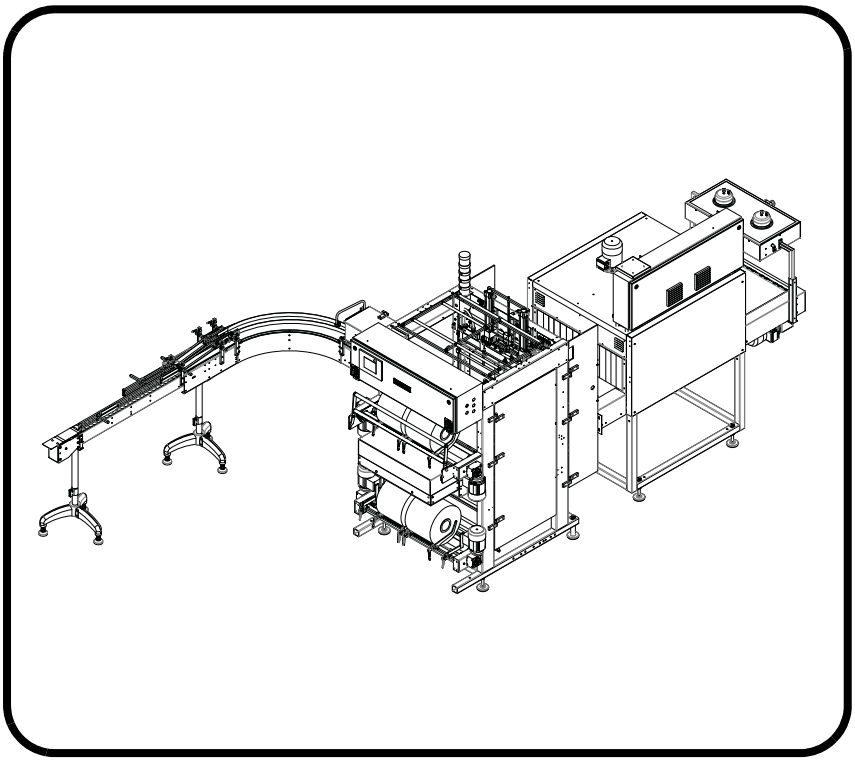
Technical Manual

Autopack Shrink Packaging Systems



Wrapper Model no.: **82WLO35AM**

Serial no.: **2567209**

Shrink Tunnel Model no.: **82TMW35VL**

Serial no.: **2567210**

autopack

This document is valid for:

Series No/ Machine No Sign.

Technical Manual

Autopack Shrink Packaging Systems

autopack

1 Introduction

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Table of Contents

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1.1 Document information

1.1.1 About this Manual

The Autopack Manual consists of the following chapters:

- Introduction
- Safety Precautions
- Installation
- Maintenance and Check
- Electrical Components
- Spare Parts
- Human Machine Interface (HMI)
- Diagrams and Drawings

The purpose of the **"Introduction"** is to provide the user of the manual with general information about the manual as well as the machine.

The purpose of the **"Safety Precautions"** is to provide the user of the manual with information so it is safe to install, operate, and maintain the machine.

The purpose of the **"Installation"** instructions is to provide the service technicians with information on the on-site installation process.

The purpose of the **"Maintenance and Check"** instructions is to provide service technicians and electricians with information on the equipment required for service and maintenance.

The purpose of the **"Electrical Components"** is to provide service technicians and electricians with information on the electrical equipment required for service and maintenance.

The purpose of the **"Spare Part"** lists is to provide the service technicians and contact personnel with information on how to find and order spare parts for service of the unit.

The purpose of the **"Human Machine Interface"** is to provide the user of the manual with information on how to use HMI for machine settings and alarm monitoring.

The purpose of the **"Diagrams & Drawings"** is to provide the user of the manual with diagrams and drawings for the System.

1.1.2 Design modifications

The directives in this document are in accordance with the design and construction of the unit at the time it was released by an Autopack machine production facility.

1.1.3 Document producer

This document has been produced by:

Autopack Co., Ltd.
98/50-51 Moo 11 Factoryland 2, Phuttamonthon Sai 5 Rd.,
Raikhing, Samphran, Nakornpathom
73210 Thailand

1.1.4 Machine Design

AUTOPACK designers pay particular attention to specifying materials and finishes that are durable, does not affect the packaged product and remain serviceable for long time.

1.1.5 Manufacturer

This Autopack equipment was produced by:

Autopack Co., Ltd.
98/50-51 Moo 11 Factoryland 2, Phuttamonthon Sai 5 Rd.,
Raikhing, Samphran, Nakornpathom
73210 Thailand

1.2 Machine introduction

1.2.1 General Information

Sleeve Wrappers

AUTOPACK series of Sleeve Wrappers, covers a family of Fully Automatic machines designed for collating product into a desired formation, then wrapping in a sleeve of shrinkable film. The machines are of simple modular design which permits customizing to suit user requirements. A number of options are available which can be installed even after the machine has been put to use.

- **Fully Automatic with Oval Bottle Handling (WLO)**

  This machine has a specifically designed infeed and grouping section to enable fast and efficient handling of oval shaped products resulting in attractive and tight packs.

  The operation is simple. Product is delivered into the machine until it hits a side lay where a sensor activates the pusher to transfer the pack to the wrapping-welding position. Then wrapped multipacks onto the shrink unit conveyor then transport them through the shrink tunnel.

Note! For best results AUTOPACK Sleeve Wrappers should be matched with AUTOPACK Shrink Tunnels to form high efficiency Shrink Packaging Systems of unequalled versatility.

Shrink Tunnels

AUTOPACK Shrink Tunnels are available in three basic models:

- **Short length tunnel** (**TLX**) designed for slower pharmaceutical and cosmetic packing lines or label shrinking.
- **Medium to high speed general purpose tunnels (TMX)** suitable for most shrink packaging applications
- **Long series, heavy duty tunnels (THX)**, applicable at all speeds where thicker films and heavy packs are used.

The machines are of simple modular design permitting customizing to suit user and application requirements. AUTOPACK Shrink Tunnels have a number of operating features which are not normally found on similar type equipment. These are:

- Quiet and efficient operation
- Small external size compared to product handling capacity
- Symmetrical, fixed air flow pattern
- Drop down bottom for easy cleaning
- Cooling station with a roller accumulation conveyor

Because of its unique air flow, AUTOPACK tunnels can be used with a variety of films and machines such as L bar sealers, flow wrappers, but the airflow symmetry really excel at Sleeve Wrapped product, resulting in tight, unique form pack with small holes on either side.

1.2.2 System Used

For Wrapper

a) **Control System** - PLC control with PNP sensor.

b) **Welding Bar Motion** - Pneumatic cylinder activation of welding bar and rear pack clamp.

c) **Product Pusher and Lifter if fitted** - Pneumatically operated, and guided units with clip in product plates. This allows for quick change of product and pack size.

d) **Film Welding and Cutting** - Permanently heated bar with PID Electronic temperature control. Quickly removable, welding-cutting tip ease of maintenance. Welding bar height is adjustable with a quick-set clamp.

e) **Film Feed** - Centre shaft, film roll support with gravity feed, controlled by multiloop film accumulators (for semi models). AC motor driven twin roller cradle type support (for standard models).

f) **Film Loading** - film rolls are mounted right at front of machine to facilitate ease of loading and minimize risk of operator injury.

g) **Transfer Surfaces** - Collating table is lined with UHMW polyethylene to minimize friction and wear. Outfeed table and slide are stainless steel.

h) **Safety** - Low pressure welding bar descent with electrical trip, two Stop Buttons. Electrically interlocked transparent doors around collation table area.

For Tunnel

a) **Control System** - Integrated PLC Control from wrapper unit.

b) **Conveyor Drive** - gear motor. fixed or variable speed depending on application

c) **Conveyor Belt** - stainless steel mesh for general purpose tunnels. STH uses heavy duty chain with flat bars for product conveying.

d) **Air Circulation** - one to four centrifugal force impellers are used to provide symmetrical air pattern.

e) **Heating** - finned type air heating elements controlled by PID Electronic Temperature control unit.

f) **Outfeed accumulation conveyor** - free running roller type accumulation conveyor is provided.

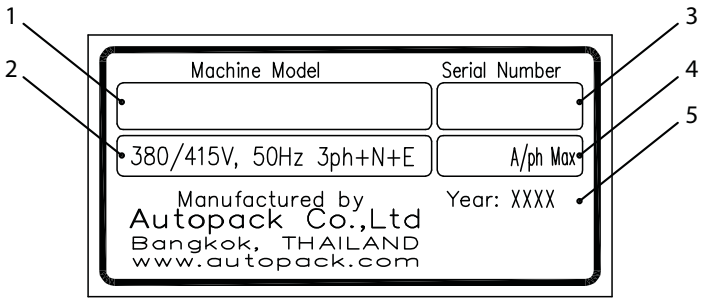
g) **Safety** - the machine is well guarded. Where possible standard stainless conveyor of small pitch is used. Stop buttons are provided on electrical cabinet and cooling station of the tunnel for emergency use.

