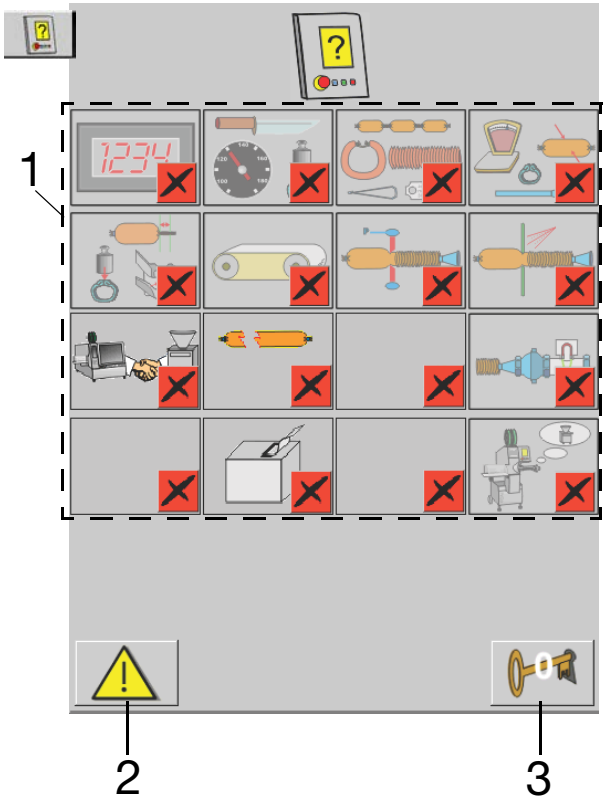


Fig. 4-75

1 Display or hide icons in level 1 (Operator) or level 2 (Maintenance)

Display	Meaning
	Icon is displayed.
	Icon is hidden.

2 Warning icon - Error messages

3 Icon selection button for password input and selection screen

4.6.5 Reading and saving product programs through the USB connection

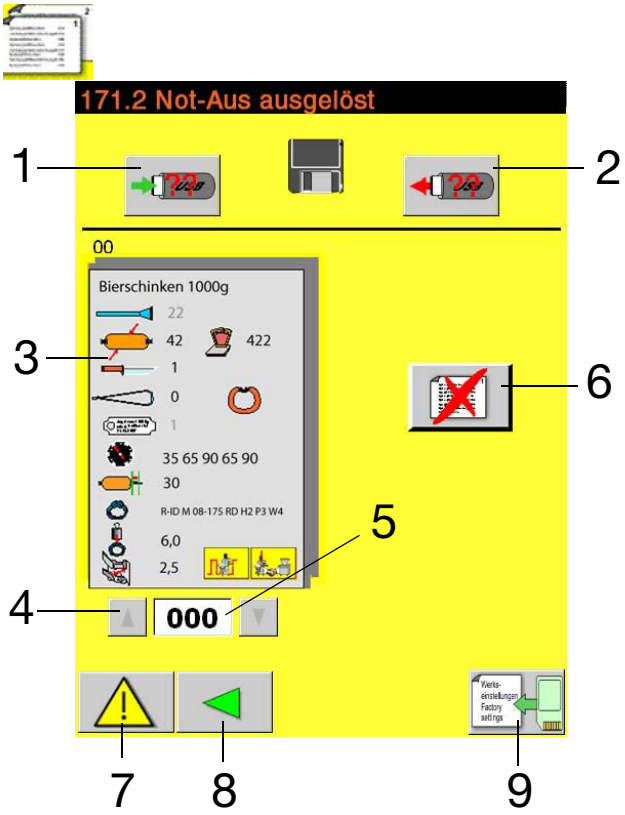


Fig. 4-76 Deleting a product program and copying a product program from/to a USB stick

1 Transfer product programs to a USB stick

2 Read product programs from a USB stick:
ATTENTION: all existing recipes will be overwritten!

3 Current program data

4 Buttons for scrolling up or down to select a product program

5 Field for entering the product program required

6 Clear the selected product program

7 Warning icon - Error messages
Press the flashing icon once:
to read the current error messages.

8 Scroll image sequence, “back”

9 Load factory setting:
- loads the last saved machine configuration and all recently saved recipes
- existing program data are overwritten

4.7 List of possible error messages

M 2.2 Control system starting, please wait!
I 168.0 Clip-pressure adjustment active
I 168.1 Separator-hole adjustment active
I 168.2 Spreading adjustment active
I 168.3 Clip/die/punch change active
I 168.4 RFID are read
I 168.5 -AUTOMATIC ON-
I 168.6 -1.CLIP ON-
I 168.7 -2-HAND-ON-
I 169.0 Lubrication-pump active
I 169.1 Manual-lubrication active
I 169.2 Use 2.hand button !
M 170.1 Type of machine ?
M 170.2 Fault parameter controller KEB
M 170.3 Reference drive missing
M 170.4 Safety-controller !
M 170.5 External safety
M 170.6 Safety guard
M 170.7 Safety swing off
M 171.0 Check safety !
M 171.1 Safety servo (PNOTZ)
M 171.2 Emergency Stop
M 171.3 Fault servo controller KEB
M 171.4 Fault 2-hand start
M 171.5 Fault compressed air supply
M 171.6 Fault lable
M 171.7 Fault swing-on handle
M 172.0 WARNING - Oiler reservoir minimum
M 172.1 FCA not in home position
M 172.2 Warning: clip spool empty
M 172.3 Clip spool empty, machine OFF
M 172.5 Shirr end reached
M 172.6 FCA drive blocked
M 173.0 Fault stuffer cycling to fast
M 173.1 Safety looper
M 173.2 Safety front-cover
M 173.4 Safety cover 1 left
M 173.5 Safety cover 2 right
M 173.6 Safety reserve
M 173.7 Safety reserve
M 174.0 Fault spreading adj. motor: current 8200
M 174.1 Fault spreading adj. motor: voltage 8201
M 174.2 Fault spreading adj. motor: overtemp. 8202
M 174.3 Fault spreading adj. motor: blocked CCW 8300
M 174.4 Fault spreading adj. motor: blocked CW 8301
M 174.5 Fault spreading adj. motor: limit turns CCW 8304
M 174.6 Fault spreading adj. motor: limit turns CW 8305
M 174.7 Fault spreading adj. motor: internal fault 8401
M 175.0 Fault spreading adj. motor: internal fault 8410
M 175.1 Fault spreading adj. motor: parameter limit 8501
M 175.2 Fault spreading adj. motor: internal fault 8502
M 175.3 Fault spreading adj. Motor: timeout 8601
M 175.6 Fault spreading motor: SYSTEM-NUMBER
M 175.7 BUS connection spreading motor
M 176.0 Fault clip height adj. motor: current limit 8200
M 176.1 Fault clip height adj. motor: voltage limit 8201
M 176.2 Fault clip height adj. motor: temp limit 8202
M 176.3 Fault clip height adj. motor: blocked CCW 8300
M 176.4 Fault clip height adj. motor: blocked CW 8301
M 176.5 Fault clip height adj. motor: limit turns CCW 8304
M 176.6 Fault clip height adj. motor: limit turns CCW 8305
M 176.7 Fault clip height adj. motor: internal fault 8401
M 177.0 Fault clip height adj. motor: internal fault 8410
M 177.1 Fault clip height adj. motor: parameter limit 8501
M 177.2 Fault clip height adj. motor: linternal fault 8502
M 177.3 Fault clip height adj. motor: TIMEOUT 8601
M 177.6 Fault clip height adj. motor: SYSTEM-NUMBER
M 178.2 Load Configuration
M 178.3 Save configuration
M 179.0 GSA, loops are empty
M 179.1 GSA, loops are empty AUTOMATIC OFF
M 179.3 Run time pre-separator
M 180.0 Waiting on AHL
M 180.1 Fault AHL Auto OFF
M 181.0 Fault button 1.CLIP
M 181.1 Fault button AUTO ON
M 181.2 Fault button AUTO OFF
M 181.5 Fault RFID/Sensor clip
M 181.6 Fault RFID/Sensor die
M 182.1 Conveyor belt blocked
M 182.2 Fault Conveyor belt, switched off
M 182.7 Film break
M 183.1 Fault sensor clip pressure
M 184.0 Bus fault G2 Servo (KEB)
M 184.2 Fault PLC module
M 184.3 Lubrication "daily"
M 184.4 Manual lubrication "weekly" necessary
M 185.0 Data <> Pen drive
M 185.1 Fault lubrication
M 185.2 Simulator active
M 185.3 Factory settings are saved
M 185.4 Factory settings are loaded
M 185.5 CONFIGURATION MODE
M 185.6 Factory-settings changed!
M 185.7 Bus connection RFID
M 186.0 RFID unidentified die
M 186.1 RFID clip reel missing
M 186.2 RFID right and left clips different!
M 186.3 RFID clip and die do not match!
M 186.4 Spreading and width of die do not match!

M 186.7 RFID: Clip does not match recipe
M 187.2 Die does not match recipe
M 187.4 Spreading / check conveyor belt
M 187.5 Check spreading/die
M 187.6 Clip pressure overload
M 187.7 Check clip transport!
M 188.0 OB82-fault
M 188.1 OB85-fault
M 188.2 OB86-fault
M 188.3 OB122-fault
M 188.4 OB81-fault detectet
M 188.5 OB83-fault
M 188.6 OB84-fault
M 188.7 OB87-fault
M 189.0 IMD metall detectet
M 189.1 IMD error
M 189.3 IMD Produktnummer
M 189.4 IMD warning
M 189.5 IMD test request
M 189.7 IMD timeout 2
M 190.0 IMD Airpressure fault
M 190.1 IMD fault data transfer
M 190.2 IMD Learning mode
M 190.5 IMD startup
M 190.6 IMD inactive
M 190.7 IMD not in operation menu
M 191.0 IMD restart by operator
M 191.2 Fault bus IMD-I/O-Module
M 191.3 Fault bus IMD-Metalldetector
M 191.4 IMD dumping activ
M 191.5 IMD unavailable... Check plug!
M 192.0 Fault separator hole adj. Motor: current limit 8200
M 192.1 Fault separator hole adj. Motor: voltage limit 8201
M 192.2 Fault separator hole adj. Motor: temp limit 8202
M 192.3 Fault separator hole adj. Motor: blocked CCW 8300
M 192.4 Fault separator hole adj. Motor: blocked CW 8301
M 192.5 Fault separator hole adj. Motor: limit turns CCW 8304
M 192.6 Fault separator hole adj. Motor: limit turns CCW 8305
M 192.7 Fault separator hole adj. Motor: internal fault 8401
M 193.0 Fault separator hole adj. Motor: internal fault 8410
M 193.1 Fault separator hole adj. Motor: parameter limit 8501
M 193.2 Fault separator hole adj. Motor: linternal fault 8502
M 193.3 Fault separator hole adj. Motor: TIMEOUT 8601
M 193.6 Fault separator hole adj. motor: SYSTEM-NUMBER
M 194.0 Power-Limit clipping! Check settings!
194.1Power-Limit maine drive! Check settings!
194.2Power-Limit die/punch Check settings!
M 194.3 Power-Limit clip! Check settings!
M 194.4 Fault filler connection<---> TSCA
M 194.6 Fault swing-off air pressure
M 194.7 Fault swing-on air pressure
M 195.0 Fault BUS controller: clip height adj.motor / separator adj.motor / separator adj.motor
M 2370.0 PLC Block A196/A197
M 2370.1 PLC Block E4/5 A 4/5
M 2370.2 PLC Block E6/7 A 6/7
M 2370.3 PLC Block E8/9 A8/9
M 2370.4 PLC Block E10/11 A10/11
M 2370.5 PLC Block E24....
M 2370.6 PLC Block E/A200...
M 2371.0 Fault roller guide system film unwind unit upper limit
M 2371.1 Fault roller guide system film unwind unit lower limit
M 2371.2 Unwind unit is lifted !
M 2371.6 Savety shut down heating system
M 2371.7 Fault temperature sealing bar not in range
M 2372.0 Fault temperature sealing bar > out of film tolerance
M 2372.1 Heating is off
M 2372.2 Automatic optimisation temperature controller active
M 2372.4 Fault sealing tape
M 2372.5 Film end detected
M 2372.6 Film splice detected
M 2372.7 Warning: Film end detected
M 2373.0 Install new film roll (Automatic OFF)
M 2373.1 Sealing band broken
M 2373.2 Slip of film drive belts is too high !
M 2373.3 Film length counter does not work !
M 2373.4 Fault sealing tape
M 2373.5 Not enough film sealed
M 2373.6 Film jam check
M 2374.0 Fault printer
M 2374.3 Fault vacuum pump film drive
M 2374.4 Fault vacuum pump filling horn
M 2376.0 Run time dosage pump
M 2377.0 Fault bus TSA 2377.0_2377.2_2377.4_2377.6_2378.0
M 2377.2 Fault bus film drive 1
M 2377.3 Drive fault film drive 1
M 2377.4 Fault bus film drive 2
M 2377.5 Fault drive film drive 2
M 2377.6 Fault bus sealing band drive
M 2377.7 Fault sealing band drive
M 2378.0 Fault bus film unwind drive
M 2378.1 Drive fault film unwind drive
M 2378.2 Torque film drive 1 > max

M 2378.3 Torque film drive 2 > max
M 2378.4 Torque sealing band drive > max
M 2378.5 Torque difference fim drive 1/2 > Max
M 2378.6 Torque film pre-drive > max
M 2380.1 TSA Compressed air supply P3 <> limit
M 2380.2 TSA Compressed air supply bottom support P4 <>limit
M 2380.3 TSA Compressed air sealing bar P1 > maximum
M 2380.4 TSA Compressed air supply sealing bar P1 <> operating pressure
M 2381.0 Fault manual sealing button STOP
M 2381.1 Fault manual sealing START
M 2381.2 Fault manual button
M 2381.3 Fault manual loop button
M 2381.5 Stop button, second control panel!

5 Start-up

5.1 Note

- Only trained and authorised persons may start up and operate this machine.
- The Operating Manual, in particular the Safety Instructions chapter, and the local accident prevention regulations in force must be observed.

For all work described in this chapter for which it is necessary to work inside the machine, the machine must be shut down in accordance with chapter 1, paragraph 1.6.2!
All work must only be carried out when the machine has stopped.

5.2 Start-up check list

- Select the correct clip size for the product, fill the clip magazine and insert the clip sticks into the clip channels.
- Install the appropriate die, punch and spreading for the clip.
- Set up the filling system (see chapter 3).
- Switch the compressed air on.
- Set the operating pressure.
- Turn the lever on the heating bar to the left (towards the green dot). See Fig. 5-44.
- Switch the main power switch on.
- Insert film (see paragraph 5.13).
- Set the production parameters in the control panel display or select the appropriate programme (see chapter 4).
- Switch the heating on.
- Set up the printer (optional).
- Release the Emergency Stop button.

Check the safety devices.

- Fill the loop magazine on the GSA and transport the 1st loop to the closing point.
- Set the clip closing pressure.
- Set the stuffer program.
- Lift the protective grating at the product outlet.
- Swing out the clipping machine head.
- Produce film tube (see paragraph 5.13.1).

Caution: Risk of crushing when swinging the clipping machine head in

There are several places on the clipping machine head where fingers could be crushed when the clip machine head is swung in.

- Work carefully.
- Only one person at a time may work in the area of the clipping machine head.

- Swing the clipping machine head in.
- Close the protective grating at the product outlet.
- Simultaneously press the “First Clip” button and the two-hand button.
- Fill the film tube with product in manual mode.
- Remove the start of the tube that has been cut off.
- Push the Automatic On button.
- After 3-4 sausages, push the Automatic Off button.

- Check the sample sausages for firmness of stuffing, check that there is no product in the tube tail and check that the clip is secure.

- If required, correct the values set on the stuffer or the TSCA, e.g. adjust the tube length or the clip pressure.
- If the product is OK, press the Automatic On button and begin production.

5.3 Shutting the machine down

- Push the Automatic Off button.
- Push the Emergency Stop button.
- Switch the main power switch off.
- Turn the lever on the heating bar to the right (towards the red dot). See Fig. 5-44.
- Disconnect the pneumatic and electrical connection.

5.4 Filling the clip magazine

- Select the correct clip size for the product.
- Push the clip reel onto the magazine spindle.

5.4.1 Setting the braking force on the clip magazine

- The spindle brake must be set so that the clip stick can be easily unwound without deformation.
- The braking force is regulated by turning the adjusting screw (2).

Increase braking force **->** turn clockwise
Decrease braking force **->** turn anti-clockwise

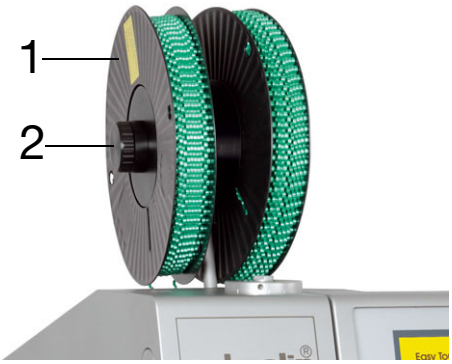


Fig. 5-1 1 Clip reel
2 Adjusting screw

5.4.2 Inserting the clip stick

- With the safety circuit closed, bring the machine into the home position.
- Press the "Clip loading position/Change position" button in the basic screen (Fig. 5-2).

Fig. 5-2

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- With the safety circuit closed, press the Clip loading position button (1, Fig. 5-3).

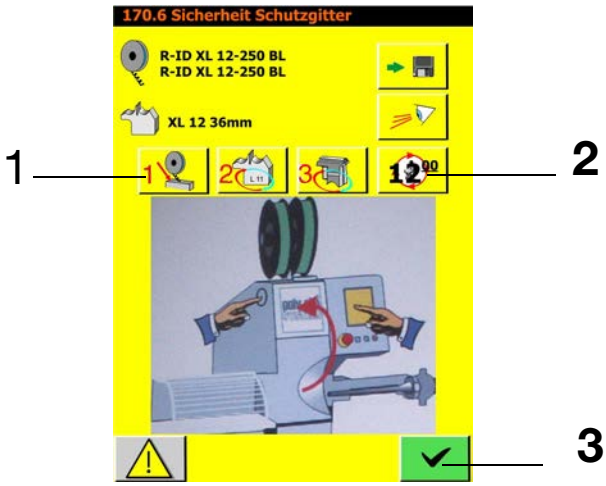


Fig. 5-3 1 Clip loading position button
2 12 o'clock button
3 Exit screen

- Bend just the start of the clip sticks without snapping them off.
- Insert the two clips sticks into the clip channels simultaneously until resistance is felt.

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- With the safety circuit closed, press the 12 o'clock button (2, Fig. 5-3).
- Exit the screen using button 3 (Fig. 5-3).

5.4.3 Converting the clip transport

Adjustment of the clip transport depends on the spacing (for example S or M clips on the FCA 120 and M, L or XL clips on the FCA 160).

- Swing the sausage outlet out.
- Swing the automatic GSA looper out.
- Press the latch (1) back and turn the adjusting wheel (2).
- The spacing to be set must be at the bottom.

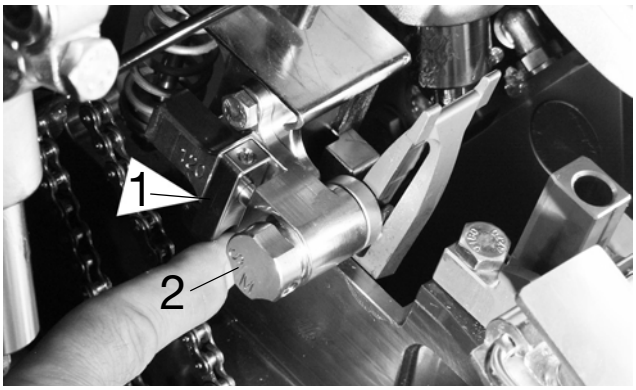


Fig. 5-4 1 Latch
2 Adjusting wheel

- Swing the automatic GSA looper in.
- Swing the sausage outlet in.