1

1.3 Machine Identification

1.3.1 Machine Plate

Each machine has its delivery information inscribed on the machine plate. When contacting Autopack please provide Model and Serial no indicated for the specific information.



Machine Sign

1 Machine Model
2 Supply voltage & frequency
3 Serial number
4 Maximum current rating
5 Year of manufacture

1.4 Machine orientation

Definition of direction

The below illustrations show the machine from above.

A indicates the **Rear** of the machine.

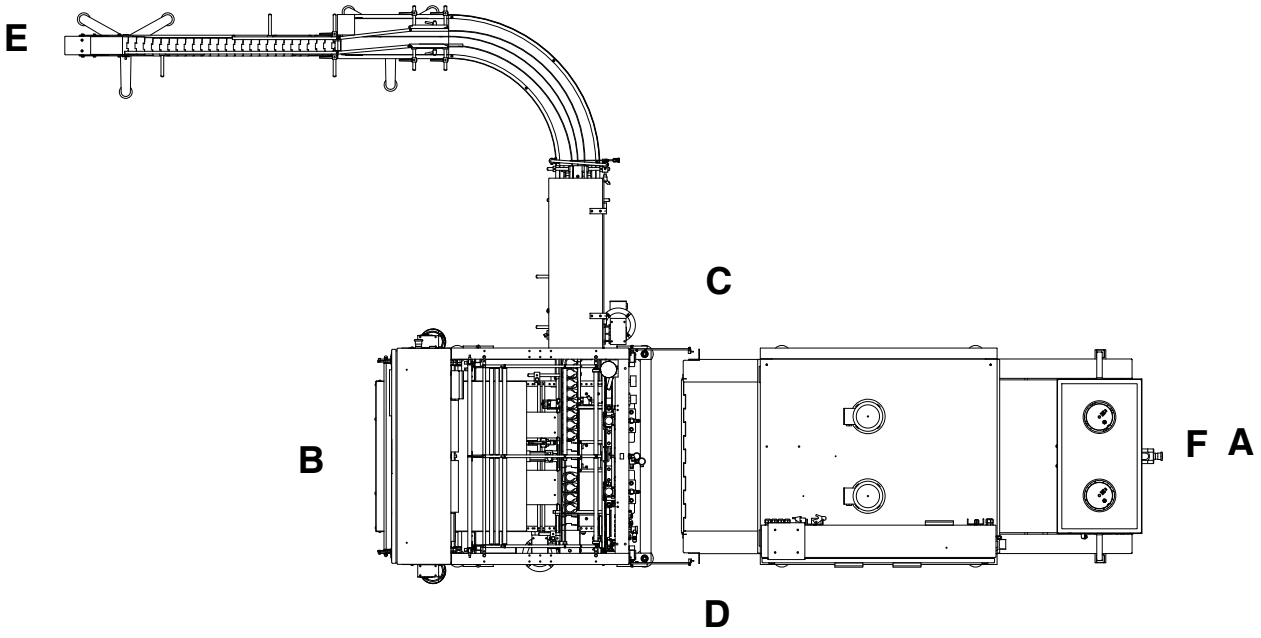
B indicates the **Front** of the machine.

C indicates the **Left** of the machine.

D indicates the **Right** of the machine.

E indicates the **Infeed** of the machine.

F indicates the **Discharge** of the machine.



2 Safety Precautions

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2.1 Information

2.1-1 General

DANGER! **Incorrect use of the equipment will put your life in danger!**
Autopack will take no responsibility for any fatal accidents, injuries to personnel or damage to the machine if the machine or associated equipment is installed, operated, and serviced without following the instructions in this manual.

DANGER! **Risk of immediate danger to life!**
Never inch or run the machine if any safety components included in the safety system is non-operational. Non-operational safety components must be changed immediately.

2.1-2 Hazard information

Hazard information in this document has the following significance:

DANGER!	**Immediate danger to life!** Failure to observe this information will put **your life in danger**!
WARNING!	**Risk of serious personal injury!** Failure to observe this information could result in **serious personal injury**!
Caution!	**Risk of minor personal injury!** Failure to observe this information may result in **minor personal injury**!
Important!	**Risk of damage to equipment!** Failure to observe this information could result in **damage to equipment**!
Note!	Is used to emphasize important information. A **Note** is not to be regarded as hazard information.

2.2 Warning signs

2.2-1 Warning signs

DANGER!

Risk of electrical shock!
Failure to observe will put your life in danger.

Enclosures which do not clearly show that they contain electrical devices are marked with the warning sign below.

WARNING!

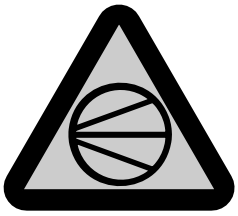
Hot surface!
Failure to observe could result in injuries caused by burning.

Hot surfaces are marked with the warning sign below. The temperature may exceed 60°C.

WARNING!

Pneumatic energy!
Failure to observe could result in injuries caused by moving parts!

The warning sign below indicates entrapped pneumatic energy in the area where the warning sign is placed.



2.2-2 Prohibition signs

DANGER!

Keep dry!
Failure to observe will put your life in danger.

Never flush water or any other liquid towards an area with the prohibition sign below.

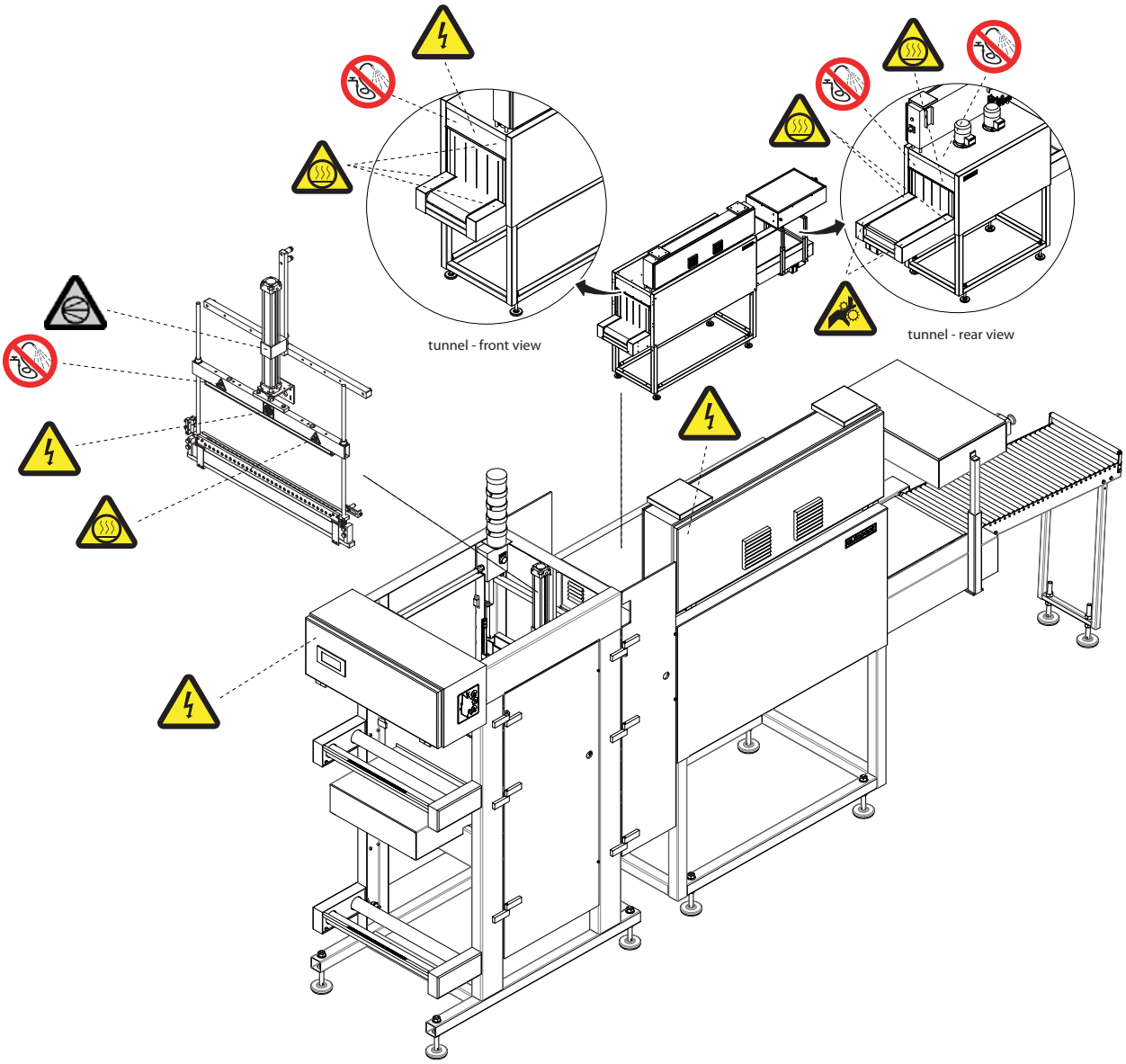
WARNING!

Do not touch!
Failure to observe could result in loss of fingers or other body parts.

The prohibition sign below indicates a risk of personal injury in the area where the prohibition sign is placed.

2.2-3 Warning and prohibition signs on the machine

In the figure below shows the warning and prohibition sign locations which are delivered with the machine.



2.3 Requirements on personnel

DANGER!

Risk of immediate danger to life!
Not following the Safety Precautions will put your life in danger.
All personnel must regard all electrical equipment as live.

The work is to be carried out in such a way that there will be no risk of personnel injury.

2.3-1 General

During maintenance or service work, the service technician and the electrician are responsible not only for the machine, but also for the personnel in the vicinity of the machine as well!

It is also the responsibility of the service technician and the electrician to assure that the machine safety devices are fully operational before he/she finishes the maintenance or service work.

2.3-2 Service technician

Only trained or instructed service technicians are allowed to work on the machine.

Service technicians may be:

- technicians employed by **Autopack**

  The Autopack technicians are Autopack employees who have proper knowledge and training for the service of the Autopack machines.
- technicians employed by the **customer**

  Technicians employed by the customer must have the following skills:
  - capable of reading (English or native) technical information
  - understand technical drawings
  - basic knowledge of mechanics and electronics
  - basic knowledge of mathematics
  - capable of handling (special) tools

2.3-3 Electrician

Electricians should:

- be certified according to local regulations
- have experience of similar types of installations
- have proven skills in reading and working from drawings and cable lists
- have knowledge of local safety regulations for power and automation

Work with the electrical equipment in the machine must be performed by **skilled persons only.**
The supply disconnecting mains may be operated as needed while the door is open.

Examples of such operations are:

- resetting of protective devices
- adjustment of device settings
- fault finding and diagnostic testing

2.3-4 Machine operator

Only trained or instructed persons are allowed to operate the equipment.

The machine operator is an individual that has enough training and/or knowledge to run the equipment in the correct way.

2.3-5 Fork lift driver

Fork lift driver should be certified according to local regulations.

The fork lift driver´s role during installation is:

- to unload transport vehicle
- to plan and transport the machine or machine parts within the plant in a safe and smooth way
- to assist when assembling Autopack equipment

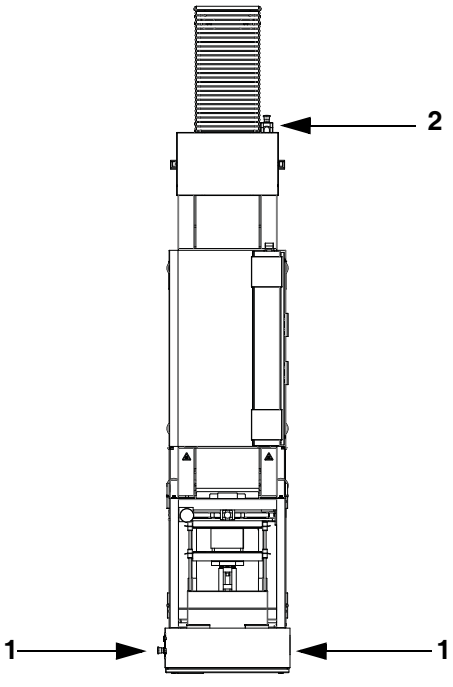
2.4 Emergency stop

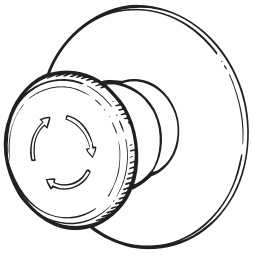
In case of danger to people or risk of damage to the machine, one of the four **Emergency stop** buttons must immediately be pushed.

In order to stop the machine immediately in an emergency situation, you must know the exact location of the Emergency stop buttons.

Emergency stop must only be used in case of danger to people or machine. To stop production in the normal way, see the **Stop** section in chapter “Operation” instructions in OM.

Note! Emergency stops do not disconnect the electrical supply to the machine.





Emergency stop button

1 E- Stop - Wrapper Electrical Cabinet (either left or right)
2 E- Stop - Tunnel Cooling fan Box

2.5 Main switch

DANGER! **Risk of electrical shock!**
Before any service work is carried out the **Main switch** must be turned OFF.

Examples of such service works are:

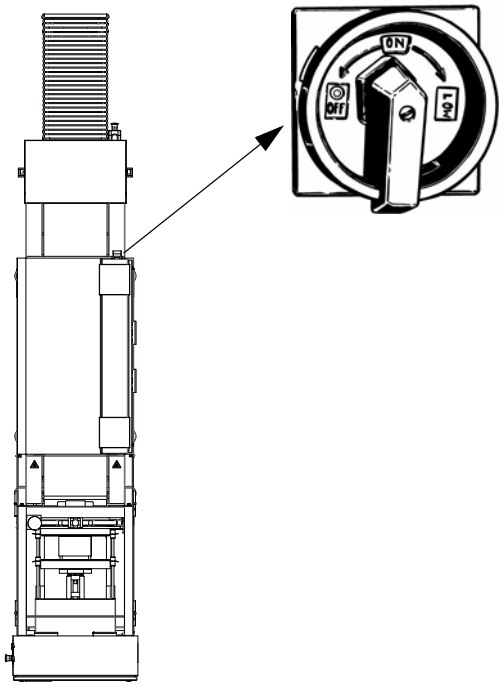
- disconnection of electrical cables
- replacement of motors, etc.
- service work in electrical cabinet, connection boxes, etc.
- dismantling of parts in order to prohibit involuntary starts
- service work in machine sections not visible from the control panel

However, for settings of photocells, proximity switches, frequency converters, etc., power is needed. Stop the machine in the correct way. Open a safety switched door and then carry out the settings.

Note! Check that the safety system is properly working. Check also that the machine is actually stopped due to the opening of the door.

WARNING! **Risk of personal injury!**
Do not by-pass the safety system and carry out any settings while the machine is in Production mode.

Location of Main Switch

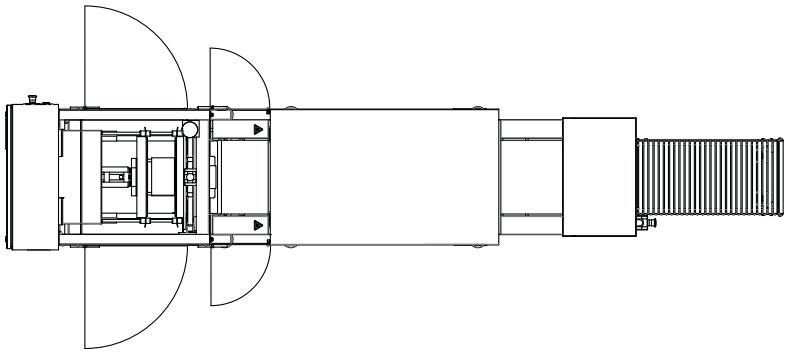


2.6 Doors and covers

WARNING!

Moving parts and hot surfaces could cause serious injuries!
Never inch or run the machine if any safety switch is non-operational or any cover is not fitted.

The door leading to the risk area is provided with safety switch. This switch is part of the safety system and **must under no circumstances be bridged or by-passed or otherwise made non-operational.**



Note! Also make sure the following guards and covers are in place and properly secured:

- safety cover over the pusher
- safety cover infeed conveyor drive sprocket
- electrical cabinet cover
- control box front panel

2.7 Electrical cabinet

DANGER!

Risk of electrical shock!
The voltage is 400V inside the electrical cabinet. Risk of immediate danger to life through electrical shock. In case of accident, immediately call for medical attention.