5.5 Changing the die and punch

- With the safety circuit closed, bring the machine into the home position.
- Press the "Clip loading position/Change position" button in the basic screen (Fig. 5-5).

Fig. 5-5

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- To change the **die**, with the safety circuit closed, press the Die change position button (1, Fig. 5-6).

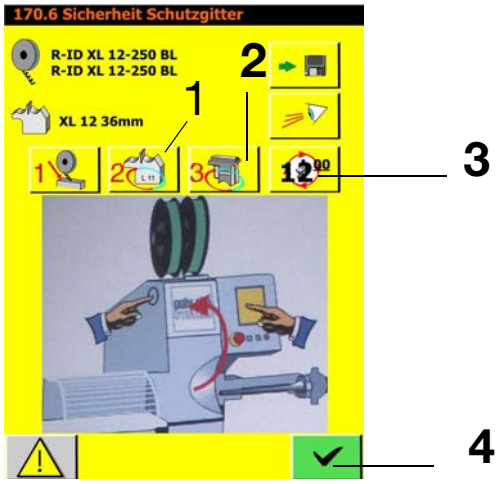


Fig. 5-6 1 Die change position button
2 Punch change position button
3 12 o'clock button
4 Exit screen

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- To change the **punch**, with the safety circuit closed, press the Punch change position button (2, Fig. 5-6).

The machine automatically moves to the selected machine position.

- Open the upper protective shutter.
- Swing the conveyor out.

Changing the die

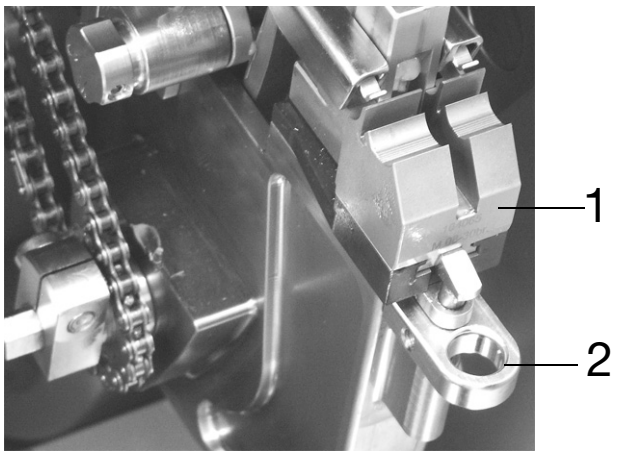


Fig. 5-7 1 Die
2 Locking lever

- Press the locking lever (2) and remove and change the die (1). Make sure you hear the new die click into place when you insert it.

Changing the punch

- Push the punch lock (1) down.

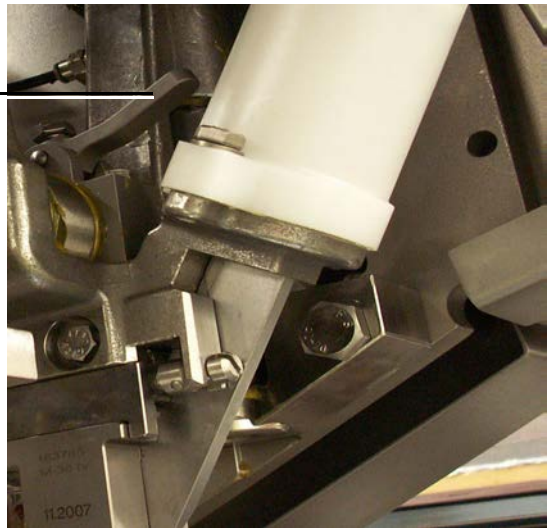


Fig. 5-8 1 Punch lock mechanism

Warning: Sharp-edged punch and sharp knife

You could cut yourself.

Work carefully and do not touch the blade of the knife!

- Carefully and without touching the knife, push the punch backwards and change it. Make sure you hear the new punch click into place when you insert it.

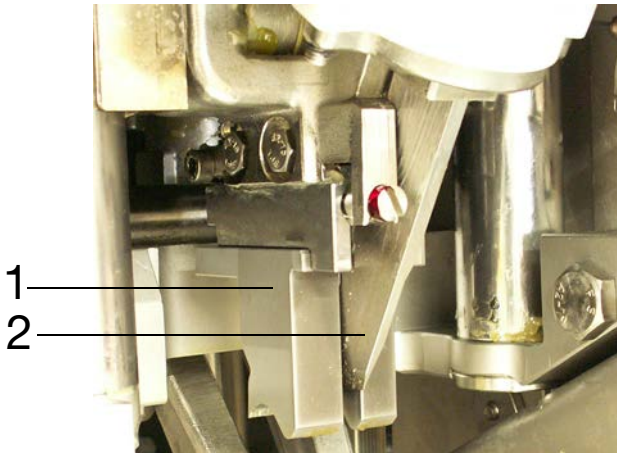


Fig. 5-9 1 Punch
2 Knife

- Close the upper protective shutter.
- Swing the conveyor back in.

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- With the safety circuit closed, press the 12 o'clock button (3, Fig. 5-6).
- Exit the screen using button 4 (Fig. 5-6).

• Note

After each die change, checks are made as to whether the die and clip match and whether the set spreading and die width are compatible. If, when reading the die data, there is a transmission error, the die size or die width and/or spreading must be manually confirmed by pressing the Acknowledge message button (1, Fig. 5-10).

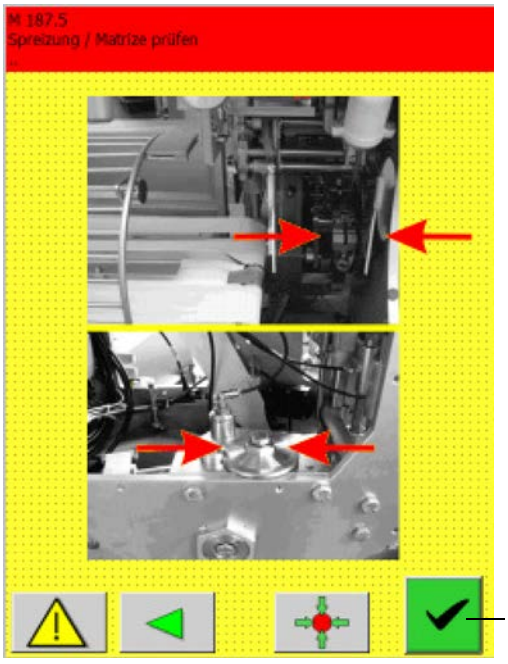


Fig. 5-10 M 187.5 Check spreading/die
1 Acknowledge message

5.6 Changing the separator knife

- Open the upper protective shutter.

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- Press the 1st Clip button and the two-hand button simultaneously. Keep both buttons pressed until the knife cylinder is accessible (machine position approx. 140°).
- Loosen the fixing screws on the knife cylinder (Fig. 5-11).

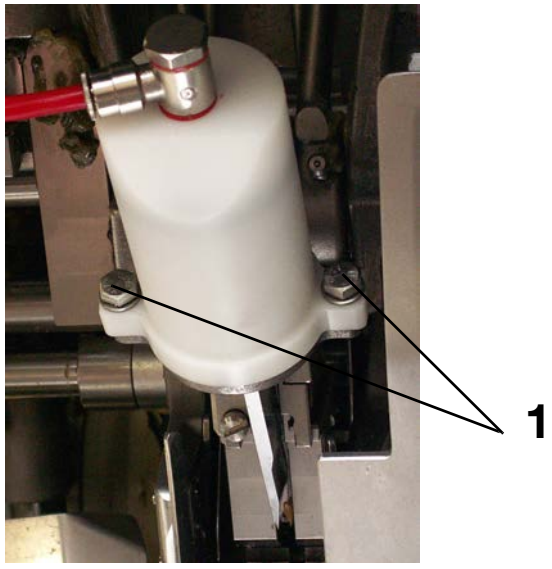


Fig. 5-11 1 Fixing screws

Warning: Separator knife is sharp

You could cut yourself.

Work carefully and do not touch the blade of the knife!

- Carefully remove the knife cylinder, then carefully pull out the separator knife and exchange it.
- Refit the knife cylinder.

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- Press the Automatic On button and the two-hand button simultaneously. Keep the buttons pressed until the movement is finished. The machine is now back in the home position.
- Close the upper protective shutter.

5.7 Changing the spreading (manual)

- With the safety circuit closed, bring the machine into the home position.
- Press the "Clip loading position/Change position" button in the basic screen (Fig. 5-12).

Fig. 5-12

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- With the safety circuit closed, press the Punch change position button (2, Fig. 5-13).

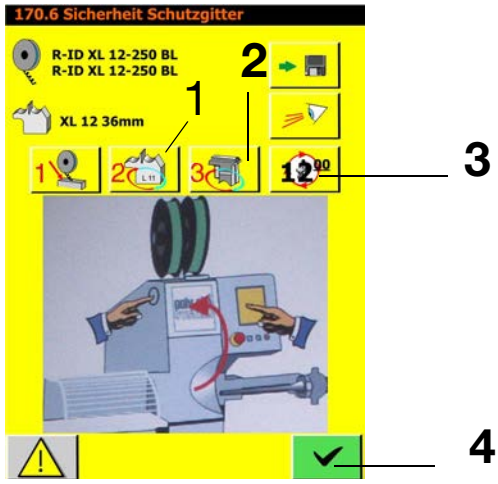


Fig. 5-13
1 Die change position button
2 Punch change position button
3 12 o'clock button
4 Exit screen

- Open the upper protective shutter.
- Swing the conveyor out.
- Exchange the die and punch as described in chapter 5.5.

- Unscrew the clip guide plate (1, Fig. 5-14).

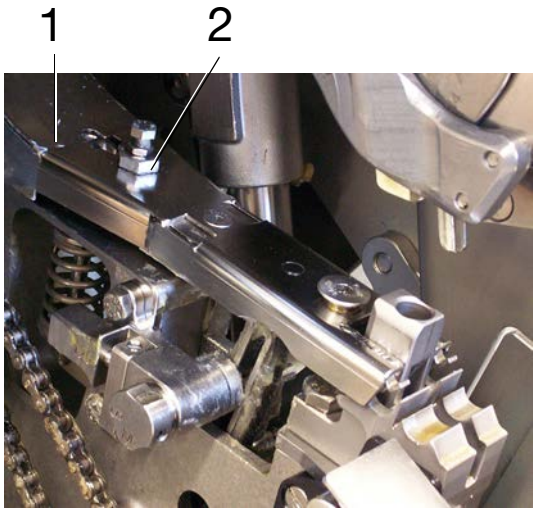


Fig. 5-14 1 Clip guide plate
2 Fixing screw

- Push the latch (2, Fig. 5-15) backward.
- Slide the transport lever (1) to the right out of the lock and remove.

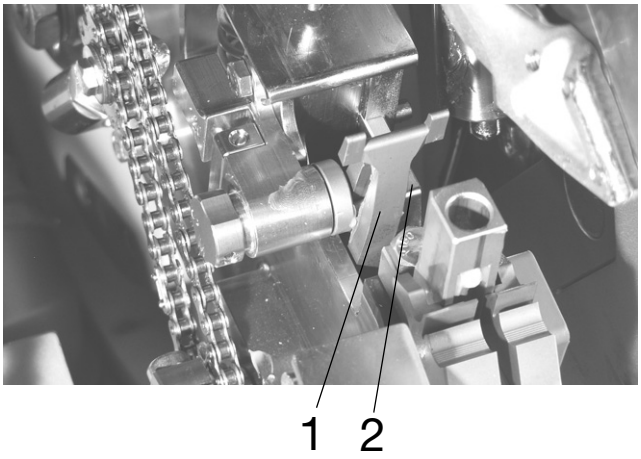


Fig. 5-15 1 Transport lever
2 Latch

- Repeat the steps in reverse order to fit the new transport lever and new clip guide plate.
- Push to latch forwards to secure the transport lever.
- Swing the conveyor back in.

Warning: Risk of crushing and cut injuries in the closing and separator area

You are at risk of crushing and cut injuries in the closing and separator area.

- Do not reach into the danger area.
- The machine must only be operated by one person at a time.

- With the safety circuit closed, press the 12 o'clock button (3, Fig. 5-13).

The machine automatically moves into the home position.
- Exit the screen using button 4 (Fig. 5-13).
- Close the upper protective shutter.

If there is a spreading adjustment motor (optional), the spreading will be adjusted automatically.
If there is no spreading adjustment motor, the following message display will appear:

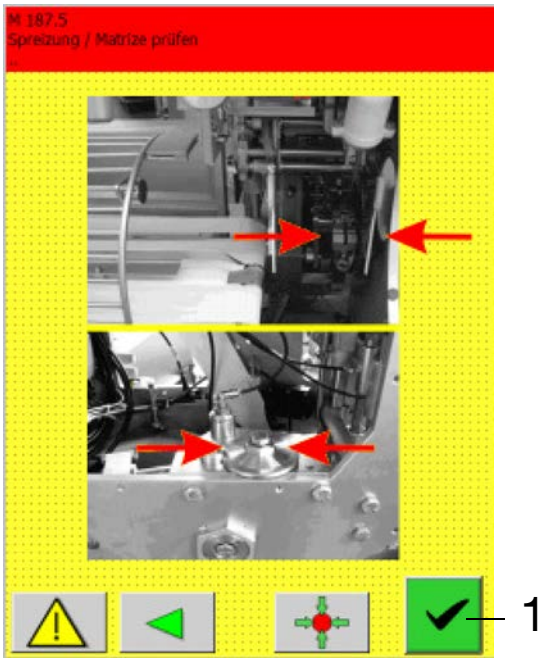


Fig. 5-16 M 187.5 Check spreading / die

- Swing the left side panel out.

- Loosen the clamping screw (1, Fig. 5-17).
- Use the adjustment screw (2, Fig. 5-17) to set the required spreading.
- Re-tighten the clamping screw (1, Fig. 5-17).

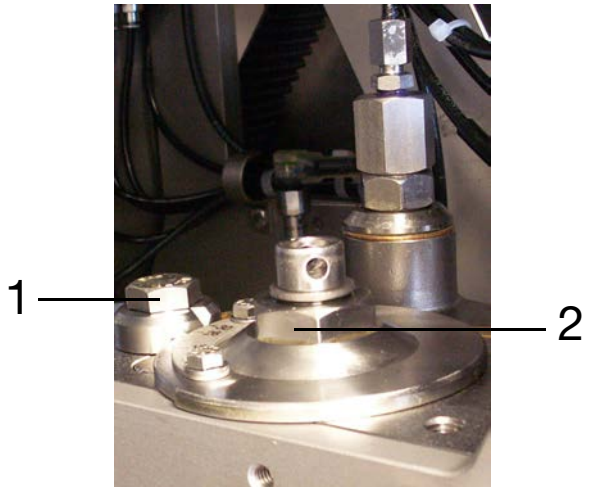


Fig. 5-17 1 Clamping screw
2 Adjustment screw

- Press button 1 (Fig. 5-16) in the message display to confirm the changed setting.

5.8 Adjusting the clip guide for different clip sizes

• Note

If there is no adjusting screw and lock nut (Fig. 5-19), the clip guide adjusts automatically.

- Open the upper protective shutter.
- Swing the sausage outlet out.
- Swing the automatic GSA looper out.

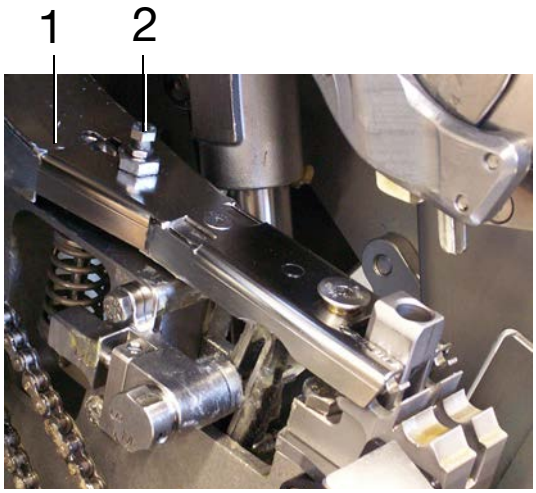


Fig. 5-18 1 Clip guide plate
2 Fixing screw

- Loosen the lock nut (2, Fig. 5-19).
- Set the height of the clip guide using the adjusting screw (1, Fig. 5-19):
  - The smallest clip must sit perfectly in the die bed when the transport finger is dipped downwards.
  - The largest clip must be easy to insert when the machine is in the clip change position.
- Tighten the lock nut (2, Fig. 5-19) to secure the clip guide setting.

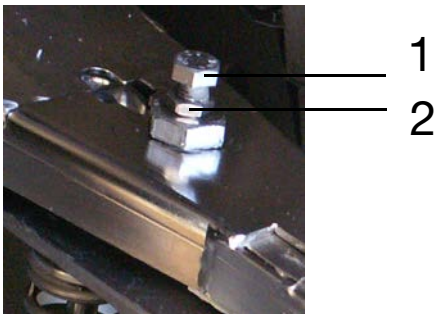


Fig. 5-19 1 Adjusting screw
2 Lock nut

- Swing the automatic GSA looper in.
- Swing the sausage outlet in.
- Close the upper protective shutter.

5.9 Setting the separator hole

- Switch to the basic screen in the Maintenance menu using the icon selection button (Key).

- Press the following button in the basic screen:

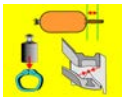


Fig. 5-20

- Set the separator hole in position 1.

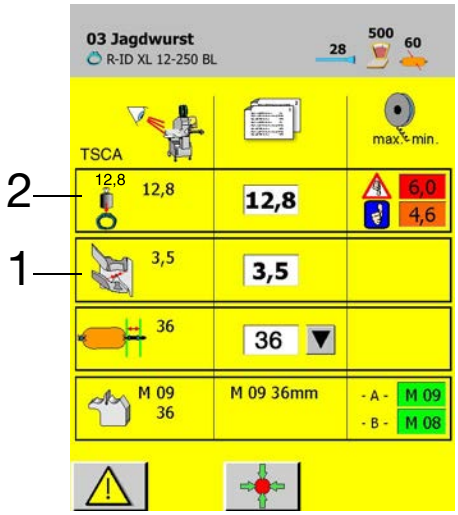


Fig. 5-21 1 Set the separator hole size
2 Set the closing pressure

5.10 Closing pressure

Cutting and deforming the clips requires differing forces depending on the clip and casing type. For this reason, the closing pressure must be adjusted.

5.10.1 Adjust the closing pressure

- Switch to the basic screen in the Maintenance menu using the icon selection button (Key).

- Press the following button in the basic screen:

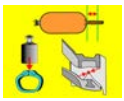


Fig. 5-22

- Set the closing pressure in position 2 (Fig. 5-21) and exit the display screen.

The chosen closing pressure is automatically set when you exit the screen and is saved in the loaded product program.

If the closing pressure exceeds the maximum permissible value, an error message will appear.
In this case, a lower closing pressure must be set.
If necessary, a different clip size may need to be used.

5.11 Starting up the automatic GSA looper

- Swing the sausage outlet (1) out.
- Open the lower protective shutter (2).

Fig. 5-23 1 Sausage outlet
2 Lower protective shutter

- Push the loop reel (1) onto the spindle (2). (The knot side of the loop must be facing outwards).
- Thread the loop tape according to the arrows shown in Fig. 5-24. The threading diagram is also displayed on the inside of the GSA panelling.