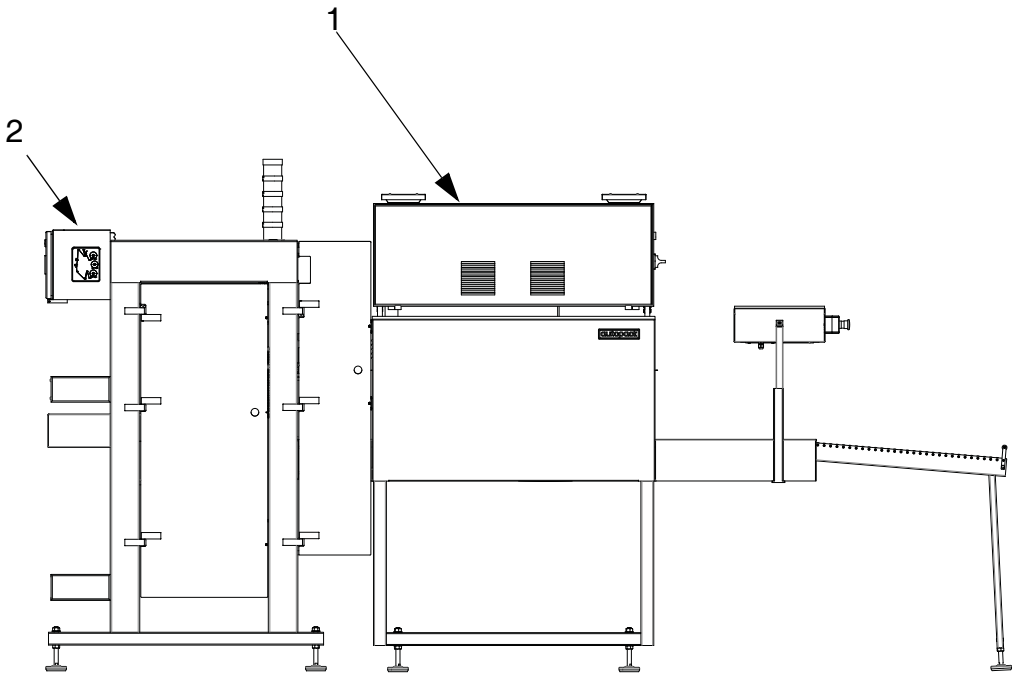
After the **Main switch** has been turned OFF, there still can remain high voltage in the electrical cabinet. Discharge time approximately five minutes.

Work inside the electrical cabinet must be performed by skilled persons only.

DANGER!

Risk of electrical shock!
Always make sure that the electrical cabinet door is locked after performing any type of work in the electrical cabinet.

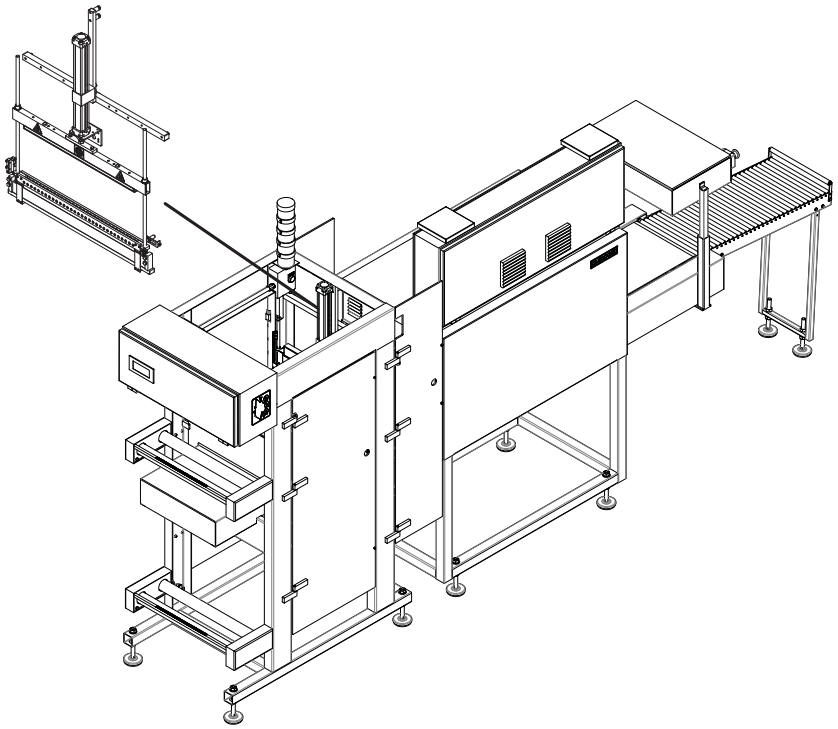
1 Electrical cabinet (Tunnel)
2 Electrical cabinet (Wrapper)



2.8 Hot areas

WARNING!

Hot parts can cause severe burns.
Welding bar and shrink unit can be extremely hot.
Do not touch hot parts.

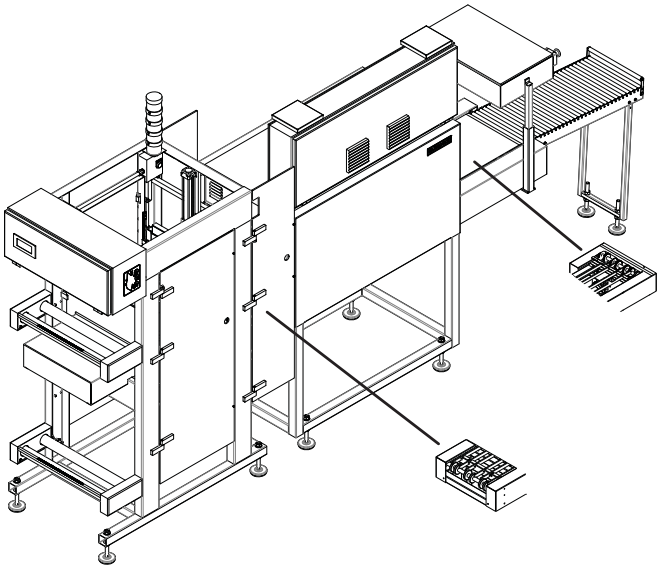


2.9 Shrink tunnel belt conveyor

WARNING!

Risk of personal injury!
Do not touch the belt while machine is running. Failure to observe may result in loss of fingers or other body parts.

Always make sure that the conveyor belt have no bents or damage links; if such exist, immediate repair should be done.



2.10 General

2.10-1 Chemical products

WARNING! **Risk of personal injury!**
Can be flammable or hazardous to health. Read the warnings on the container labels!

When handling hydraulic oil, lubricants, and cleaning solutions, carefully follow the warnings on the container labels.

Always use safety equipment according to the instructions on the container labels. Always use gloves and safety glasses when handling chemical products.

For final handling of solutions, follow the instructions from the supplier.

3 Unpacking & Installation

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3.1 Preparations

3.1-1 Machine Inspection

Prior to removing all packing materials please visually inspect the package for signs of external damage to the packing medium. If such are present, note the area and do further inspection of panels and components with emphasis in the area noted before. Should any damage be noticed this will have to be properly documented and reported to the local representative of AUTOPACK.

Note! Make sure to carefully remove the packing materials so as not to damage the paint work, electrical cables or pneumatic hoses.

3.1-2 Positioning

Transport the units to required location using a hand operated pallet truck. Once positioned adjust its height and level to suit the operator, the infeed conveyor if present.

It is not necessary to fix the machine to the floor as it will not move on its own, however it is advisable to mark its position on the floor or use two locating plates to stop the machine from being moved accidentally.

3.1-3 Services

For the Sleeve Wrapper, connect compressed air supply via a 10mm O.D pressure hose or pipe to the inlet of Air Service Unit provided on the machine. The inlet to the ASU is 1/4 P female. It is also advisable to provide a 1/4 turn pressure relieving hand valve in line with the air supply just before the unit. This is useful during maintenance and in extreme cases for safety. Connect electrical cord into the AUTOPACK Shrink tunnel control console, or to a separately switched 1 phase supply.

For Shrink Tunnel, choose correct size 5 core cable to suit the current rating of the machine. Then connect 3 phases + Neutral (if any) + Earth from electrical supply to the main switch located inside the control box.

Check rotation of the Main fans upon testing of electrical supply. In most cases the conveyor is powered by AC motor so its rotation cannot be used for checking the phase sequence. If all fans rotate in opposite direction, reverse 2 wires in the supply.

Important! For main supply by 3 phases with neutral system, if the machine is connected to other outlets it has to have neutral and earth connected. Failure to do this may result in an unsafe operation of the unit.

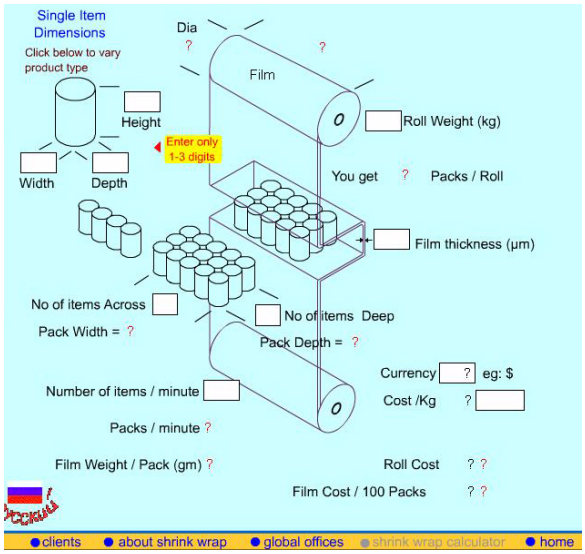
Important! If the machine is connected to other outlets it has to have neutral and earth connected. Failure to do this may result in an unsafe operation of the unit. Check that cabling and pneumatic pipes is suitably secured and will not touch moving parts. For example do not put cable under conveyor sections where conveyor chain tends to sag and be extended to compensate for wear. Check and remove if any packing material or debris are left on conveyors and moving parts.

3.1-4 Operation Environment

Item	Specifications
Site location	Indoors
Ambient temperature	+10 to +50 C
Relative humidity	5 to 95%
Atmosphere	The inverter must not be exposed to dust, direct sunlight, corrosive gases, flammable gas, oil mist, vapor or water drops. The atmosphere can contain only a low level of salt. (0.01 mg/cm2 or less per year) The inverter must not be subjected to sudden changes in temperature that will cause condensation to form.
Altitude	1000 m max.
Atmospheric pressure	86 to 106 kPa
Vibration	3 mm (Max. amplitude) 2 to less than 9 Hz 9.8 m/s2 (9 to less than 20Hz) 2 m/s2 (20 to less than 55Hz) 1 m/s2 (55 to less than 200 Hz)

3.1-5 Shrink Film

The width of the film can be selected by trial and error, but during the inquire process the exact film width is given by our sales person. Film Calculator can be found at our website, **www.autopack.com.**



3.1-6 Raw material limitation

Autopack machine is designed for automatic grouping and wrapping with LDPE film only.

3.1-7 Commissioning

Once all of above is completed the unit is ready to be commissioned by AUTOPACK representative engineers. The unit should not be operated prior to commissioning unless a written permission is given by AUTOPACK or its representative company. Such action may nullify some points of warranty agreement.

3.1-8 Shipment by Air

When machine is shipped by air the wrapping unit will have the conveyor mounted under the collation table. Due to the height limitation on aircraft door, the wrapping unit is normally shipped on its back, with steel shipping rails provided for that.

Shrink tunnel control box and the main fan motors may be also removed to reduce the height and shipping volume.

3.2 Installation

3.2-1 Reassembly procedure

a) Wrapping Unit
   - remove all packing materials and place the machine upright.
   - unbolt the shipping rails
   - unbolt the infeed conveyor, remove shipping brackets by undoing the hexagon head screws from the guide posts.
   - affix conveyor support leg on the correct set of holes. For single lane collation machines the holes closest to the front of the unit are the correct ones.

Note! Do not tighten up bolts at this stage as they may have to be adjusted.

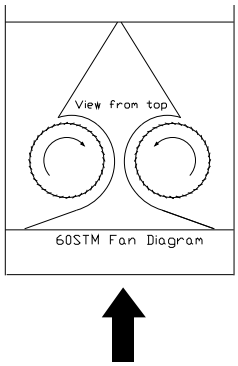
   - mount the conveyor on corresponding holes on the collation table and on top of the support leg. At this stage the conveyor should be adjusted so that its top surface is parallel to the top of the table and it is at 90 degrees to the side of the table.
   - Slide forward the fixed guide and clamp in line with retracting table guide such that the product transferred from the conveyor to the table will not move sideways.

b) Control Box
   - Unpack the control box and remove the cover. Hold the control box above the front part of the tunnel and feed the wires into the bottom. Secure in place and connect the wires as per marking.

c) Main Fan Motors
   - When refitting these make sure that the junction boxes are facing the side of the machine and cable entry holes point to the infeed side of the tunnel.
   - The motors are mounted on 4 spacers. Before final locking in position check that the shaft of the motor is in the centre of the hole in the ceiling of the tunnel.

d) Main Fan Rotors
   - Fan rotors must be installed in the correct fan housing otherwise there will be a very little air flow generated.

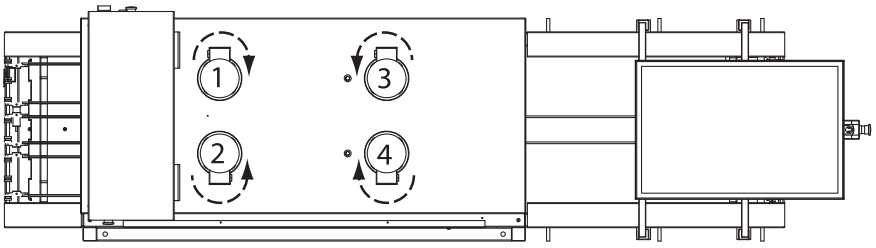
Note! The curvature of the scroll should correspond to the curvature of the rotor blades.



The curvature of the rotor blade from inside to outside shows the forward direction of rotation. Below shows direction of motors looking from the top of the tunnel.

3.2-2 Direction of motor

Front



Rear

Direction of Motor			
Tunnel Type	Motor No.	Motor Location	Direction
45 TL	1	Front	CW
45 TM	1	Front	CW
	3	Rear	CCW
45 TH	1	Front	CW
	3	Rear	CCW
60 TM	1	Front	CW
	2	Front	CCW
60 TH	1	Front	CW
	2	Front	CCW
	3	Rear	CCW
	4	Rear	CW
80 TM	1	Front	CW
	2	Front	CCW
80 TH	1	Front	CW
	2	Front	CCW
	3	Rear	CCW
	4	Rear	CW

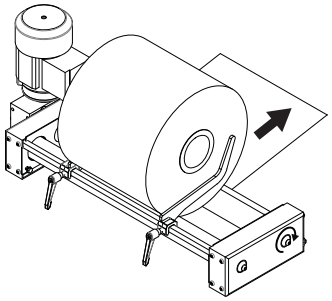
Definition of Abbreviations:

CW - Clockwise CCW - Counter Clockwise

Check rotation of the Main fans upon testing of electrical supply. If all fans rotate in opposite direction, reverse 2 wires in the supply.

Note! All Direct On Line (DOL) motors on machine are connected as per connection diagram and are tested to rotate in correct direction (as indicated by arrows). When machine is installed at customer's site, immediately after connecting electrical supply, please all DOL motors. Check that **film drive motors** and **tunnel main fan motors** are running as indicated.

If film drive motors are rotating in wrong direction, please reverse two phases on incoming electrical supply, then check again all motors.



If the shrink tunnel motors were removed for air shipment, please reconnect them as per connection diagram then test that both film drive motors and tunnel fan motors are rotating in correct direction.

3.2-3 Connections

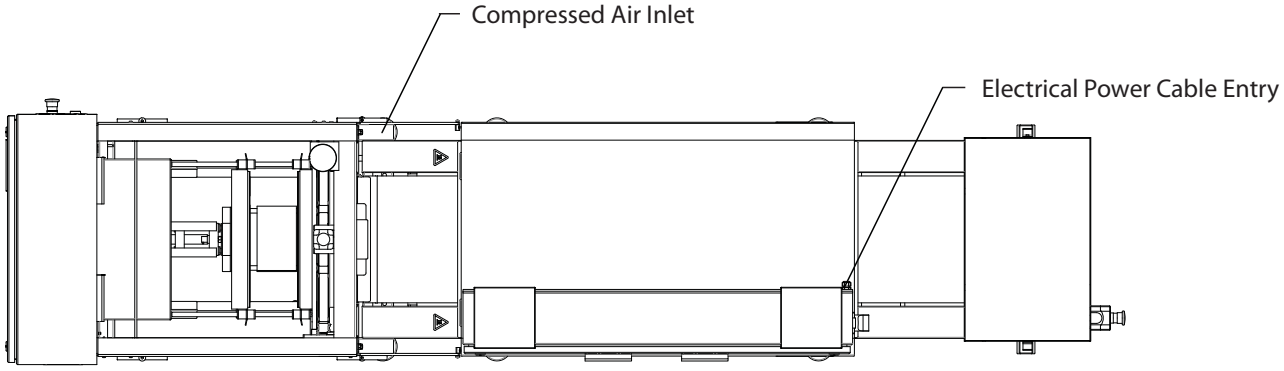
The illustration shows the location of the connections for electricity and compressed air.