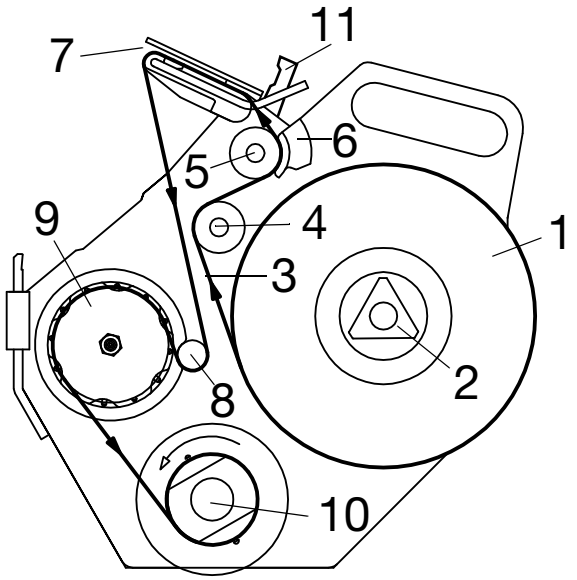


Fig. 5-24 1 Loop reel
2 Spindle
3 Loop tape
4 Guide pulley
5 Brake roller
6 Brake shoe
7 Loop tape guide
8 Guide pulley
9 Transport roller
10 Threading reel
11 Locking lever

Threading sequence in accordance with Fig. 5-24:

- Guide the start of the loop tape around the guide pulley (4).
- Press the brake roller (5) in the direction of the arrow and engage.

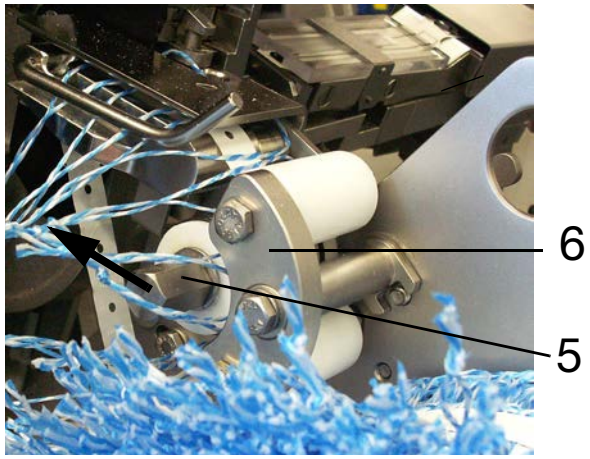


Fig. 5-25 5 Brake roller
6 Brake shoe

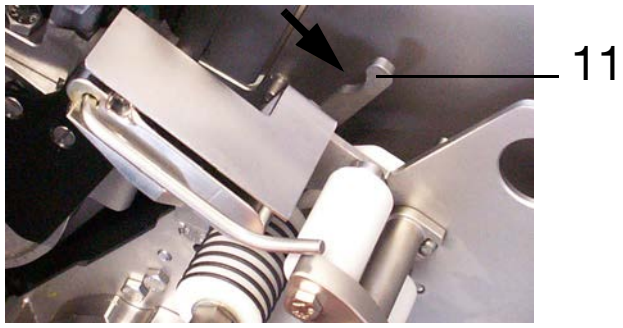


Fig. 5-26 11 Locking lever

- Push the loop tape between the brake roller (5) and brake shoe (6) and through the loop tape guide (7).
- Pull the locking lever (11) in the direction of the arrow, thereby disengaging the brake roller.
- Pull the start of the loop tape down, then guide it around the guide pulley (8), around the transport roller (9) and on to the threading reel (10).
- Pull loop tape slightly taut and place it around the transport roller (9) and the threading reel (10) in such a way that the carrier pins engage in the holes in the tape.

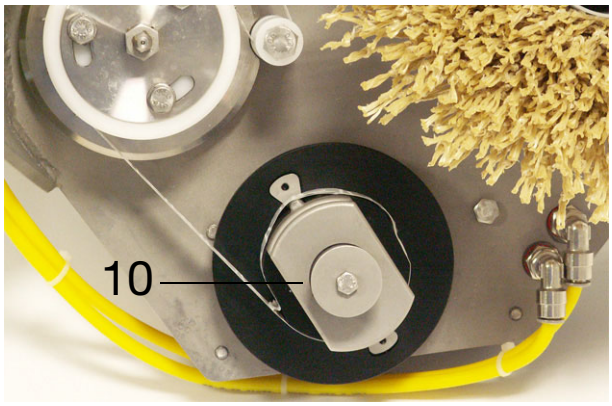


Fig. 5-27 10 Threading reel

- Turn the threading reel (10) anti-clockwise until the loop tape is taut.
- Press the "Loop transport, manual" button until the first loop is in the takeover position.

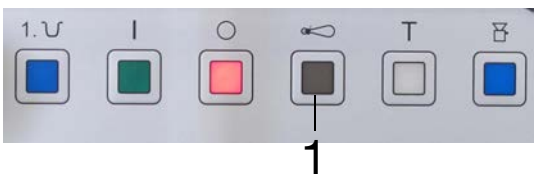


Fig. 5-28 Function button
Loop transport, manual

- Close the lower protective shutter and swing the sausage outlet back in.

The automatic GSA looper is now operational.

5.12 Central lubrication

5.12.1 Inserting the lubricant cartridge

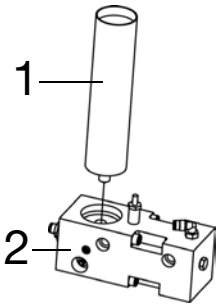


Fig. 5-29 1 Lubricant cartridge
2 Grease pump

- Open the left side panel.
- Screw the lubricant cartridge (1) into the grease pump (2).
- Close the left side panel.

5.12.2 Bleeding the grease pump

If the grease pump is not working properly, it needs bleeding.

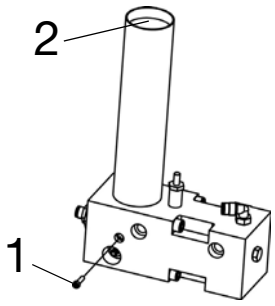


Fig. 5-30 1 Bleed screw
2 Plunger

- Open the left side panel.
- Unscrew the bleed screw (1).
- Push the plunger (2) down until lubricant comes out of the open hole.
- Screw the bleed screw back in and tighten it.
- Close the left side panel.

5.12.3 Manually triggering the lubrication process

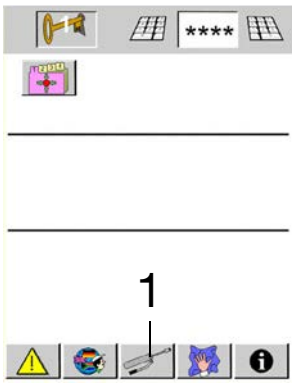


Fig. 5-31

- Press the icon selection button (1).

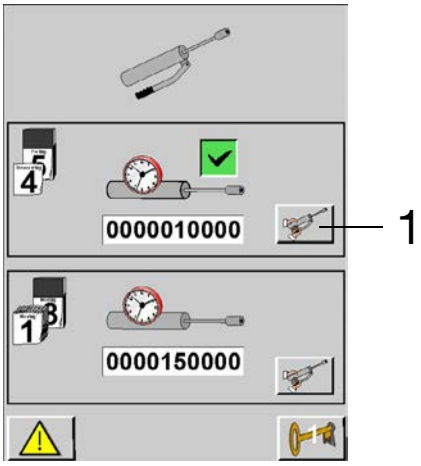


Fig. 5-32

- Press the icon selection button (1).

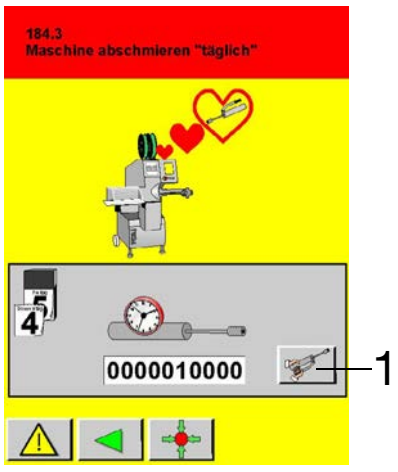


Fig. 5-33 184.3 Lubricate machine “daily”

- Press button (1).

The automatic lubrication process is triggered.
If necessary, repeat the bleeding process.

5.13 Inserting the film

The film roll is placed onto a tension core with built-in bellows to clamp the roll. The air supply/release valve is on the front side of the tension core (Fig. 5-34).

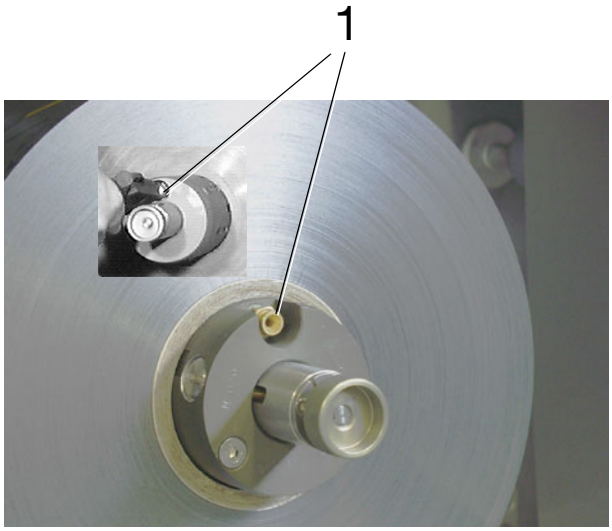


Fig. 5-34 1 Air supply/release valve

WARNING: Product contamination

If the Teflon strip detaches from the seal pipe, the adhesive from the strip could contaminate the product.

- Check the condition and wear of the Teflon strips upon every production start, every film change and every change of operator - and possibly more often than that if you are using highly abrasive films.
- If any of the adhesive strips have detached edges or damaged surfaces, they must be replaced immediately.
- Any Teflon strips that need replacing, as well as their adhesive, must be completely removed from the seal pipe, leaving no residue. The entire seal pipe must be completely free of adhesive residue.

1.) Check the condition of the Teflon strips on the seal pipe. Replace the Teflon strips if necessary.
2.) Operate the air release valve with the compressed air gun until the tension core has released enough air for the film roll to be pushed on.
3.) Swing the stop bracket (1, Fig. 5-35) towards the tension core (to roughly align the film roll with the middle of the inlet).

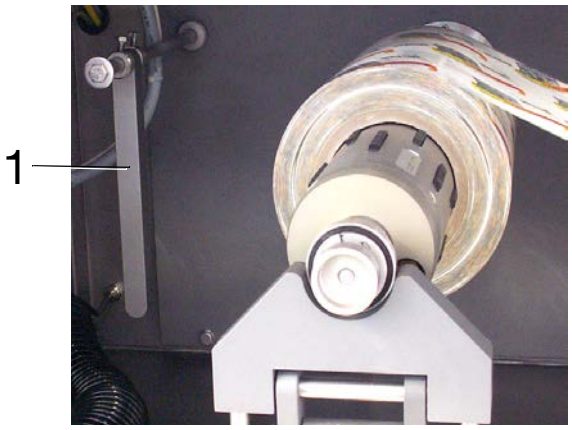


Fig. 5-35 1 Stop bracket

4.) Push the new film roll onto the tension core until it reaches the stop bracket (1, Fig. 5-35).

CAUTION: Injuries through bursting bellows in tension core

The bellows can burst if compressed air is supplied without a film roll sitting on the tension core.

- Only supply compressed air to the air release valve if a film roll is sitting on the tension core.

5.) Using the compressed air gun, feed compressed air in at the air release valve until enough pressure builds up between the tension core and the film roll to hold the film roll in place.
6.) Swing the stop bracket (1, Fig. 5-35) back again.
7.) Push the film dancer (1, Fig. 5-36) up and push the latch (2, Fig. 5-37) to the right.

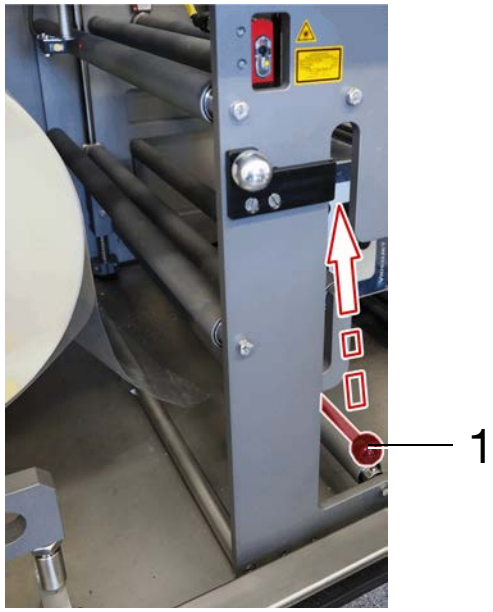


Fig. 5-36 1 Film dancer

Fig. 5-37 1 Film dancer
2 Latch

8.) Press the film pre-drive button (see Fig. 5-38). The pre-drive moves up. The button is no longer lit up green around the edge.

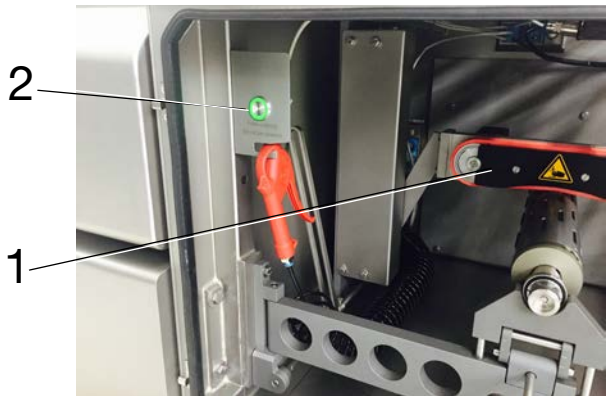


Fig. 5-38 Film pre-drive up/down (here: down)
1 Film pre-drive
2 Film pre-drive button

CAUTION: Hot sealing station

The sealing bar and sealing belt get very hot.
You could burn yourself if you touch the sealing bar or sealing belt.

- Do not touch the sealing station.

CAUTION: Risk of crushing at the set-up cylinder

When the toggle switch for the sealing station is flipped up, there is a risk of crushing between the fixed and the moving parts on the set-up cylinder.

- Do not reach into the area of movement of the set-up cylinder when the toggle switch for the sealing station is activated!

9.) When the sealing station is in the working position, flip the toggle switch for the sealing station up, making sure you do not reach into the area of movement of the set-up cylinder or touch the sealing station!

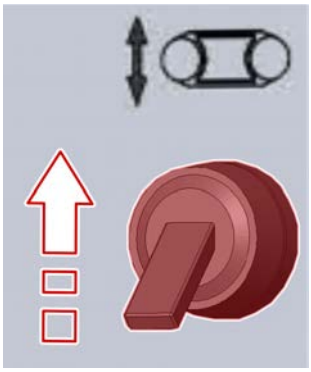


Fig. 5-39 Flipping the toggle switch for the sealing station up

10.) Guide the film over the guide pulleys as shown in Fig. 5-40.

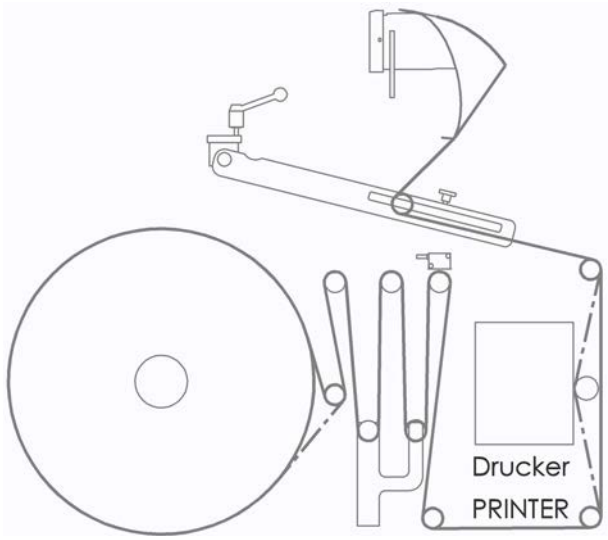


Fig. 5-40 Film feed

- The unwinding direction from the film roll can be altered, if necessary, in accordance with the dashed line (Fig. 5-40). This may be necessary when using printed film that has been coiled with the print facing in.

11.) Slide the film upwards behind the guide tube on the sealing unit.

12.) To make it easier to insert the film into the forming shoulder, use a pair of scissors to cut a "nose" (approx. 30cm°) into the beginning of the film.

Fig. 5-41 Beginning of the film with a "nose"

13.) Push the film "nose" first into the insertion opening in the forming shoulder (1, Fig. 5-42).

14.) Pull the film out of the forming shoulder, over the top of the seal pipe and over the brake, and hold it there.

Fig. 5-42 1 Forming shoulder

CAUTION: Risk of crushing

There is a risk of crushing between the film drive and the seal pipe.

- Never reach in between the film drive and the seal pipe!

15.) Flip the toggle switch for the film drive down, making sure you do not reach in between the film drive and the seal pipe.

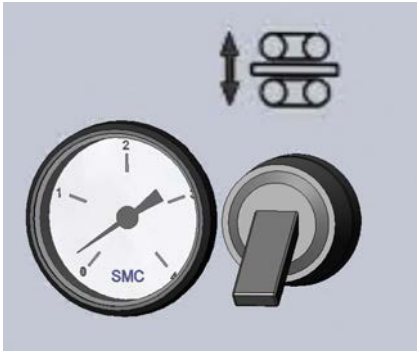


Fig. 5-43 Toggle switch for the film drive

16.) Press the film pre-drive button (see Fig. 5-38). The pre-drive moves down. The button lights up green around the edge.

17.) Unlatch the film dancer (see Fig. 5-37)

5.13.1 Producing the film tube

- Swing out the clipping machine head.

Caution: Hot sealing bar and hot sealing belt

The sealing bar and sealing belt get very hot.
You could burn yourself if you touch the sealing bar or sealing belt.

Allow the sealing bar and sealing belt to cool down before you start work.

- Move the sealing bar up by pressing the toggle switch (see section 3.5.1).
- Pull the film to the end of the sealing belt (the film edges must overlap).
- Lower the sealing belt by pressing the toggle switch (see section 3.5.1).
- Check that the lever on the heating bar is to the left (towards the green dot).

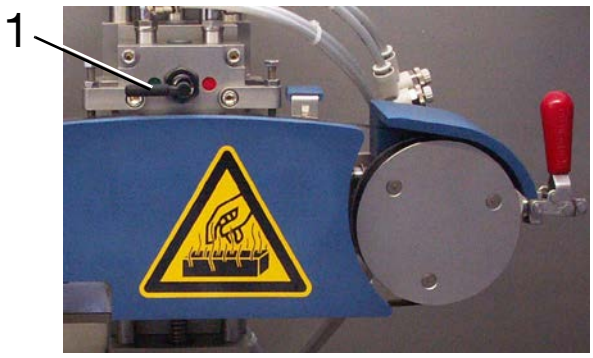


Fig. 5-44 1 Lever

Caution: Risk of crushing

There is a risk of crushing:
- between the sealing bar and the seal pipe,
- between the seal pipe and the film conveyor (optional).

Do not reach in between the sealing bar and the seal pipe!
Do not reach in between the seal pipe and the film conveyor (optional)!

- Trigger the sealing process by hand.
- Check the sealing seam on the completed tubing piece. Correct the settings if necessary.
- Film tubes must be produced by hand until the film tube overhangs the closing point in the clip module and the first clip can be placed.

Caution: Risk of crushing when swinging the clipping machine head in

There are several places on the clipping machine head where fingers could be crushed when the clip machine head is swung in.

- Work carefully.
- Only one person at a time may work in the area of the clipping machine head.

- Swing the clipping machine head in.
- Trigger the first clipping process by hand.

5.14 Replacing the sealing belt

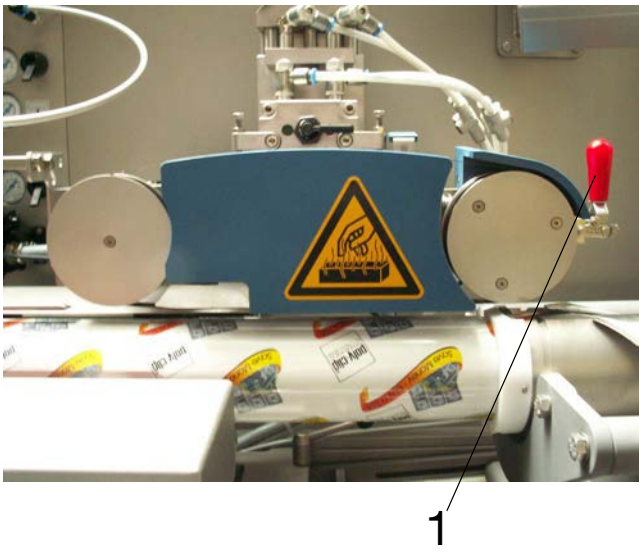


Fig. 5-45 1 Sealing belt clamping lever

Caution: Hot sealing bar and hot sealing belt

The sealing bar and sealing belt get very hot.
You could burn yourself if you touch the sealing bar or sealing belt.
Allow the sealing bar and sealing belt to cool down before you start work.

- To release the sealing belt, move the clamping lever down.
- Remove the defective sealing belt.
- Place the new sealing belt over the drive rollers so that it sits in the recess of the rollers.
- Move the clamping lever up.
- Switch the heating on so that the sealing belt is transported slowly

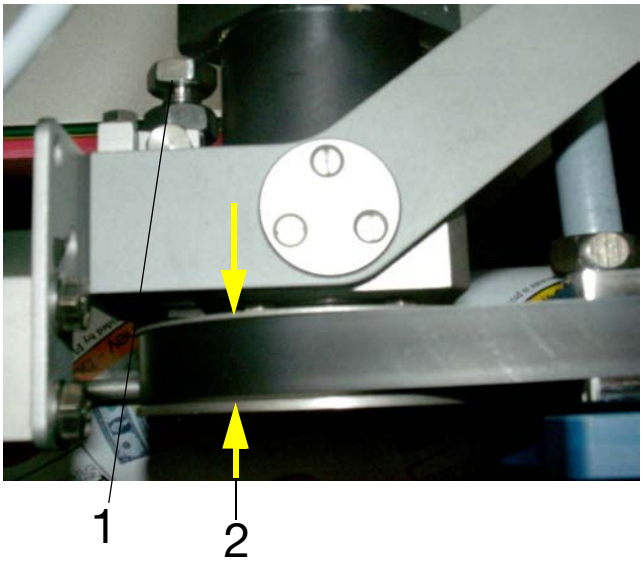


Fig. 5-46 1 Adjusting screw
2 Set the sealing belt central to the roller

- Loosen the lock nut of the adjusting screw and set the adjusting screw such that the sealing belt is central to the left roller.

The sealing belt should not make any noise when running!

- Tighten the lock nut to fix the adjusting screw setting.

5.15 Splice detection

The film is scanned during machine operation using a contrast sensor to detect splices.
To remove the splice, the machine is automatically stopped and remains in “Automatic Off” mode.

5.15.1 Reading process

The contrast sensor must be set to detect splices. Details can be found in the manufacturer’s instructions.

7 Product Testing

7.1 Note

The activities described in this chapter must only be carried out by trained and expert members of staff. The Safety Information chapter 1 and the local accident prevention regulations in force must be observed.

7.2 Preparing the Product Test

Before starting with the product test the clip machine head must be swivelled open.

7.3 Product Testing Before Production

Caution: hot seal bar and hot seal band

Seal bar and seal band may be very hot. You may incur burns if you touch the seal bar and/or seal band.
Do not touch seal bar and seal band!

Caution: Risk of contusion

There is a risk of contusion:
- between seal bar and seal pipe,
- between seal pipe and film transport (option).

Never reach between the seal bar and the seal pipe!
Never reach between seal pipe and film transport (option)!

7.3.1 Inspect the film travel

The film must not deviate to the left or right.
If required, re-adjust the film roll.

The correct travel of the film can be adjusted at the film roll (Fig. 7-1).

• Note

Adjustment of the film roll is carried out by rotating the tensioning core shaft by means of a socket wrench and must only be carried out during standstill of the machine.

Fig. 7-1

The foil must overlap when it is discharged from the moulding shoulder.
The upper film edge must be guided in the flat slot of the moulding shoulder.

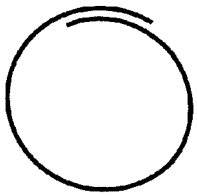


Fig. 7-2

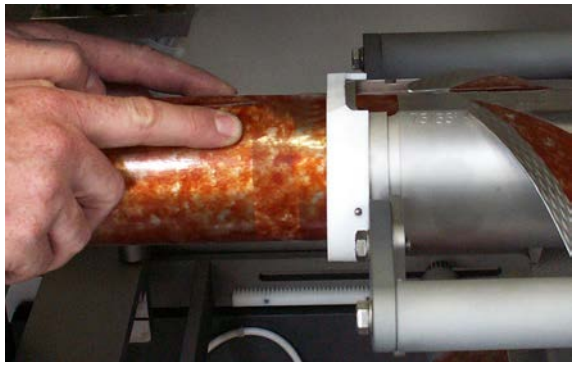


Fig. 7-3

7.3.2 Inspect the sealing seam

Test the degree of sealing seam strength by means of a tensile test:
- For that purpose place both index fingers into the hose and pull outwards (Fig. 7-4).
- If the sealing seam can be torn apart a correction of the sealing parameters must be carried out.

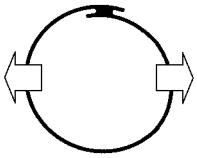


Fig. 7-4

Inspect the visual impression of the sealing seam:
- The film must be neatly and permanently sealed but not melted.
- No holes must be present in the film.

If required, a correction of the sealing parameters must be carried out.

7.4 After Completed Product Testing

Caution: Risk of contusion when closing the clip machine head

There are numerous points of contusion for your fingers around the clip machine head, particularly when the clip machine head is closed.
- Carry out work with care.
- Carry out work in the area of the clip machine head as one-man operation.

1.) Close clip machine head.
2.) Inspect the protective devices for completeness, correct assembly and correct function.
3.) Remove all tools from the machine area.

8 Troubleshooting

8.1 Note

Maintenance and repair work may only be carried out by trained and expert persons.
Work on electrical equipment of the machine must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.

As a general principle, all work must only be carried out **with the machine stopped**.
The chapter Safety Information in Chapter 1 as well as any applicable local regulations for accident prevention must be complied with during such work.

8.1.1 Before starting work

- Return machine to start-up condition.
- Press the red Emergency-Stop pushbutton.
- Disconnect the mains power supply.
- Pull out clip machine / filling machine control cable.
- Swivel the lever at the heating bar to the right (Position red dot).

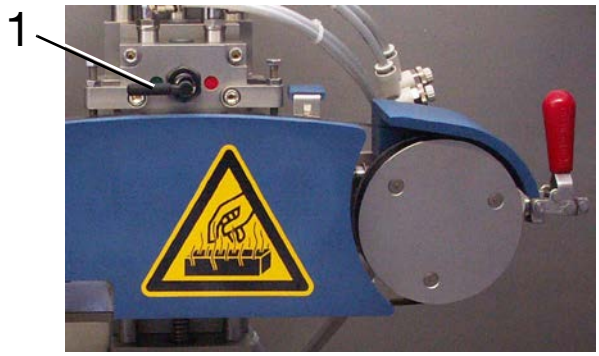


Fig. 8-1 1 Lever

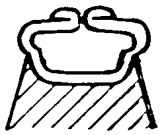
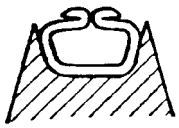
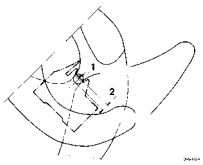
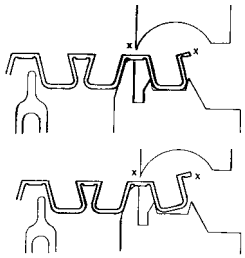
- Disconnect the main compressed air supply.
- It must be confirmed that the air pressure has been released by operating an air operated device on the machine. For that purpose open the release valve at the supply connection, for example.

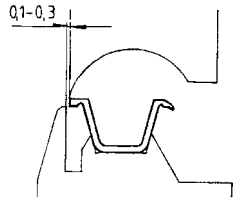
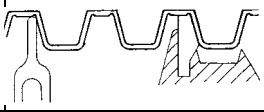
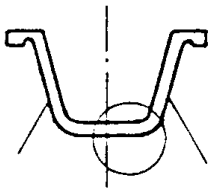
8.1.2 After Completed Work

The protective devices must be inspected for completeness, correct assembly and correct function. See section 1.5.

8.2 List of Possible Faults and Alarms

	Fault/Alarm	Cause / Fault	Remedial Measure
1	Film rips	a) seal point b) film edge damaged	a) re-insert film b) inspect film roll for edge damage, replace if required
2	Seal band does not lower into sealing position	a) lack of compressed air b) air pressure too low	a) open compressed air supply b) change compressed air setting
3	TSCA stops operation	a) film ripped b) film used up c) pressure set too low d) clip module has stopped the machine e) automatic clip monitoring stopped the machine f) protective device is open	a) remedy the cause and feed new film b) insert a new film roll c) increase air pressure setting d) read error message and remedy the cause e) insert new clip reel f) check cause and close protective device
4	No trouble-free film travel	a) film is stuck in the molding shoulder	a) remedy cause
5	Missing clip	a) clip web stretched b) clip does not sit correctly in die c) clips in the die d) die/punch damaged	a) reduce brake force on clip reel b) check clip transport c) remove clips d) replace die/punch
6	Clip too loose	closing pressure too low	increase closing pressure
7	Clip too tight	closing pressure too high	decrease closing pressure
8	Clip closed unevenly	a) die plate damaged b) punch damaged c) cutting sequence incorrectly set	a) replace die b) replace punch c) change cutting sequence setting
9	Film damaged	a) closing pressure set incorrectly b) cutter comes too early c) casing brake is set too tight d) separator device damaged	a) correct setting b) change cutting time setting c) change casing brake force d) polish damaged areas or replace separator device
10	Cutter does not cut	a) cutter is blunt b) cutter comes too late c) cutter is too short	a) sharpen / replace cutter b) correct cutter setting c) replace cutter
11	The machine does not work	a) the cutout circuit is disconnected	a) check safety equipment
12	Fault on loop feeder	a) incorrect loop transport setting	a) correct setting
13	ideal shape	- symmetrical clip - flush and uniformly long bar, burr-free all around	none

	Fault/Alarm	Cause / Fault	Remedial Measure
14	Clip legs are bent on the left and/or on the right 	the die is too small for the clip	change die
15	The clip has the right size, yet is not tight enough 	the die is too big for the clip	change die
16	Clip has unequally long clip legs	cutting play between punch and die is incorrect	correct cutting play
17	Clip is not tight around the film	a) the clip is too big b) the closing pressure is too low	a) select the correct clip size b) correct the closing pressure
18	Film protrudes from the clip 	a) the clip is too small b) separator opening (2) is too big c) separator poorly pulls the film over the die centre (1) d) the cutting knife cuts too early	a) select a larger clip size b) re-adjust the separator opening smaller c) re-adjust the link rods such that the separator hole is moved over the die by 2/3 d) re-adjust cutting time of casing cutting knife
19	Clip is deformed in the die 	poor adjustment of the clips transport device	move back the feed chain at the chain wheel of clip transport by one or two teeth

	Fault/Alarm	Cause / Fault	Remedial Measure
20	Burrs on the cutting edge 	a) the cutting play is too large b) the cutting edges at the punch are damaged	a) set cutting play between 0.1 and 0.3 mm (depending on clip size) b) replace punch
21	Loop hits clip leg in forward transport 	clip does not sit correctly in the die	move back the feed chain at the chain wheel of clip transport by one or two teeth
22	Clip is not shaped properly, film is damaged 	separator opening is misplaced laterally to the die centre	centrally align the die centre in relation to the separator opening

9 Cleaning and Maintenance

9.1 General Information

The machine must be cleaned before every use, at the latest.

• Note

Cleaning and maintenance work must be carried out by instructed operators who are specially authorised for carrying out such work at the machine.
As a general principle, all cleaning and maintenance work must only be carried out with the machine stopped.
The operating instructions, in particular the Safety Information chapter and the generally applicable accident prevention regulations must be observed.

9.1.1 Working with process materials

Observe the manufacturers information on safety and quantities and general regulations in force when working with oil, grease, cleaning agents and other chemical substances.'

Do not use cleaning and care agents that contain chlorine and do not use cooking oil!

We recommend using the materials for cleaning and care as stated in the text and in the selection lists (appendix), for example.

9.1.2 Disposal of process materials

Residues from oil, grease, cleaning agents and other chemical substances must be collected in accordance with the legal provisions for recycling or disposal.
Local authority regulations pertaining to waste water disposal apply.

9.2 Before Cleaning and Care Work

• Note

Before carrying out cleaning and maintenance work the machine must be taken out of operation.
As a general principle, all cleaning and maintenance work must only be carried out with the machine stopped.
Before beginning of the work, the air pressure at the machine must be released.

9.2.1 Taking machine out of operation

- Return machine to start-up condition.
- Press the red Emergency-Stop pushbutton.
- Disconnect the mains power supply.
- Disconnect the control cable between the clip machine and the dosage unit and/or between the clip machine and the filling unit.
- With TSCA 120 and TSCA 160 swivel the lever at the heating bar to the right (position red dot).

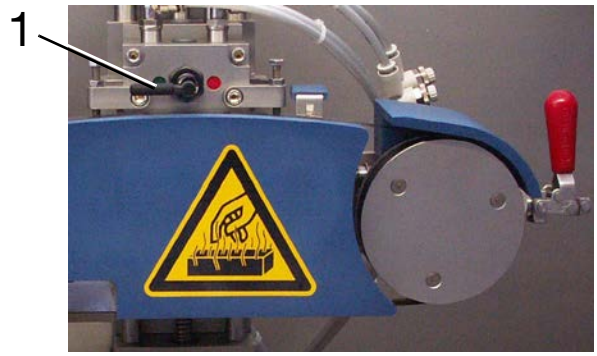


Fig. 9-1 1 Lever

- Disconnect the main compressed air supply.
- It must be confirmed that the air pressure has been released by operating an air operated device.

9.2.2 Preparing the machine for cleaning

- Open the product discharge unit.
- Disassemble the conveyor belt (option) for cleaning.
- Fold the protective lid at the separator area up.
- Open clip machine head.
- Disassemble stuffing horn and internal brake or casing brake for cleaning.

- With TSCA 120 and TSCA 160 swivel the lid (3) at the splash guard upwards.

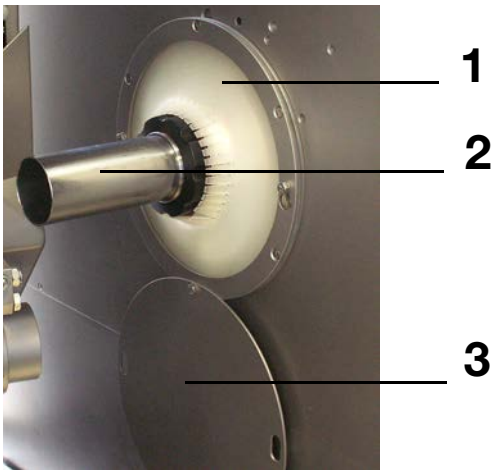


Fig. 9-2

1 Splash guard
2 Stuffing horn
3 Lid

- Close the front doors.
- Close all switch cabinets at the machine.
- Cover electrical parts for protection from humidity.

9.3 Cleaning Process

Danger: Risk of contusion / risk of electric shock for cleaning with the machine in operation

When carrying out cleaning work at the operating machine you risk severe injuries through contusion and/or electric shock.

The machine must be taken out of operation before cleaning, see section 9.2.1.

Warning: Risk with incorrect handling of cleaning agents

In case of improper handling of cleaning agents you will endanger your health.

Read and comply with the instruction of the manufacturers of cleaning agents.

Danger: Damage to the eyes through hot water and dirt particles

When cleaning with a steam jet hot water under pressure and dirt particles may cause severe injury to the eyes.

- Please consider the operating instructions of the steam jet!
- Wear goggles during cleaning with a steam jet.

Attention: Damage to electrical parts

Electrical parts may be damaged when they get in contact with water.

- Always cover electrical parts before cleaning.
- When cleaning with a steam jet unit never expose electrical parts to the direct steam jet.

Attention: Difficult cleaning process

When the cleaning water is warmer than 55 °C the proteins will solidify and the cleaning process becomes more difficult.

The cleaning water must have a maximum temperature of 55 °C.

1.) Remove the coarse dirt from the machine and from the parts disassembled for cleaning.

2.) Carefully pre-rinse with approx. 55°C warm water.

3.) Inspect the machine an all parts disassembled for cleaning for visual cleanliness, in particular:

- Separator area
- Conveyor belt, if used, along its entire length (rotate manually)
- Stuffing horn and internal brake or casing brake

4.) Systematically lather the machine from bottom to top. Use for example:

- P3-steril solution
- P3-topax 12 solution, application time 15 minutes

5.) Systematically rinse the machine and all parts disassembled for cleaning after lathering (after the application time) from top to bottom using max. 55° C warm water.

6.) Inspect the machine an all parts disassembled for cleaning for visual cleanliness, in particular:

- Separator area
- Conveyor belt, if used, along its entire length (rotate manually)
- Stuffing horn and internal brake or casing brake

7.) Disinfect the machine and the components disassembled for cleaning purposes. Use for example:

- P3-alcodes solution
-* P3-topax 91 solution
-* P3-topax 99 solution

8.) After disinfection, rinse the machine and the components disassembled for cleaning purposes with drinking water.

9.4 After Cleaning Work

1.) Blow dry the machine and all components disassembled for cleaning purposes using compressed air.

2.) Apply a protective layer to the machine and special parts. However, do not use cooking oil or cooking fats!
Examples for care work:
- Apply P3 protective oil to the separator, particularly the polished parts.
- Spray all required machine parts with machine lubrication oil.
- Grease all moving parts with lubrication grease suitable for food processing.
- Before longer idle periods, for example at weekends, the machine must be sprayed with machine lubrication oil.

3.) Re-assemble stuffing horn and internal brake or casing brake.

Caution: Risk of contusion when closing the clip machine head

There are numerous points of contusion for your fingers around the clip machine head, particularly when the clip machine head is closed.
- Carry out work with care.
- Carry out work in the area of the clip machine head as one-man operation.

4.) Close clip machine head.

5.) Close the protective lid.

6.) Re-assemble the conveyor belt (option).

Caution: Risk of contusion when closing the product outlet

There are numerous points of contusion for your fingers around the product outlet, particularly when the outlet is closed.
- Carry out work with care.
- Carry out work in the area of the product discharge unit as one-man operation.

7.) Close the product discharge unit.

8.) Inspect the protective devices for completeness, correct assembly and correct function.

9.) Remove all cleaning agents and tools from the machine area.

9.5 Control, Inspection and Maintenance

9.5.1 Control work:

- According to inspection plan, if available.

9.5.2 Inspection and maintenance work

• Note

Inspection and maintenance work may only be carried out by trained persons. Work on electrical equipment of the machine must only be carried out by a qualified electrician or by a trained person under supervision of a qualified electrician, in accordance with the electrical regulations.
A qualified electrician is a person who is able to assess the work allocated to them and to identify potential hazards on the basis of their electrotechnical qualification, their knowledge and experience and knowledge of the relevant standards and regulations.
For inspection and maintenance intervals, see manual II (Maintenance and Spare Parts).

10.1 Technical Data

• Note

The data listed here are guide values. The data on the machine label are the authoritative values.