Electrical - Choose cable size according to current rating on machine plate.

Caution! Proceed with extra caution, there can be up to 480V inside cabinet once connected.

Compressed Air Inlet - Provided with Push in connection for 10 x 1.5 m OD tube.

Caution! Check all connections before turning on compressed air.



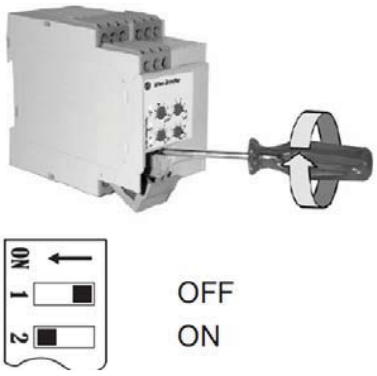
3.2-4 Voltage Compatibility Check

Caution! Do not open the DIP switch cover if the power supply is ON.

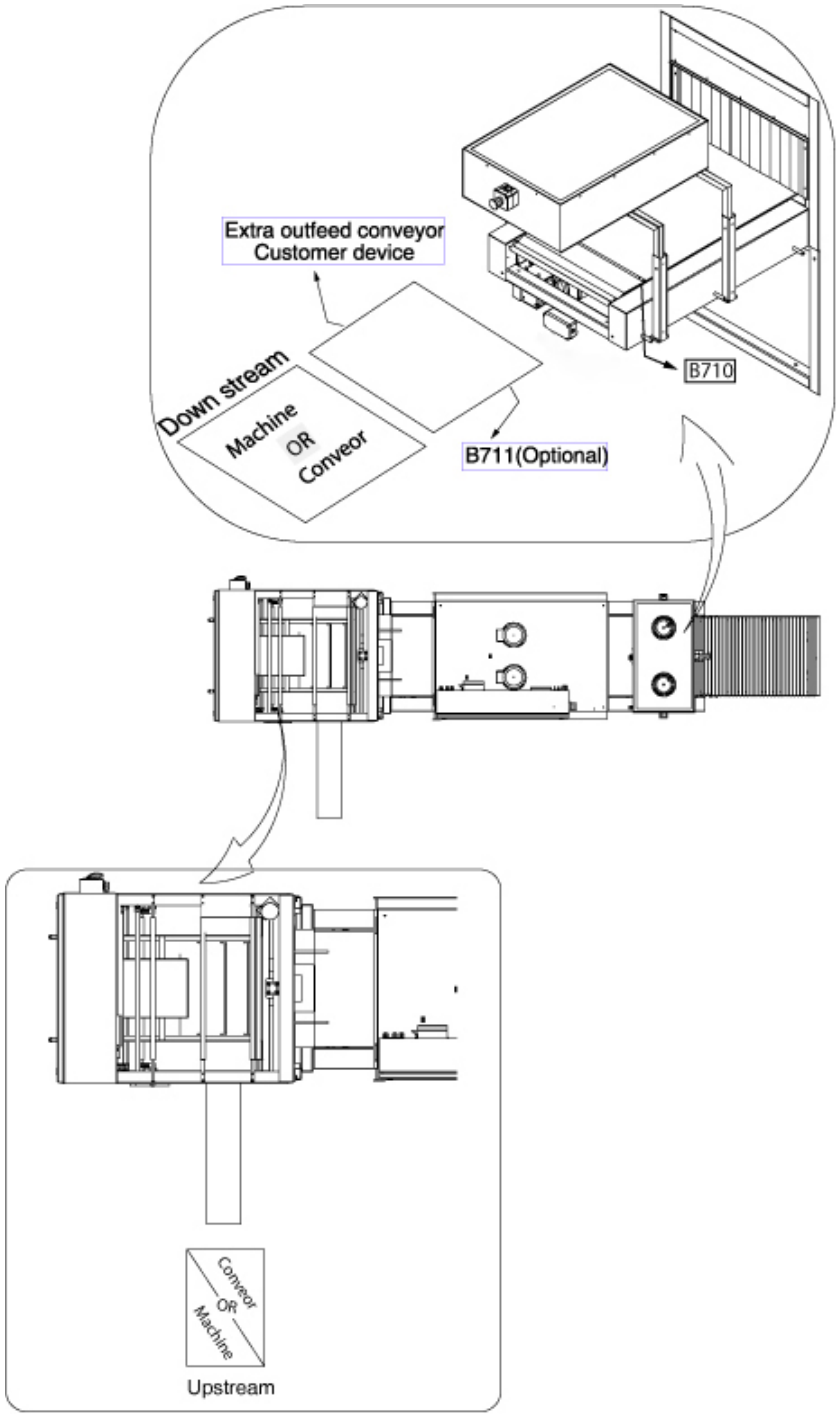
The red alarm with message **"Main supply fault or wrong sequence"** shows up if the input voltage is NOT compatible with voltage range set in voltage relay.

Open the DIP switch cover and check ON-OFF status of the DIP Switches **3 & 4.** See below table for correct ON/OFF status for each voltage.

Input range (PH-PH)	SW3	SW4
208V	ON	ON
220V	ON	OFF
230V	OFF	ON
380V	ON	ON
400V	ON	OFF
415V	OFF	OFF

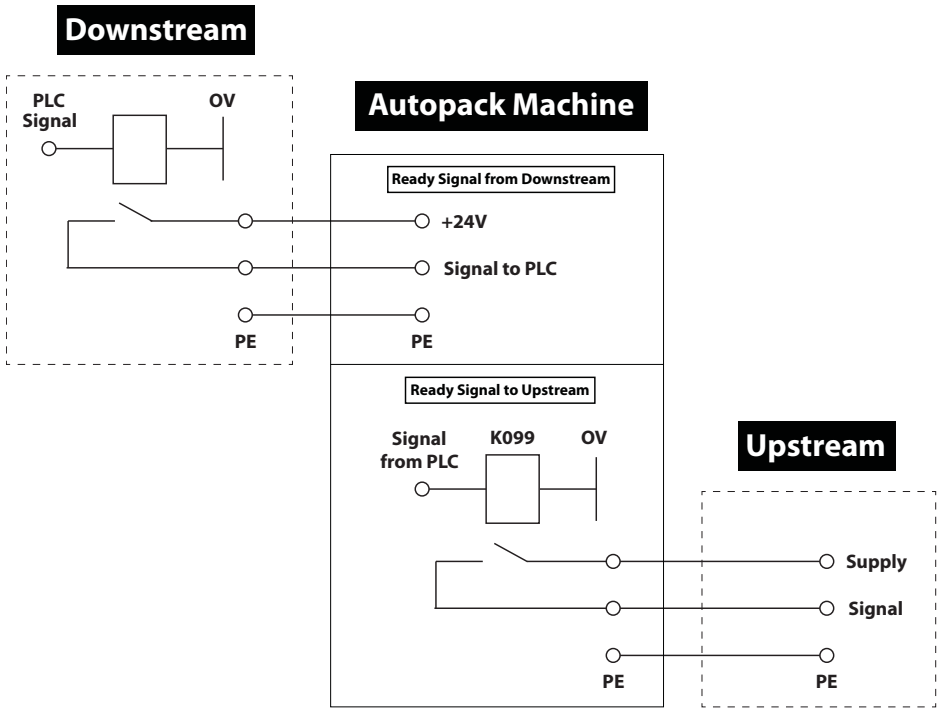


3.2-5 Machine communication with upstream and downstream



– Up-Stream is the machine or conveyor which transports products to wrapper unit. Connect the cables according to **schematic diagram***
– Down-stream is the machine or conveyor which receives product (packs) from machine. If down-stream is full / not ready to receive, machine will stop production. Connect the cables according to **schematic diagram***

*See chapter 8 Diagrams & Drawings.
See Up-Down streams overview diagram below:



3.2-6 Quality Control Check

Film Supply Brake and Shaft (optional only for SSO)

Check that the film shafts have small 0.5 - 1 mm side gap once in the cradle.

Check that the pulleys on the shafts are equidistant on both shafts. This distance should be approx. 52 mm to centre of the pulley grove.

Brake Shoe Arm (optional only for SSO)

Should be free to slide sideways so it can easily align itself with the pulley during operation. The brake spread screw on new machines should be at initial position. When shaft inserted into cradle the brake shoe should move back at least 2mm thus ensuring that there is enough braking force, and brake material to wear before adjustment is necessary.

Film Rollers

Manually spin the rollers to see if it can spin for around 3 - 4 seconds. If less, check by spining slowly if there are any tight spots. Make sure that all roller support blocks if they are coaxial with roller.