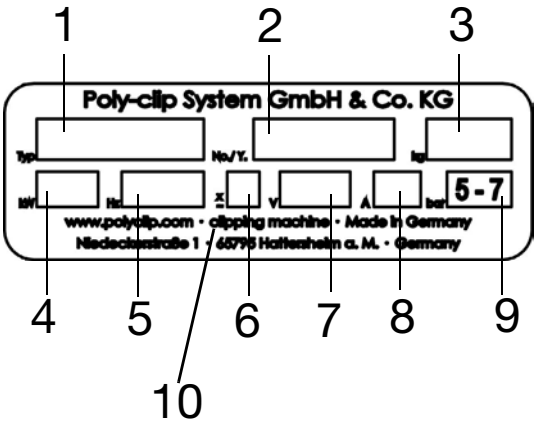


Bild 10.1-1 Label

1 Machine type
2 Serial number / year of construction
3 Weight [kg]
4 Power consumption [kW]
5 Frequency range [Hz]
6 Number of phases
7 Voltage range [V]
8 Fuse [A]
9 Compressed air range [bar]
10 Machine type

10.1.1 Dimensions and weight

Width:	2350 mm
Depth:	1320 - 3215 mm
Height:	1900 - 2100 mm
Weight without packaging:	1.375 kg

10.1.2 Pneumatic connection

Operational pressure:	0,5 - 0,7 MPa (5 - 7 bar)
Compressed air consumption:	2,5 standard litre / per stroke

The compressed air used must be pre-filtered and free from condensation water.

10.1.3 Electrical connection

Connection voltage:	200-230 VAC, 380-460 VAC, 50/60Hz
Power consumption:	6,8 kW
Fuse rating:	16 A
Control cable:	TSCA/ Filling unit

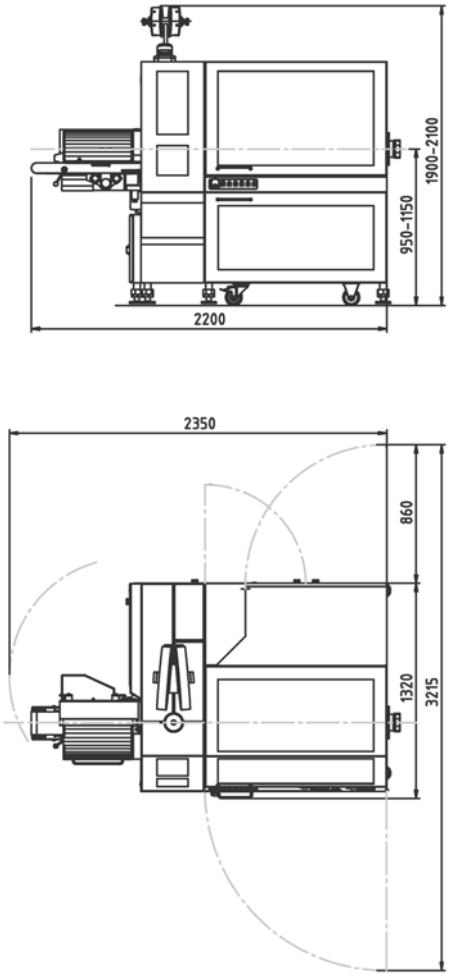


Fig. 10.1-2

10.1.4 Noise Level

• 77 dB(A)

10.1.5 Film length, film width and film hose diameter

10.1.5.1 Dimensions of the film roll

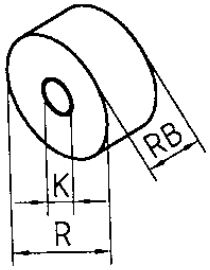


Fig. 10.1-3

K	Core diameter	76 mm (3")
R	Roll diameter, maximum	450 mm
RB	Roll width, maximum	529 mm
RB	Roll width, minimum	63 mm

K	Core diameter	76 mm (3")
R	Roll diameter	450 mm
Film length with film thickness 85 µm		1700 m
Film length with film thickness 65 µm		2300 m
Film length with film thickness 45 µm		3300 m

10.1.5.2 Flat film width

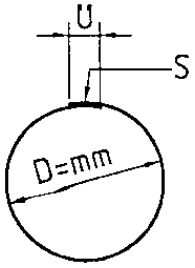


Fig. 10.1-4 S = sealing seam
D = diameter of film hose (calibre)
Ü = overlap

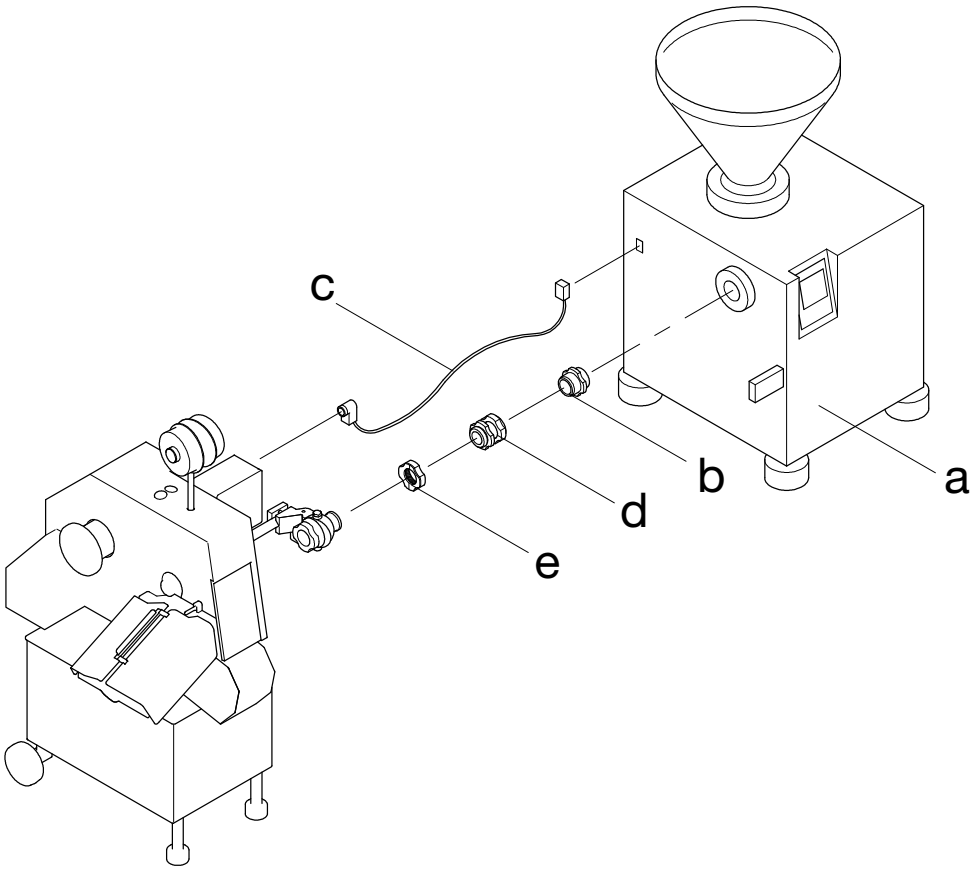
D	**Ü**
18 - 38	6 mm
39 - 70	8 mm
71 - 160	10 mm

Fig. 10.1-5

Calculation of flat film width **FB** :
D x b + Ü = **FB**
(**b = 3,14)**
Example: Diameter 40 x 3,14 + 8 = 133,6 mm **FB** (rounded 134)

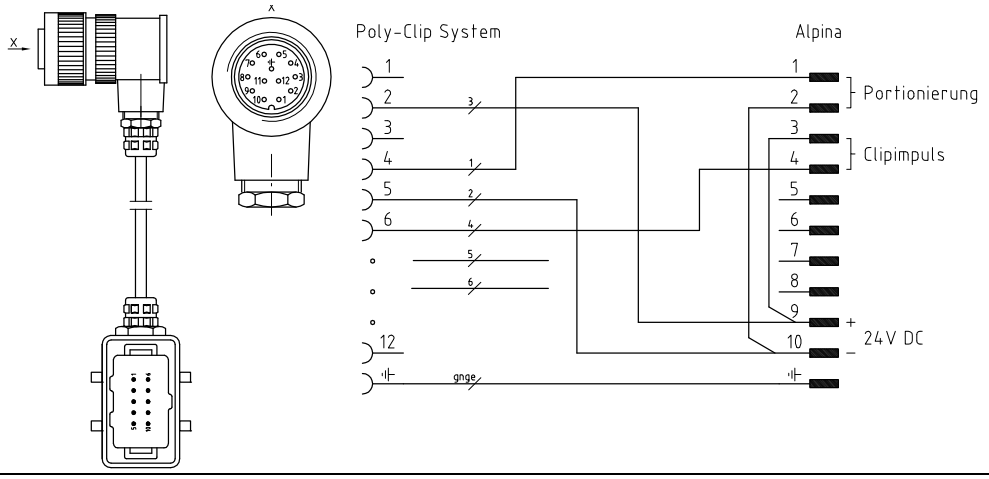
Technical Data

1.6 Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer

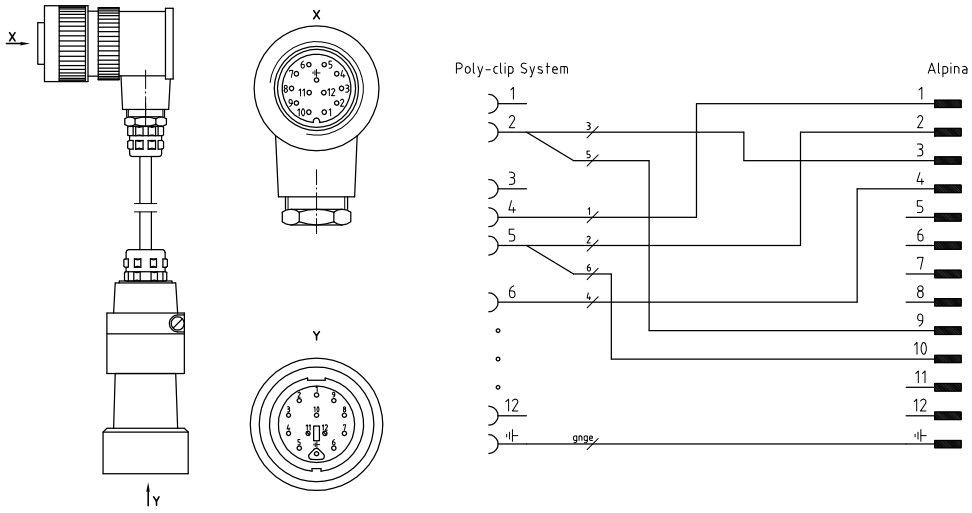


1.6.1 Alpina

a)	Alpina KF990, KF1100, KF1070 / 520 10-polig	**b)** 48299	Rd80 x 1/4 M85 x 4
c)	**146520**		

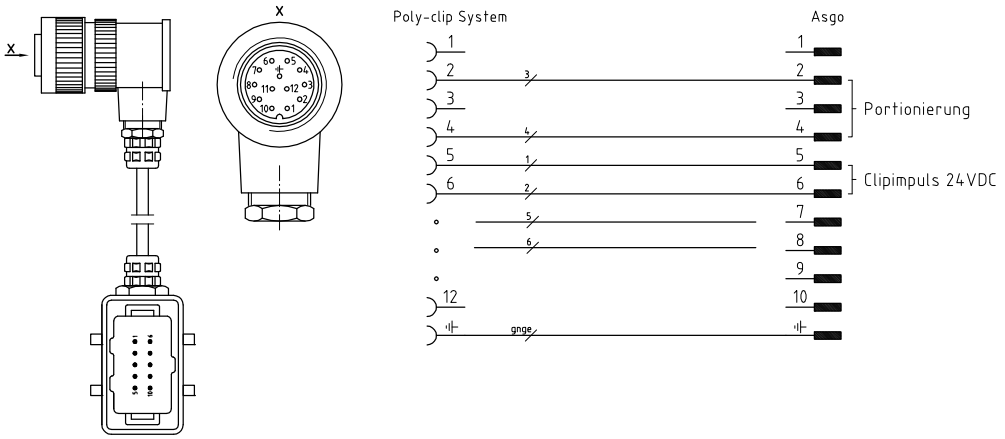


a)	Alpina KF450, KF650, KF1040, KF1140 12-polig	b) 48299	Rd80 x 1/4 M85 x 4
c)	**146521**		

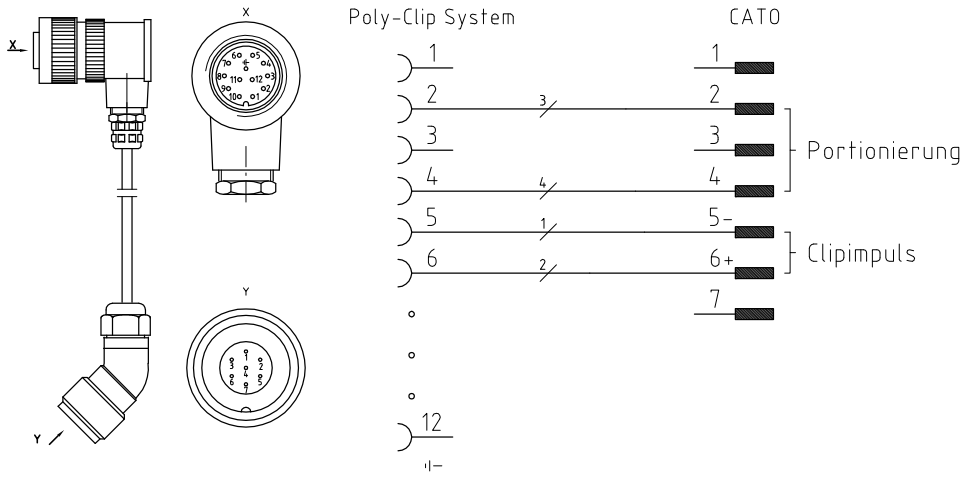


1.6.2 Asgo

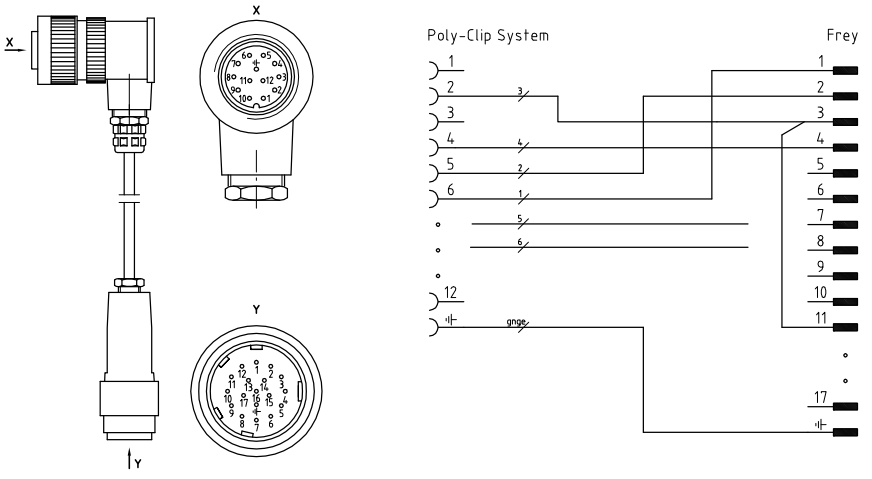
a)	Asgo	b) 76963	Rd80 x 1/4 M81 x 3
c)	**146516**		



1.6.3 Cato

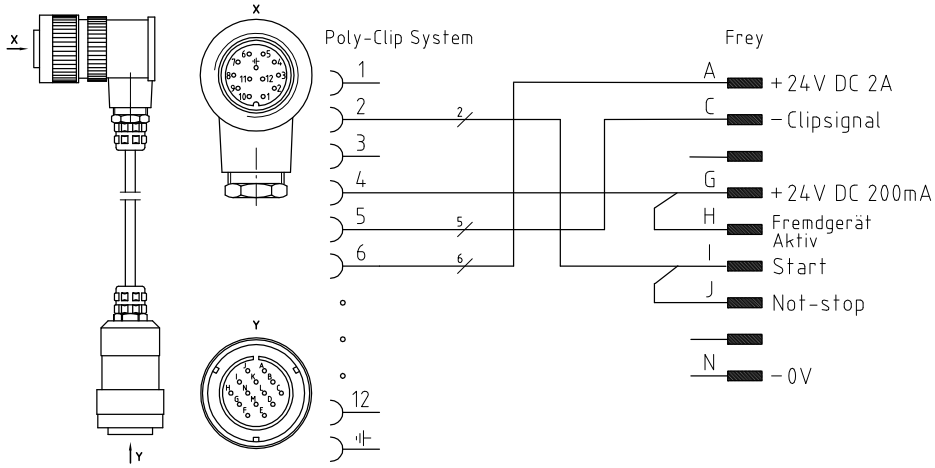
a)	Cato ECVE	**b)** 62605	Rd80 x 1/4 64 x 1/8
c)	**146523** 		

1.6.4 Frey

a)	Frey Konti C120, C200, E120, E200, S200 **gültig bis / effective until 2001**	**b)** 55785	Rd80 x 1/4 Rd80 x 1/4
	Frey Konti C120, C200, E120, E200, S200 **gültig ab / effective from 2002**	**b)** 143820	Rd80 x 1/4 Rd80 x 1/4
a)	Frey Konti 50, 100, 200, Jobber, Kompakt 2 30/40 Liter **gültig bis / effective until 2002**	**b)** 55785	Rd80 x 1/4 Rd80 x 1/4
c)	**146508** 		

a)	Frey Konti 50, 100, 200, Jobber, Kompakt 2 30/40 Liter, C50, C55, E80	**b)** 55785	Rd80 x 1/4 Rd80 x 1/4
a)	Frey Konti T250, T260, T266, F220, F222	**b)** 143820	Rd80 x 1/4 Rd80 x 1/4
a)	Frey A50	**b)** 143821	Rd80 x 1/4 Rd70 x 1/6

c) **146530**



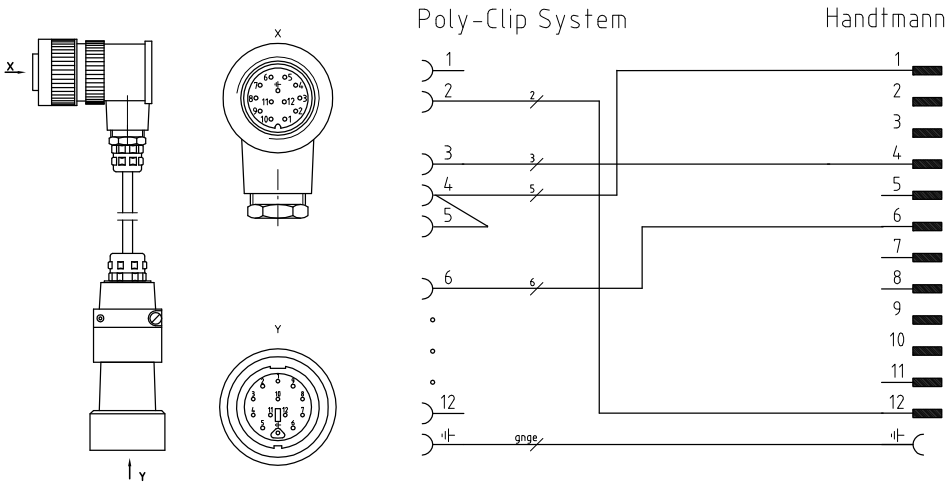
1.6.5 Germo

a)	Germo EP 130	**b)** 76963	Rd80 x 1/4 M81x3

1.6.6 Handtmann

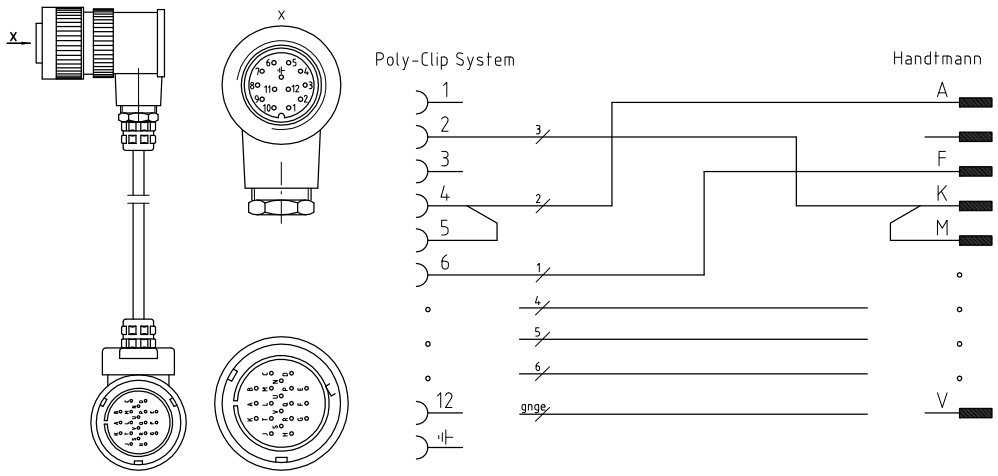
a)	Handtmann VF10, 12, 16, 18, 20, PA30-4	**b)** 45264	Rd80 x 1/4 Rd80 x 1/4