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4 Maintenance & Check

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4.1 Maintenance Schedule

4.1-1 Wrapper

General Rule

To avoid the production delay and losses follow up with the setting instructions to achieve the good throughput condition.

Note! Autopack as a supplier holds all the valuable information & spare parts aiming to support our valuable customer needs. You are requested to contact us in case you need help.

Weekly or 100 operating hours

a) Drain water from the Air Service Unit (ASU) water filter.

b) Check welding bar for residues of polymer. Clean with a piece of cloth while the bar is hot. Should the bar need more frequent cleaning inspect the teflon coating for damage. Replace if necessary.

c) Take out and clean the ventilation fan filter located at the back side of cabinet.

Monthly or 700 operating hours

a) Un-clip the Anvil Bar and check teflon shield as well as the silicon rubber strip for signs of wear or damage. In most cases there will be remains of polyethylene film if the teflon has worn off from the fibreglass substrate.

b) Remove the pusher assembly cover and lubricate the pusher linear bearings with machine oil.

c) Check all film rollers for free spinning in order to keep the tension and free movement on film pathways.

Every 3 months

a) Inspect the cutting edge of the knife for any damage and teflon coating. Replace if such is evident.

Note! Maximum life expectancy is 6 to 12 months.

b) Unclip the anvil bar and change the teflon shield. Inspect the silicon rubber strip if it has a deep (1mm) grove along the centre change the same.

Note! Maximum life expectancy on the teflon shield is from 1-6 months and for silicon rubber from 2-6 months, this depends on the speed of operation and thickness of film.

Every 1 year or 8400 operating hours

a) Remove Weld/Cut Knife blade and replace with the new one.

Every 2 years

a) Replace rubber and sponge on the rear pack clamp.

Every 5 years

a) Replace all seals in the pneumatic cylinders or replace whole cylinders.

4.1-2 Shrink Tunnel

Weekly

a) Clean the residue of polymer from tunnel at the outfeed of the tunnel whilst the tunnel is running and hot. A piece of cloth or a brass brush should be used. When finished use a rag saturated in silicon oil and rub it on the belt as it moves around.

b) Lubricate conveyor support runners with silicon oil or grease.

c) Check inside of the shrink tunnel chamber and remove if some foreign particles or PE melt residues are found.

d) Take out and clean the ventilation fan filter located at front panel of control box.

Months after installation

a) Check the chain for slacking and remove a few links if required.

b) Check tunnel's belt condition. Lubricate top of belt's slides with silicone oil, coule of drops per slide when belt is moving.

Note! The bottom of the tunnel can be lowered down and easily removed for the purpose of major cleaning.

Once a year

a) Check the chain for slacking. Remove a few links and rejoin if the chain is found extended.

b) Adjust the conveyor motor to down position to reduce the slack in the drive chain. Lubricate the chain with oil.

c) Replace the curtains at the entry or the exit to the tunnel if damaged.

d) Check the conveyor support runners. Specifically the middle ones. If necessary replace or swap inside pair with outside pair.

Once in 5 years

a) Replace conveyor belt if underside is showing excessive wear.

b) Replace conveyor belt support runners.

Consumables

Item	Recommended Brand	Part no. (used when ordering from Autopack)	Description
Silicon oil	Xiameter	COIL03500-00	Silicon oil 5 kg
Grease	Trane	CGRE32000-0T	Grease Trane 5kg
Stainless steel cleaner	3M	CCLE0A700-3M	Stainless Steel Cleaner & Polish
Detergent	Henkel, Leverindus	-	SU 118 (Leverindus), P3FPC (Henkel) or their equivalent

4.2 Maintenance Procedure

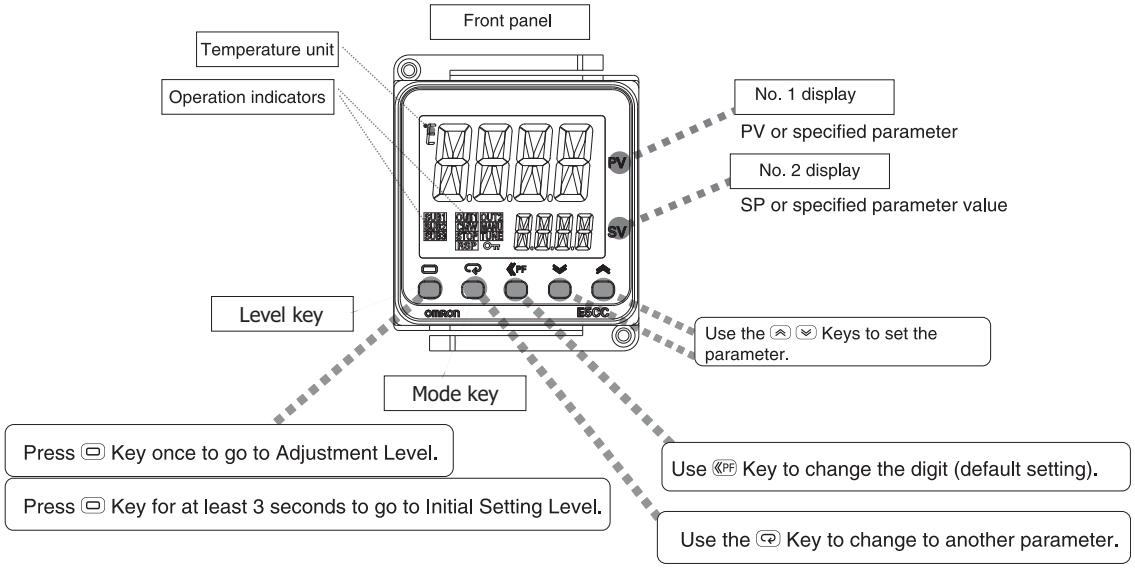
4.2-1 Equipment replacements and checks

Temperature control (Omron brand)

Note! Temperature controller is used on both wrapper and shrink tunnel.

Note! Perform temperature setting via HMI screen if the machine is supplied with Siemens or Allen-Bradley PLC .

4.2-1.1 Temperature Setting For E5CC / E5CD (with Panasonic PLC)



Indicators

Operation indicators: Used to show the status of output, alarm etc.

Temperature unit: This shows the selectable unit value from controller.

Display 1: Indicates the running Process Value for temperature.

Display 2: Indicates the Set point Value for temperature.

Setting keys

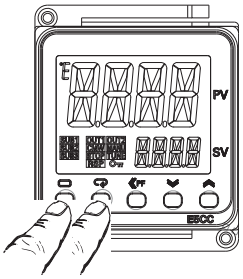
Up key: Used to increase the set point value.

Down key: Used to decrease the set point value.

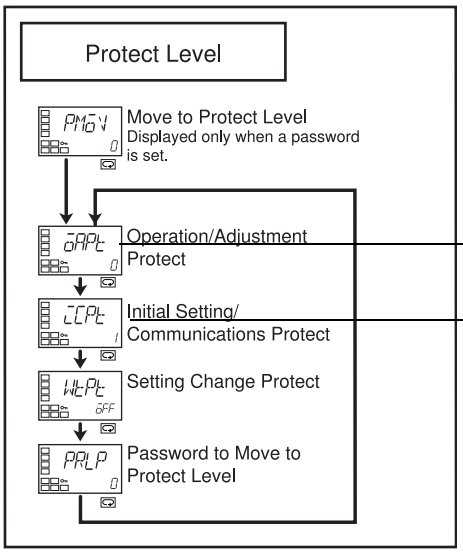
Mode key: Used like Enter button and goes to next value. It is also used in combination with level key.

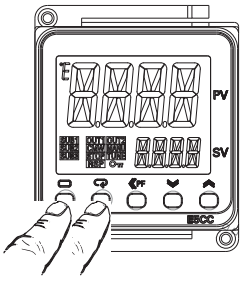
Level key: Used to change the setting level.

4.2-1.2 Protect Level

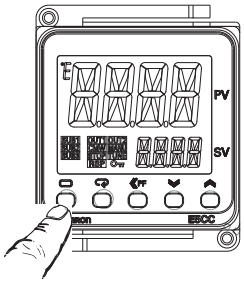


1) Press the level and mode keys together for at least 3 seconds. Display indicators will flash for 1 sec and controller enters to Protect Level.