c) **146532**



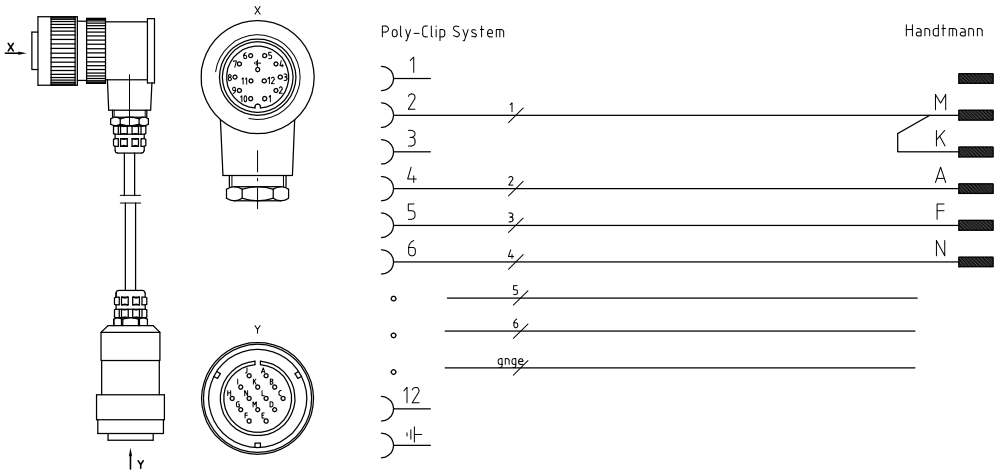
a)	Handtmann VF50, 80, 100, 200, 300, PA30-7	b) 45264	Rd80 x 1/4 Rd80 x 1/4

c) **146507**



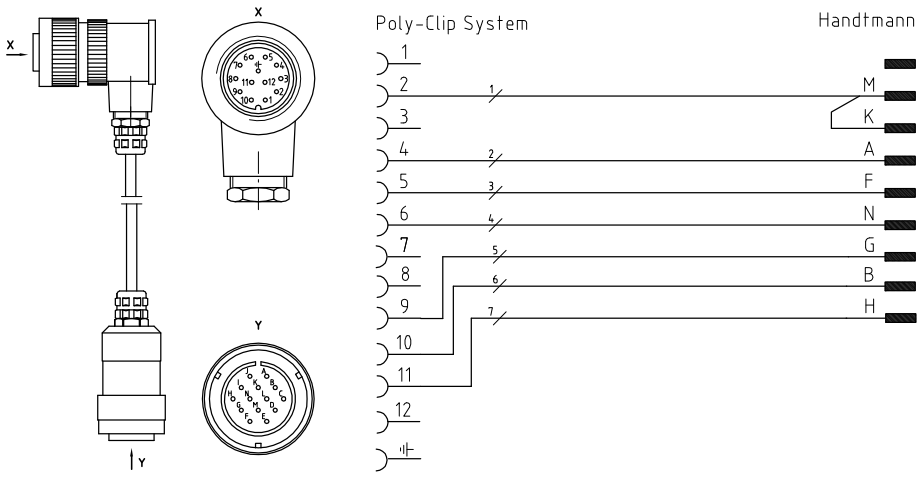
a)	Handtmann 600er Serie	b) 45264	Rd80 x 1/4 Rd80 x 1/4

c) **146509**



a)	Handtmann VF900	b) 45264	Rd80 x 1/4	Rd80 x 1/4

c) **146580**



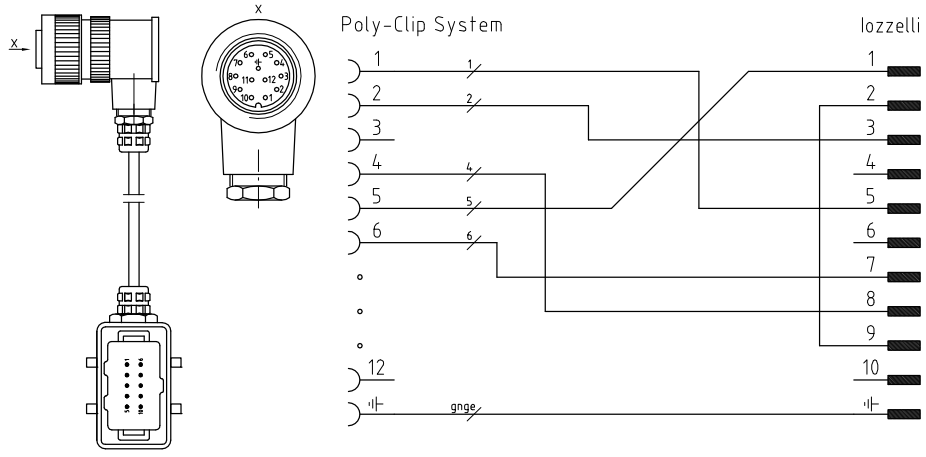
1.6.7Ideal

a)	Ideal, U-159	b) 105201	Rd80 x 1/4	M76x4

1.6.8 Iozzelli

a)	Iozzelli	b) 104952	Rd80 x 1/4	M63x3

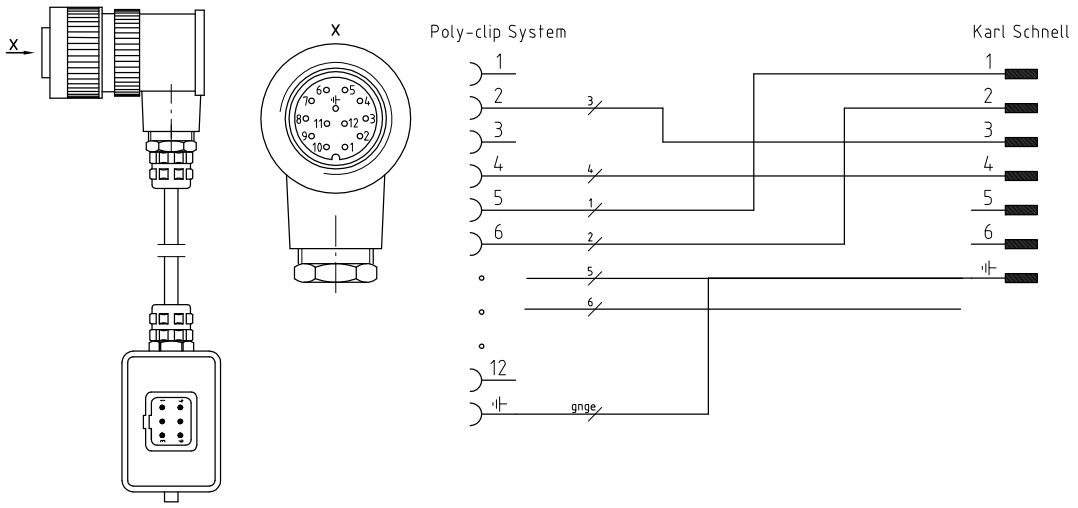
c) **146514**



1.6.9 Karl Schnell

a)	KS P8-580,581, 582, P9-590, P10-570, 571, 572	**b)** 45262	Rd80 x 1/4 Rd105 x 1/8
a)	KS P6 bis P8-583, P9-593, P10-573, P10-575, P11-576SE	**b)** 49742	Rd80 x 1/4 Tr91 x 1/8
a)	KS P8-583, P9-593, P10-573, P10-573SE pneum. Spannung	**b)** 49741	Rd80 x 1/4 D=73

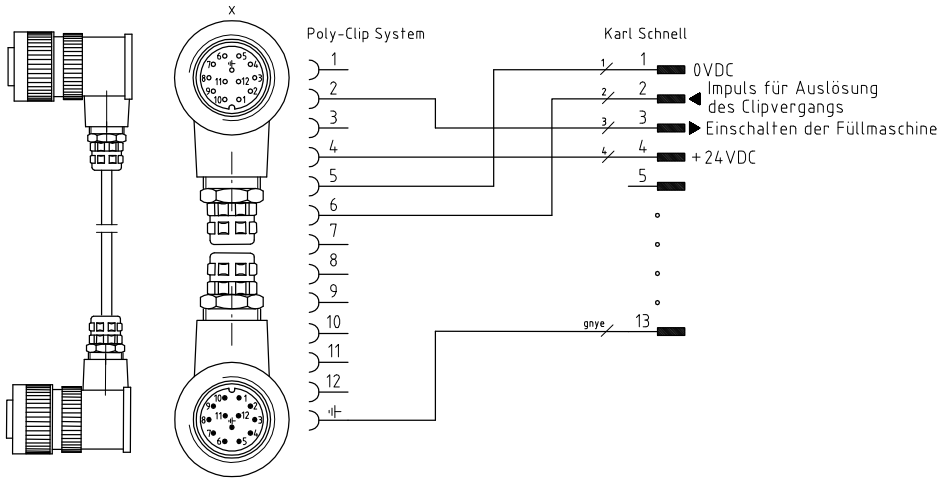
c) **146515**



a)	KS P7 - P11	**b)**	Rd80 x 1/4 Rd130 x 1/4

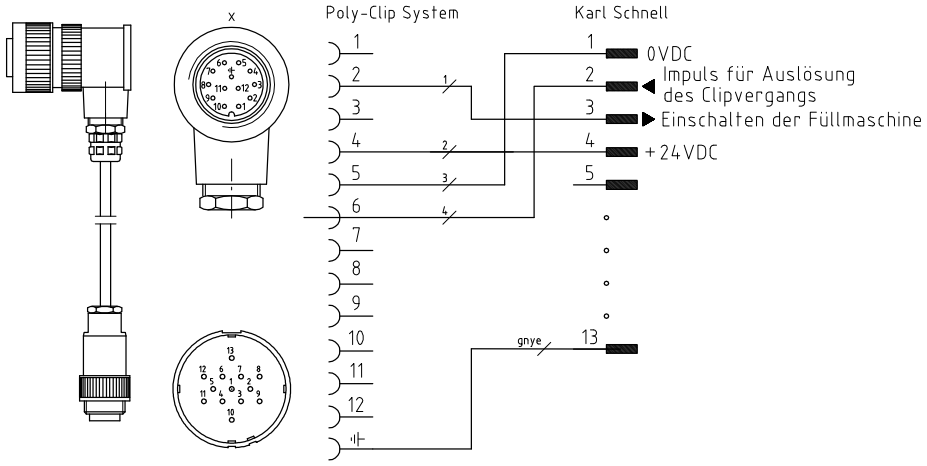
gültig bis Masch.-Nr. / effective until mach.-no. 21799

c) **146581**



Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer

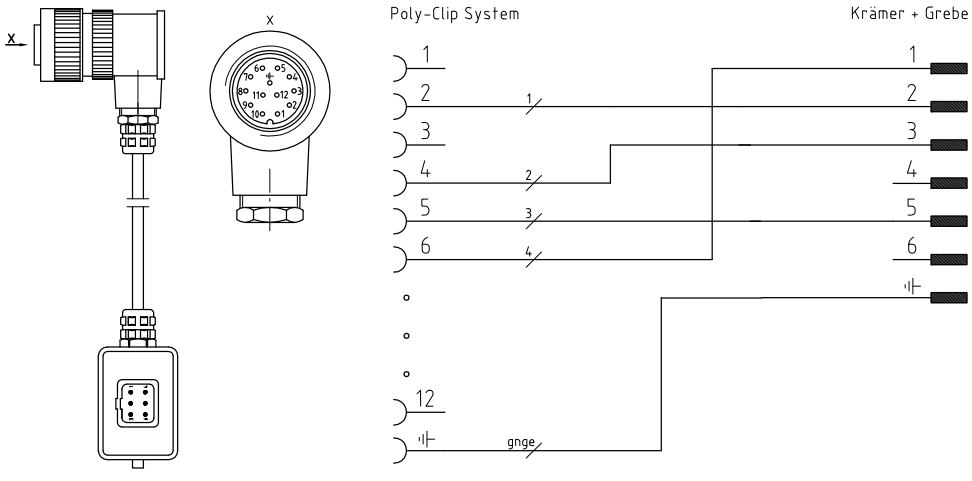
a)	KS P7 - P11	b)	Rd80 x 1/4 Rd130 x 1/4
	gültig ab Masch.-Nr. / effective from mach.-no. 21800		
c)	**146575**		



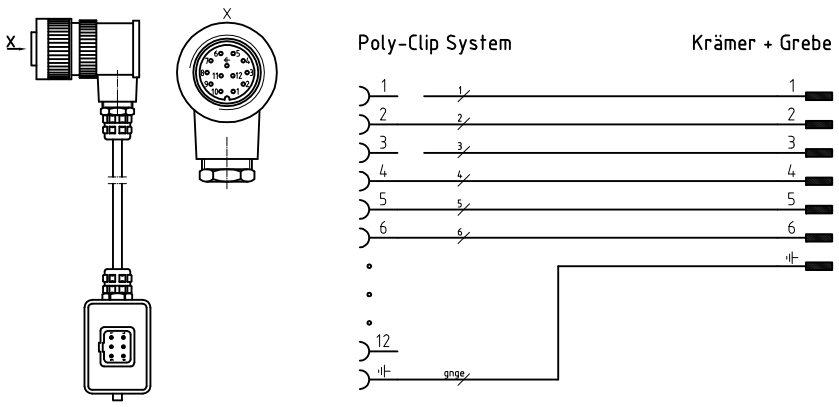
a)	KS P11 SE 597	b)	Rd80 x 1/4 Rd130 x 1/4
c)	**146581**		

1.6.10 Kraemer & Grebe

a)	Kraemer & Grebe	b) 45267	Rd80 x 1/4 M90x4
c)	**146533**		

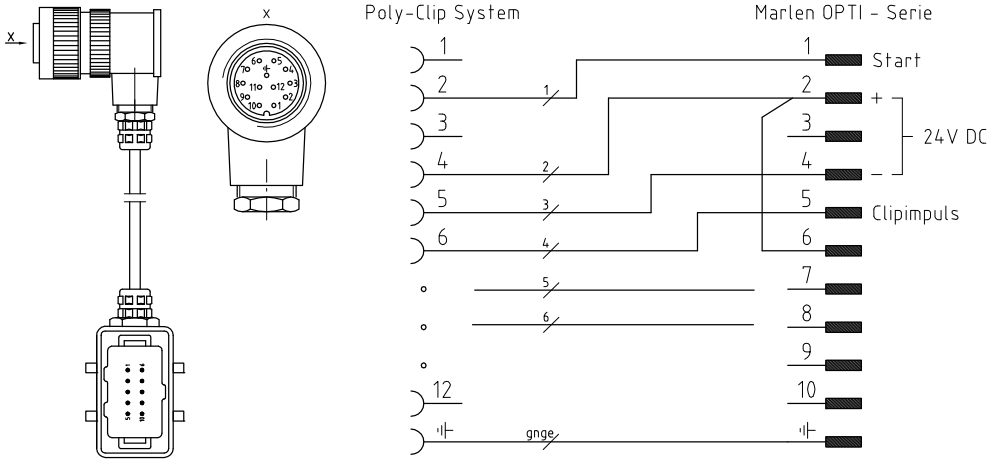


a)	Kraemer & Grebe	b) 45267	Rd80 x 1/4 M90x4
c)	**146589**		



1.6.11 Marlen

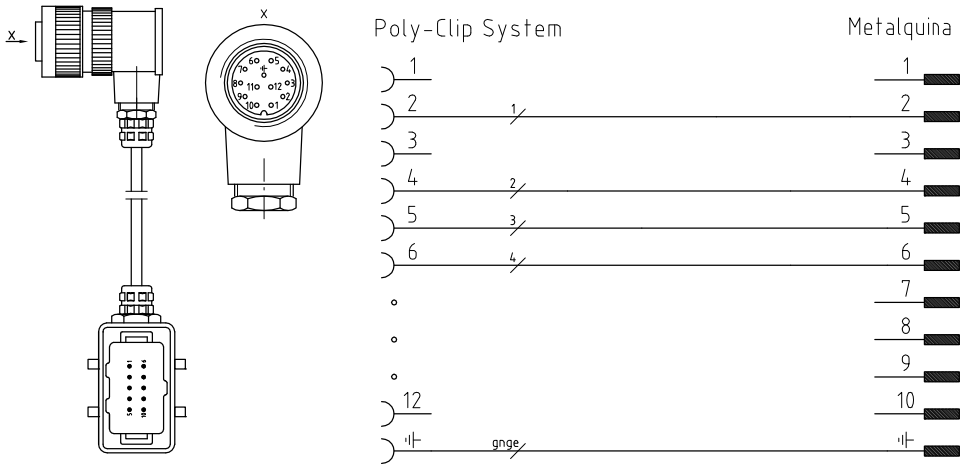
a)	Marlen 60	b) 67998	Rd80 x 1/4 Ø 123,8 mm
c)	**146513**		



Kopplung Marlen pneumatisch komplett / Coupling Marlen pneumatic assembly	Art-Nr. / Item no.: 77355

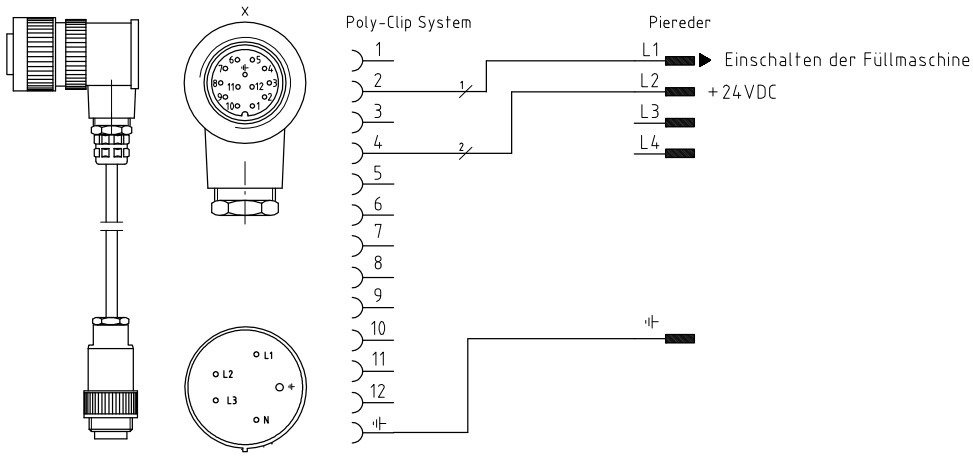
1.6.12 Metaquina Twinvac

a)	Metaquina Twinvac 60	**b)** 77345	Rd80 x 1/4 Ø 119 mm
c)	**146534**		



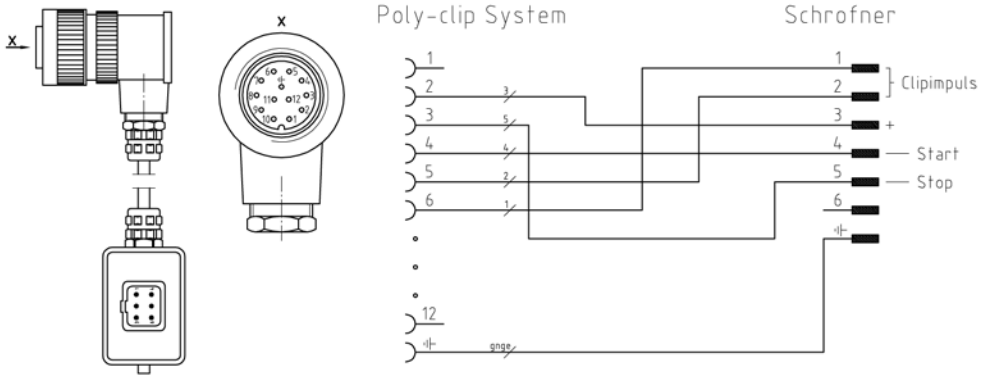
1.6.13 Piereder

a)	Piereder HVF 90 / 95	**b)** 68001	Rd80 x 1/4 Tr120x1/6 (60)
		b) 67999	Tr120x1/6 Tr120x1/6 (76)
c)	**146535**		

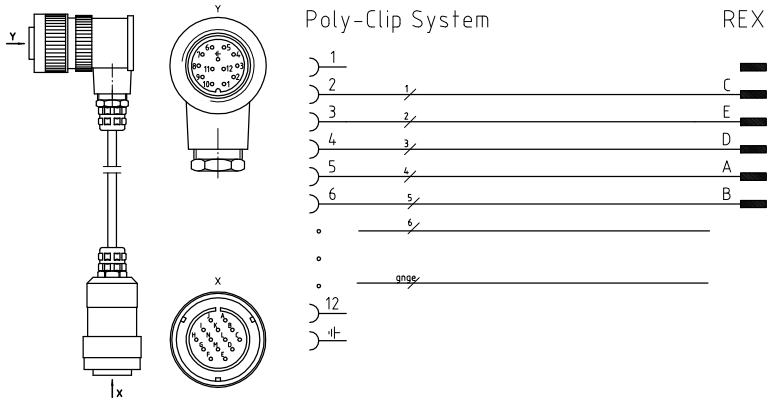


1.6.14 Rex

a)	Rex	b) 62622	Rd80 x 1/4 Rd80
c)	**146518**		



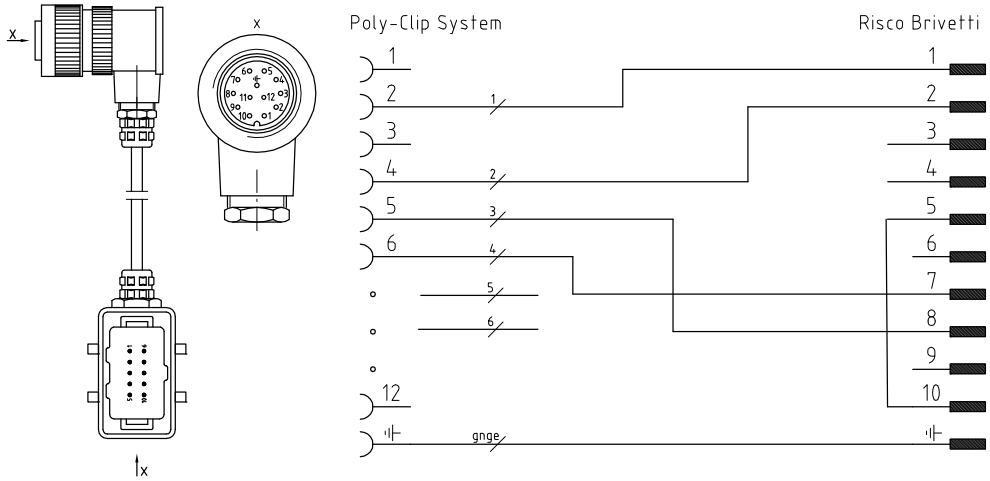
a)	Rex	b) 62622	Rd80 x 1/4 Rd80
c)	**146585**		



1.6.15 Risco Brevetti

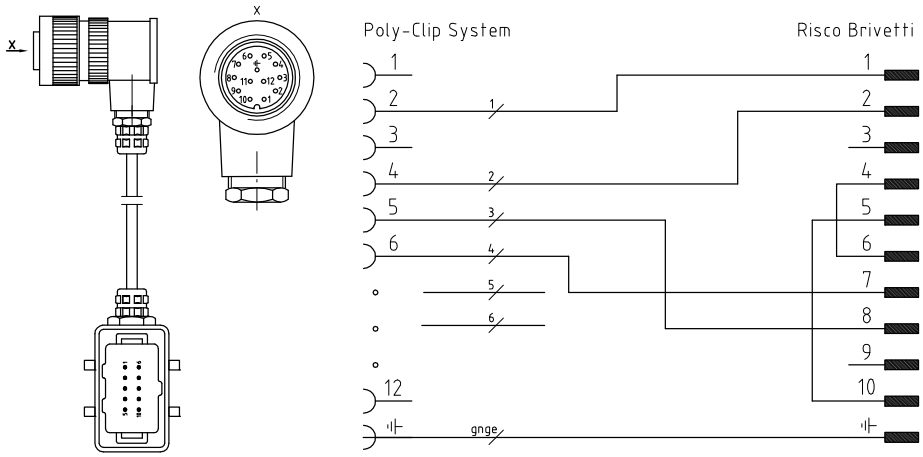
a)	Risco Brevetti RS 1040 A/B/C, 2001M, 2002M	**b)** 62627	Rd80 x 1/4 R21/2
a)	Risco Brevetti RS 2000	**b)** 45261	Rd80 x 1/4 R23/4
a)	Risco Brevetti RS 3000, 4000	**b)** 48300	Rd80 x 1/4 R21/2
a)	Risco Brevetti RS 5000, 5005, 3005	**b)** 53918	Rd80 x 1/4 Rd82x1/6

c) **146510**



a)	Risco Brevetti RS 2005, 2005V, NW 60	**b)** 62626	Rd80 x 1/4 Rd160x1/4

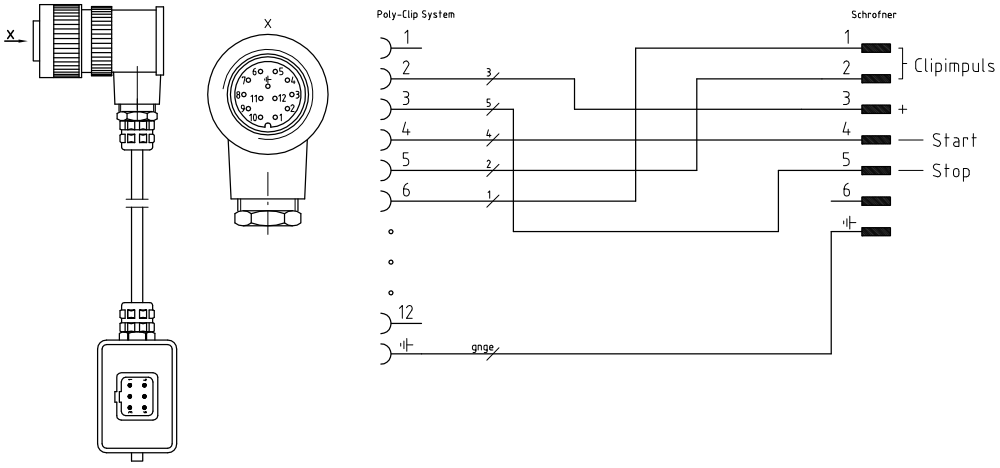
c) **146524**



1.6.16 Schrofner

a)	Schrofner KVF 80, 100, 200, 400	**b)** 62622	Rd80 x 1/4 Rd80

c) **146518**

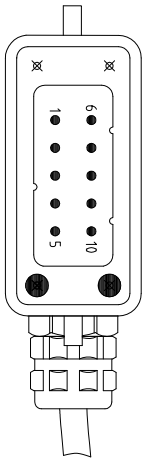


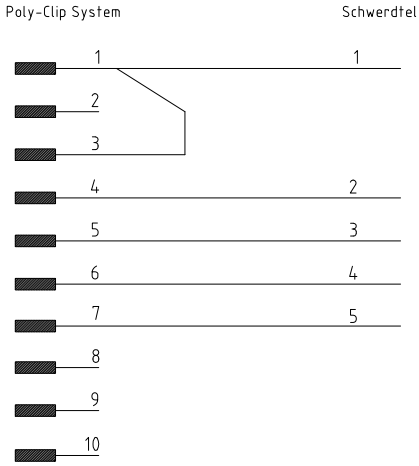
Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer

1.6.17 Schwerdtel

a)	Schwerdtel K3/ NW50	**b)** 69113	Rd80 x 1/4 Ø 92/ 52
a)	Schwerdtel K3/ NW65	**b)** 60433	Rd80 x 1/4 Ø 92/ 60
a)	Schwerdtel DN50/ R2	**b)** 104368	Rd80 x 1/4 R2/ 50

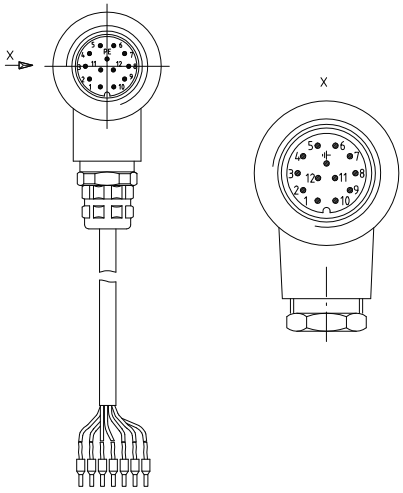
c) **104372**
nicht für TSCA 65D/
not for TSCA 65D

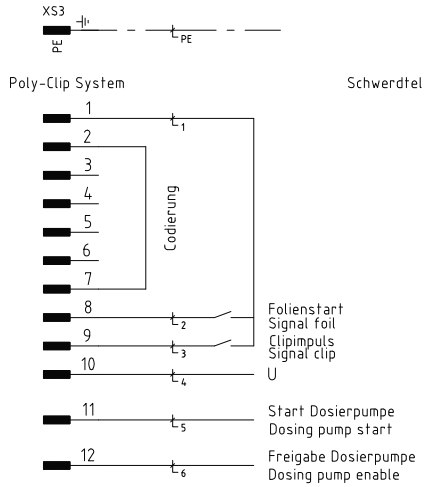




a)	Schwerdtel K3/ NW50	**b)** 69113	Rd80 x 1/4 Ø 92/ 52
a)	Schwerdtel K3/ NW65	**b)** 60433	Rd80 x 1/4 Ø 92/ 60
a)	Schwerdtel DN50/ R2	**b)** 104368	Rd80 x 1/4 R2/ 50

c) **155465**
nur für TSCA 65D/
only for TSCA 65D

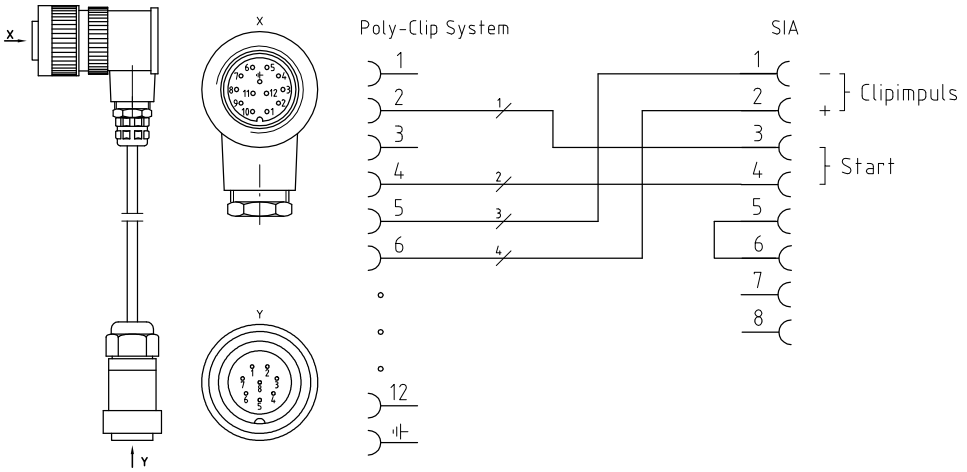




1.6.18 SIA

a)	SIA 4000N, 2002D, SIA 6000S	**b)** 52212	Rd80 x 1/4 M80x3
a)	SIA 3000-S	**b)** 105077	Rd80 x 1/4 M80x3
a)	SIA 3000	**b)** 52213	Rd80 x 1/4 Rd82x1/6

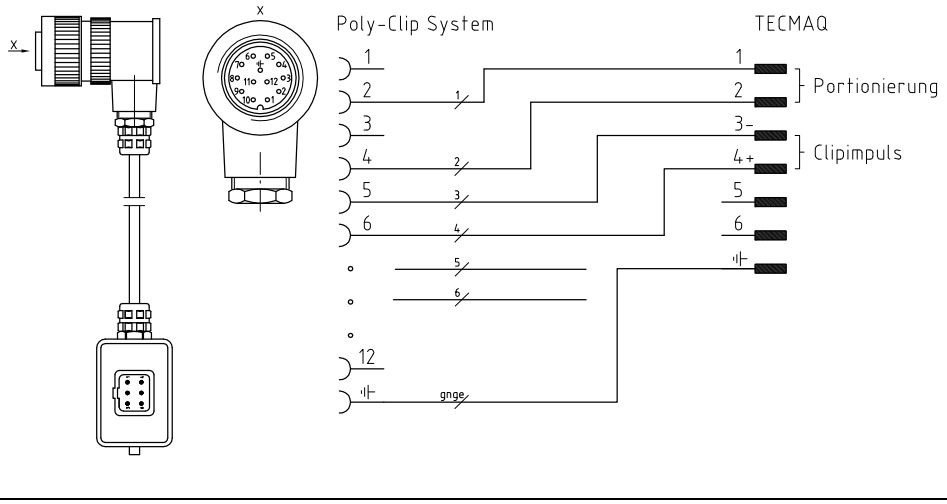
c) **146522**



1.6.19 Tecmaq

a)	Tecmac	**b)** 105011	Rd80 x 1/4 Rd69x1/4

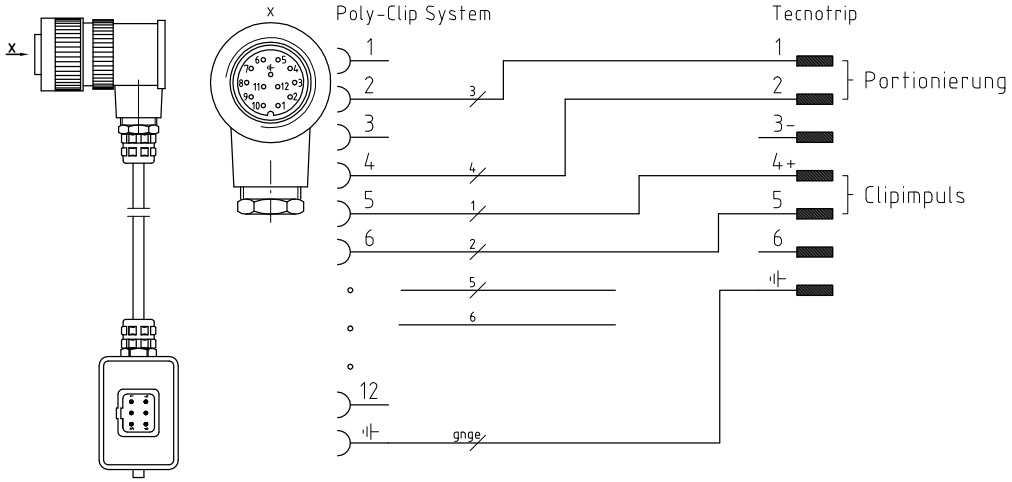
c) **146512**



1.6.20 Tecnotrip

a)	Tecnotrip	**b)**	

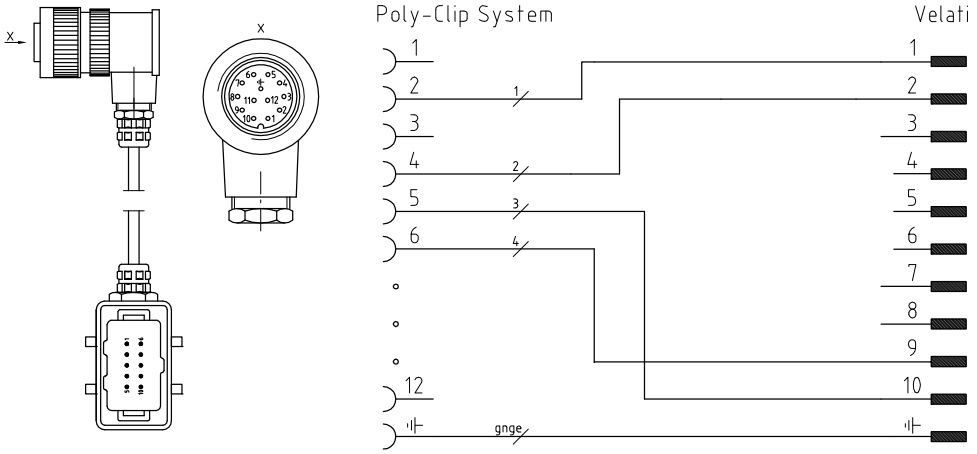
c) **146526**



1.6.21 Velati

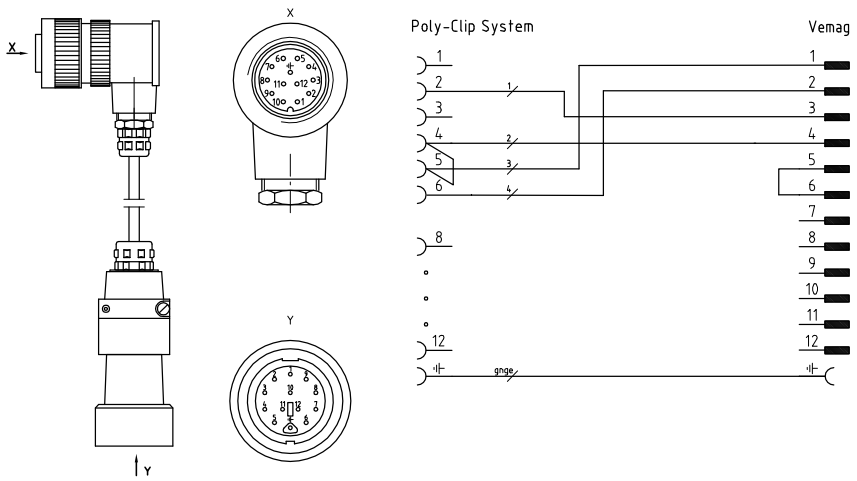
a)	Velati, alt	**b)** 45263	Rd80 x 1/4 92,5x1/6
a)	Velati IC-4, 5, 6	**b)** 56475	Rd80 x 1/4 M78x3
a)	Velati	**b)** 143063	Rd80 x 1/4 68,9x1/8

c) **146537**

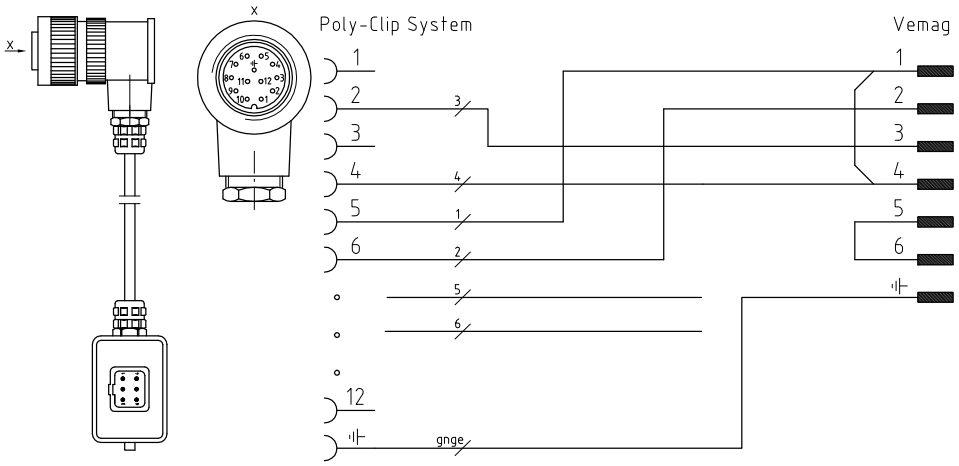


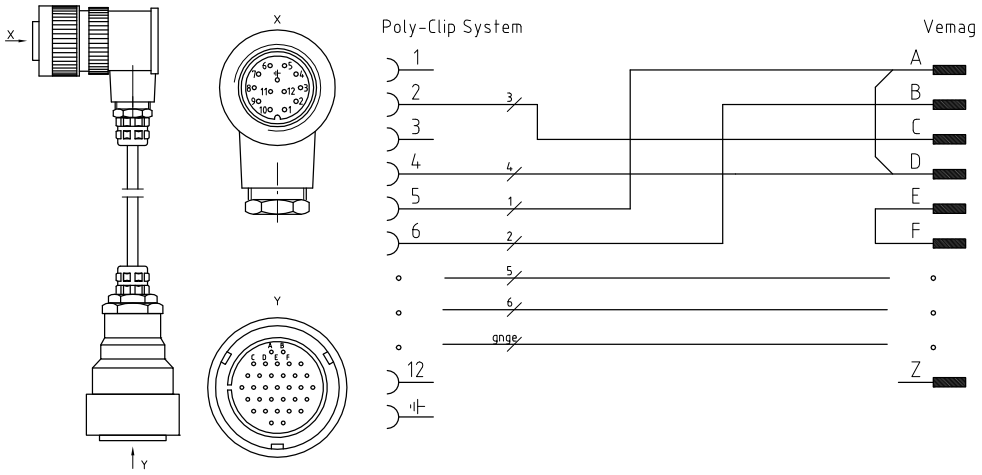
1.6.22 Vemag

a)	Vemag R500, 700	b) 46160	Rd80 x 1/4 Rd70x1/6 lh
c)	**146536**		



a)	Vemag R1000 S3, R2000 S3, R3000 S3	b) 45264	Rd80 x 1/4 Rd80x1/4
c)	**146519**		



	Vemag R1000DC, 2000DC, 3000DC, 4000DC, HP10, HP15, Robby I, Robby II, DP10, HP7C	**b)** 45264	Rd80 x 1/4 Rd80x1/4
c)	**146506** 		

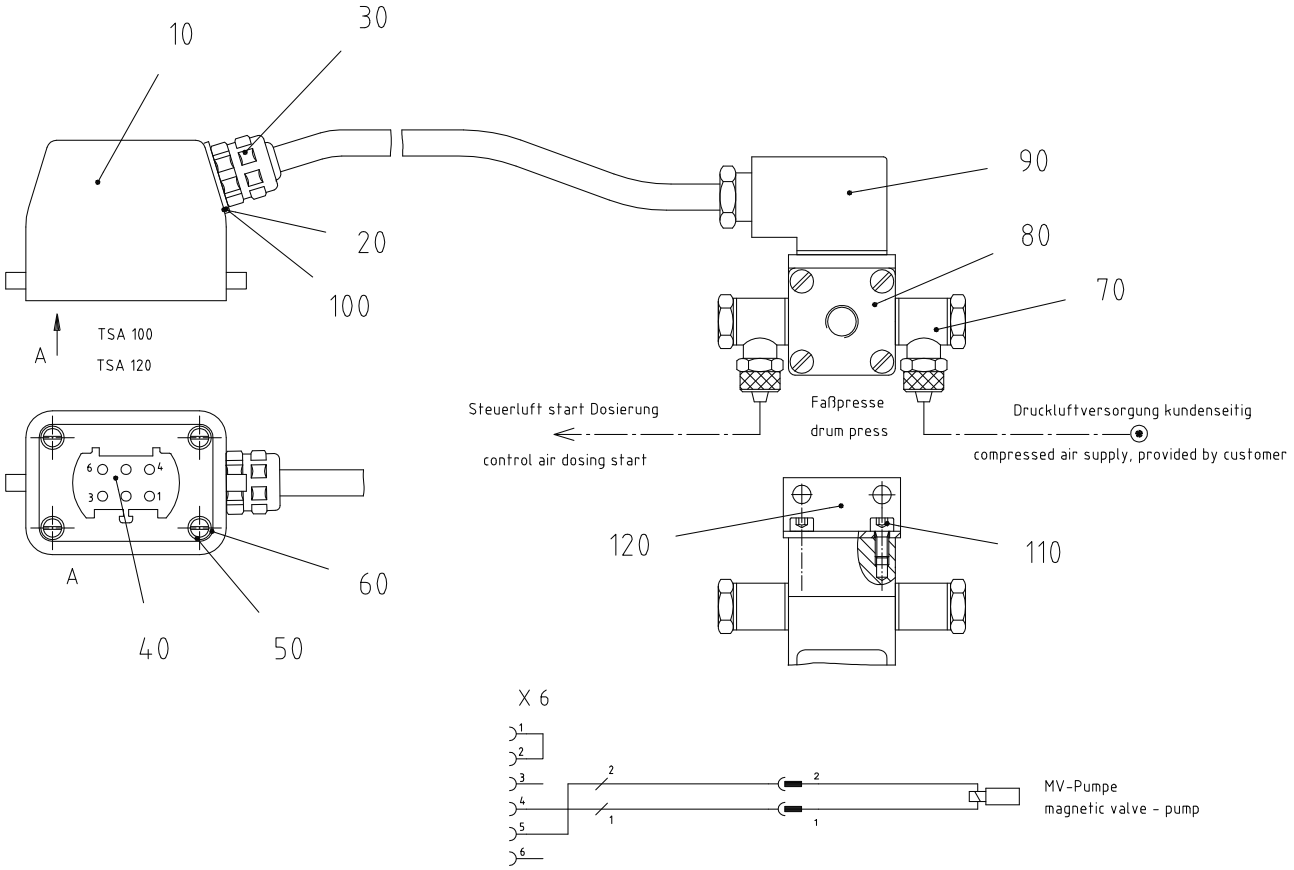
1.6.23 Sonderverbindungsteile / special connections parts

e	Verbindungsmutter / connection nut	26168	Rd80 x 1/4
d	Verbindungsmuffe / connection sleeve Schwerdtel NW50	69113	Rd80 x 1/4 Ø 92
d	Verbindungsmuffe / connection sleeve Schwerdtel NW65	60433	Rd80 x 1/4 Ø 92
d	Verbindungsmuffe / connection sleeve NW38	100995	Rd80 x 1/4 R1 1/2
d	Verbindungsmuffe / connection sleeve NW50	104368	Rd80 x 1/4 R2 außen, outside
d	Verbindungsmuffe / connection sleeve NW50, Innengewinde	104249	Rd80 x 1/4 R2 innen, inside

1.6.24Verbindungsrohr (200 mm) Fasspresse, komplett 63840
Connecting tube (200 mm) drum press, assembly 63840

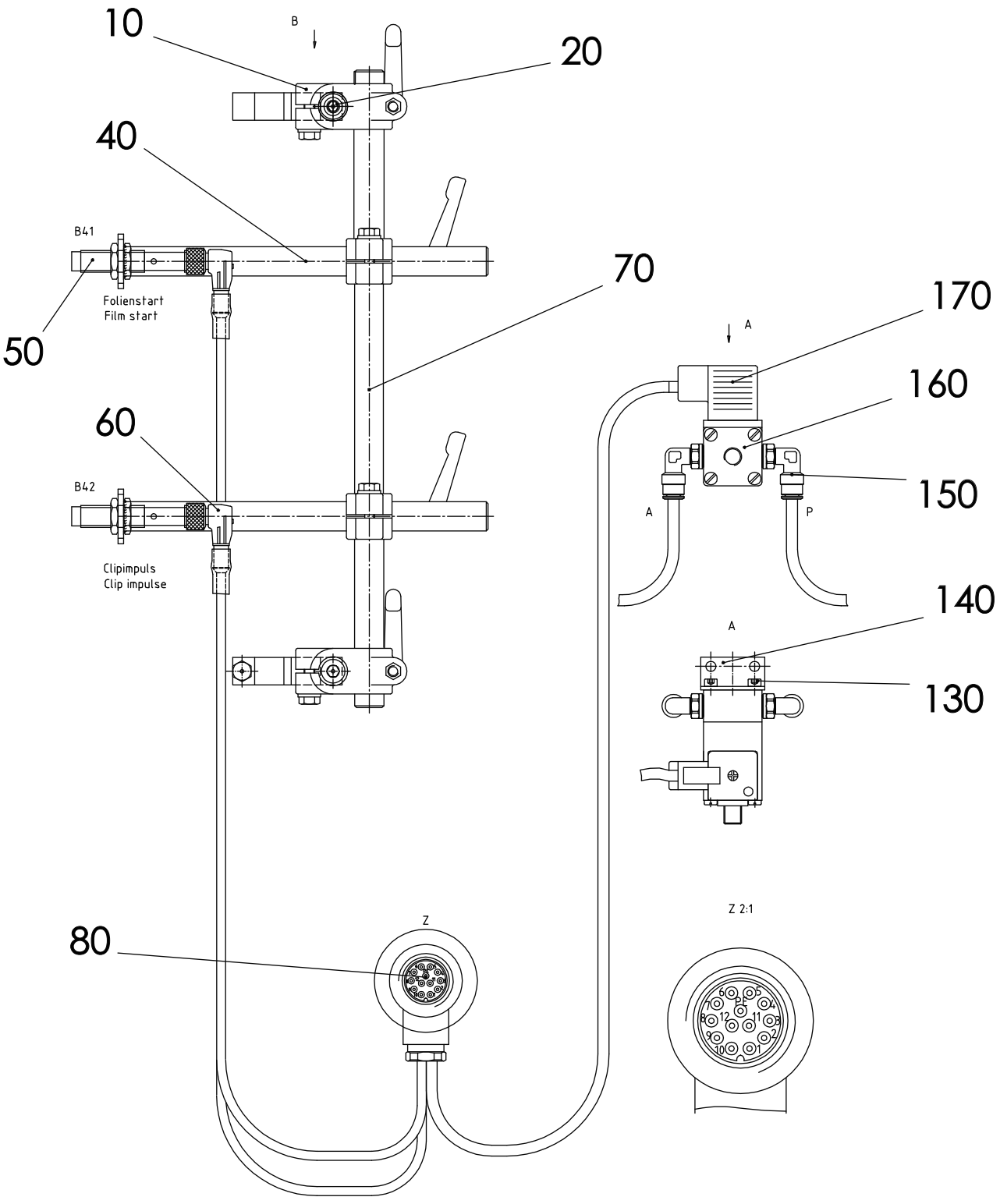
	Benennung	**Description**	**Abmessung Dimension**	**Art.-Nr. Item no.**
10	**Verbindungsmuffe kpl.**	**connecting sleeve assy.**		63838
20	**Bogen 45°**	**Bend 45°**		63835
30	**Dichtung**	**sealing**		63837
40	**Rohr**	**tube**	**Rd78x181**	63839
60	**Füllrohrmutter**	**filling horn nut**		63841

1.6.25Anschlusskabel Fasspresse, komplett 100985A
Connection cable drum press assembly 100985A

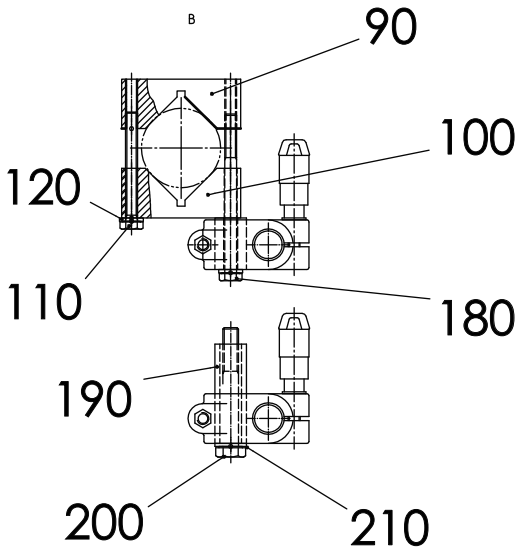


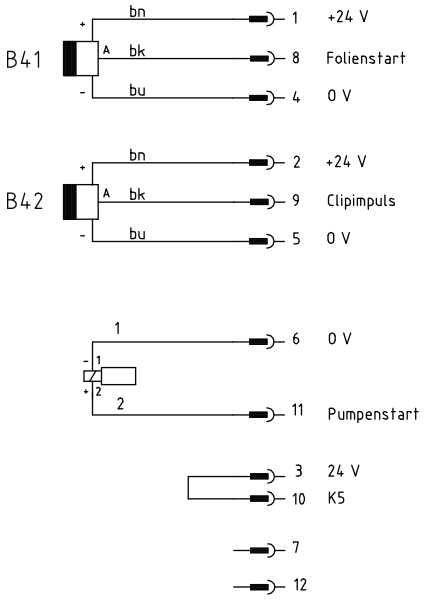
Art-Nr.	Pos.	Beschreibung	Description
11372	10	Steckergehäuse, Gr. 3, Kabel seitlich	plug housing, size 3, cable side way
11705	20	Reduzierring PG 13,5/ 9	reducing insert PG 13.5/9
12221	30	Kabelverschraubung PG 9	cable feed-through PG 9
11374	40	Buchseneinsatz 6-polig	bushing insert 6-pin
19990	50	Federring	spring ring
10742	60	Zylinderschraube M3x12 DIN 84	socket head cap screw M3x12 DIN 84
10150	70	Schwenkverschraubung 6/4-1/8 kurz	banjo fitting 6/4-1/8 short
44088	80	3-2-Wege Magnetventil	3-port/ 2-ways solenoid valve
76496	90	Ventilstecker, kabel 3m	solenoid valve connector, 3m cord
50315	100	Dichtring PG13,5 flach	sealing ring PG13.5 flat
21349	110	Zylinderschraube M4x8 DIN 912	socket head cap screw M4x8 DIN 912
40241	120	Winkel	bracket

1.6.26Fasspressensteuerung komplett 146285B
Drum press control assembly 146285B



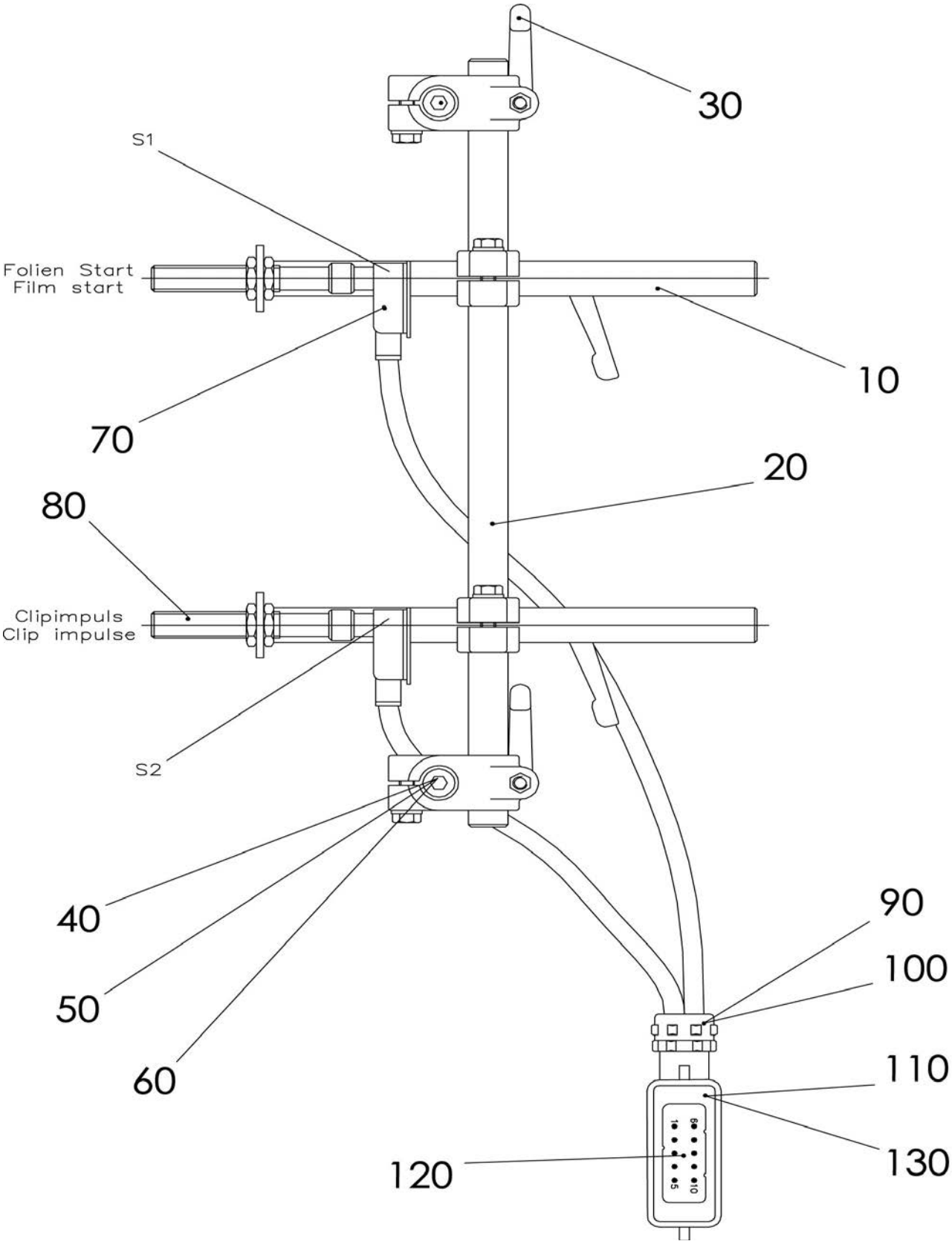
Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer





Art-Nr.	Pos.	Beschreibung	Description
50084	10	Kreuzklemmstück	cross clamp-piece
105922	20	Hülse	bushing
146286	40	Halter	bracket
102689	50	Näherungsschalter	proximity switch
64386	60	Steckverbinder M12, winklig, 5m	plug connector, M12, angular, 5m
50086	70	Stange	rod
106484	80	„Winkelstecker; 12-polig, Stift”	elbow plug 12-pole
105927	90	Prismahalterung	V-block
105928	100	Prismahalterung	V-block
14006	110	Zylinderschraube M6x55 DIN 912	socket head cap screw M6x55 DIN 912
10015	120	Scheibe 6,4 DIN 125	washer 6.4 DIN 125
21349	130	Zylinderschraube M4x8 DIN 912	socket head cap screw M4x8 DIN 912
40241	140	Winkel	bracket
73746	150	Winkelverschraubung drehbar 6-1/8	banjo elbow connector 6-1/8
44088	160	3-2-Wege-Magnetventil	3-port/ 2-ways solenoid valve
76496	170	Ventilstecker, kabel 3m	solenoid valve connector, 3m cord
75892	180	Sechskantschraube M6x80 DIN 931	hexagon head screw M6x80 DIN 931
50088	190	Hülse 16/11x50	bushing 16/11x50
68914	200	Sechskantschraube M8x60 DIN 931	hexagon head screw M8x60 DIN 931
10288	210	Scheibe 8,4 DIN 125	washer 8.4 DIN 125

1.6.27Initiatorsteuerung komplett 55920
Proximity switch control assembly 55920



Verbindung Clipmaschine-Füller / Connection Clip Machine-Stuffer

Art-Nr.	Pos.	Beschreibung	Description
56352	10	Stange	rod
50086	20	Stange	rod
50084	30	Kreuzklemmstück	cross clamp-piece
13082	40	Zylinderschraube M8x60 DIN 912	socket head cap screw M8x60 DIN 912
10288	50	Scheibe 8,4 DIN 125	washer 8.4 DIN 125
50088	60	Hülse 16/11x50	bushing 16/11x50
64386	70	Steckverbinder M12 winklig 5m	plug connector M12, angular, 5m
55500	80	Näherungsschalter	proximity switch
60163	90	Kabelverschraubung PG13,5 2x6	cable feed-through PG 13.5 2x6
13231	100	Kabelverschraubung PG 13,5	cable feed-through PG 13.5
49632	110	Steckergehäuse Gr. 2, Kabel seitlich	plug housing size 2, cable side way
49633	120	Stifteinsatz 10-polig	contact insert 10-pin, male
49625	130	Sperrbolzen M3	blocking bolt M3

TSCA 120-M/160-L

TSCA 120-M/160-L

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