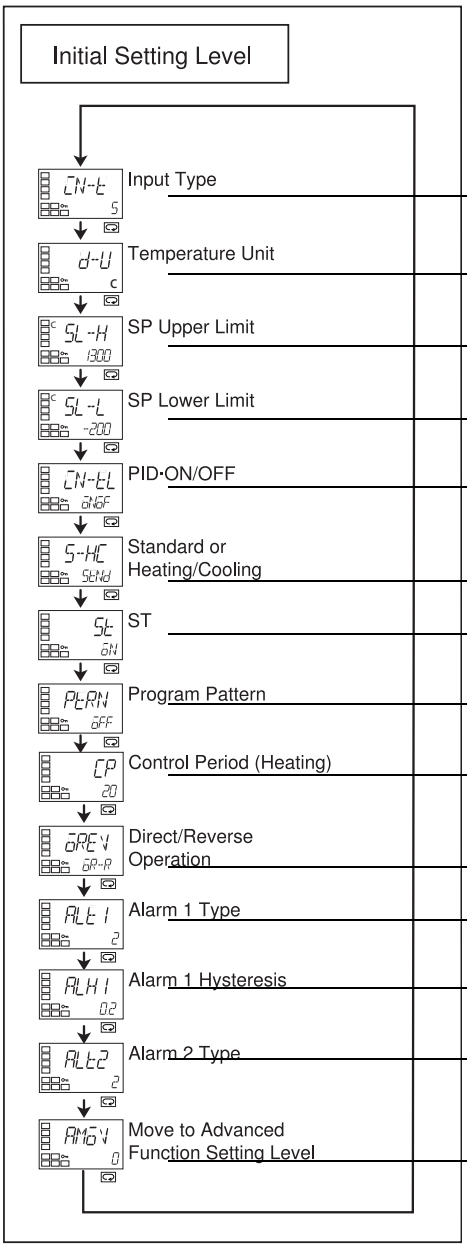


2) Press the level and mode keys together for at least 1 sec to return to operation level.



3) Press the level key for at least 3 seconds.
The display will flash and controller will enter to Initial Setting Level. Change the values as given below.

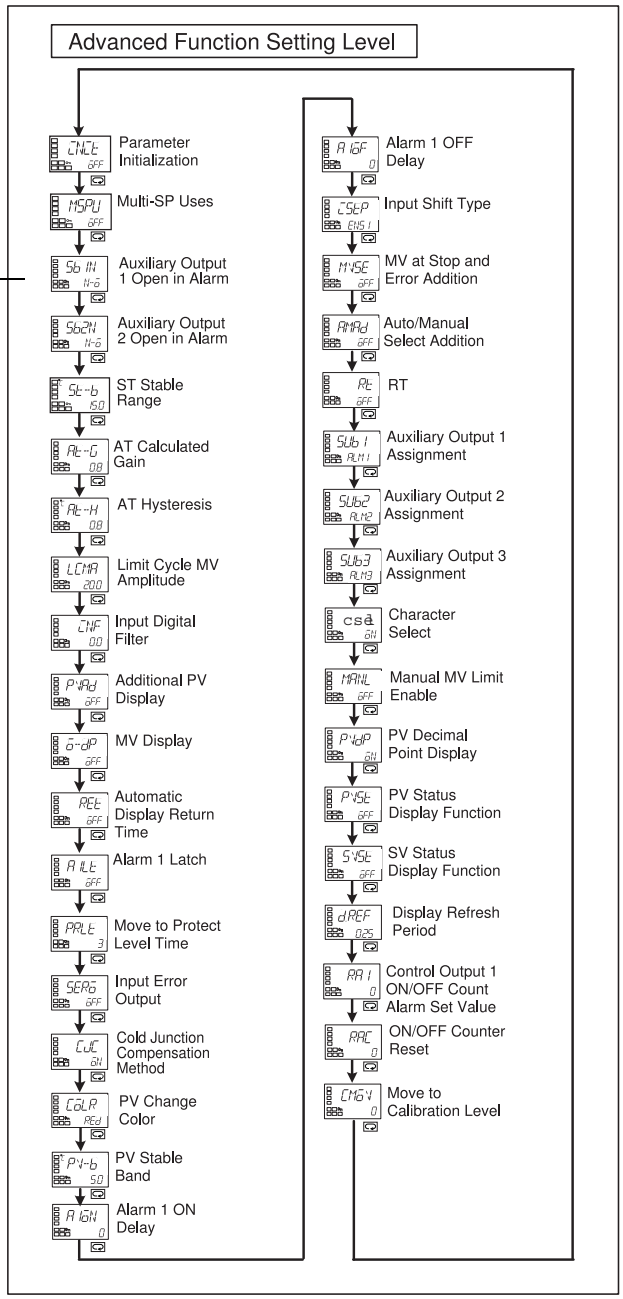
4.2-1.3 Initial Setting Level

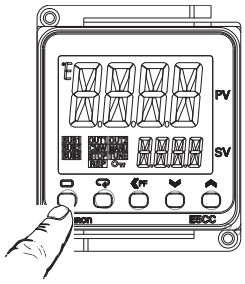


- Input Type → Set to 5.
- Temperature Unit → Set to C.
- SP Upper Limit → Set to 150 for Wrapper & 230 for Tunnel.
- SP Lower Limit → Set to 30.
- PID·ON/OFF → Set to PID.
- Standard or Heating/Cooling → Set to StNd.
- ST → Set to OFF.
- Program Pattern → Set to OFF.
- Control Period (Heating) → Set to 4
- Direct/Reverse Operation → Set to GR-R.
- Alarm 1 Type → Set to 8.
- Alarm 1 Hysteresis → Set to 0.2.
- Alarm 2 Type → Set to 0.
- Move to Advanced Function Setting Level → Set the value to -169 and wait for 1 sec. Setting level will jump to **Advanced Function Level** automatically.

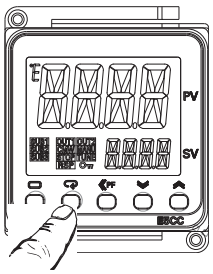
4.2-1.4 Advanced function setting level

Set to NC. The other values in the advanced function setting level are set to default and should not be changed.



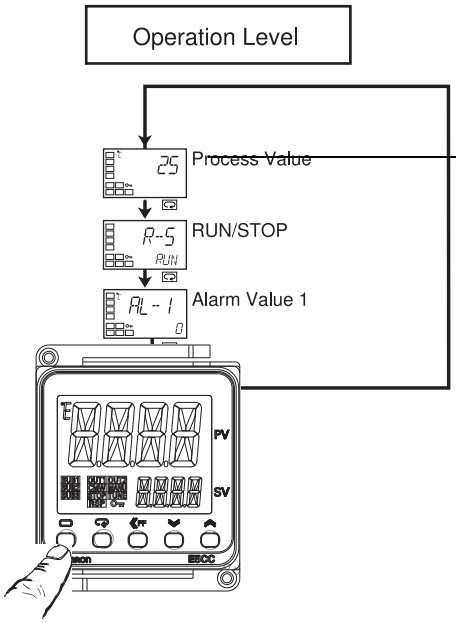


4) Press the Level Key for at least 3 sec to return to Operation Level.



5) Press Mode key for 1 sec to see the **Operation Level** value.

4.2-1.5 Operation level

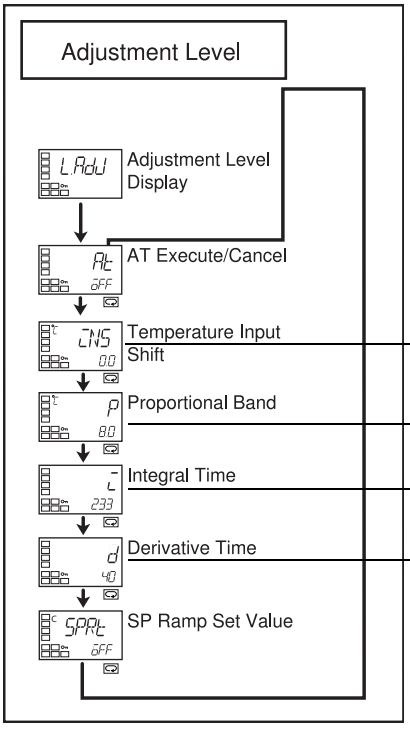


By pressing the mode key button again reach the Alarm limit value AL-1 and set as per the given below:

For wrapper set to 160.
For tunnel set to 240.

6) Press the level key for at least 1 sec to go to **Adjustment Level** and set the values as shown below.

4.2-1.6 Adjustment level

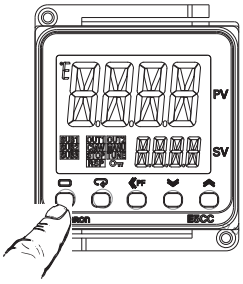


Set to 0.

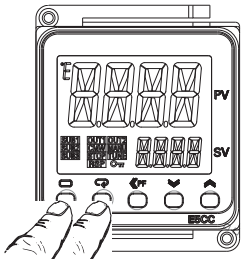
Set to 4.

Set to 18.

Set to 6.

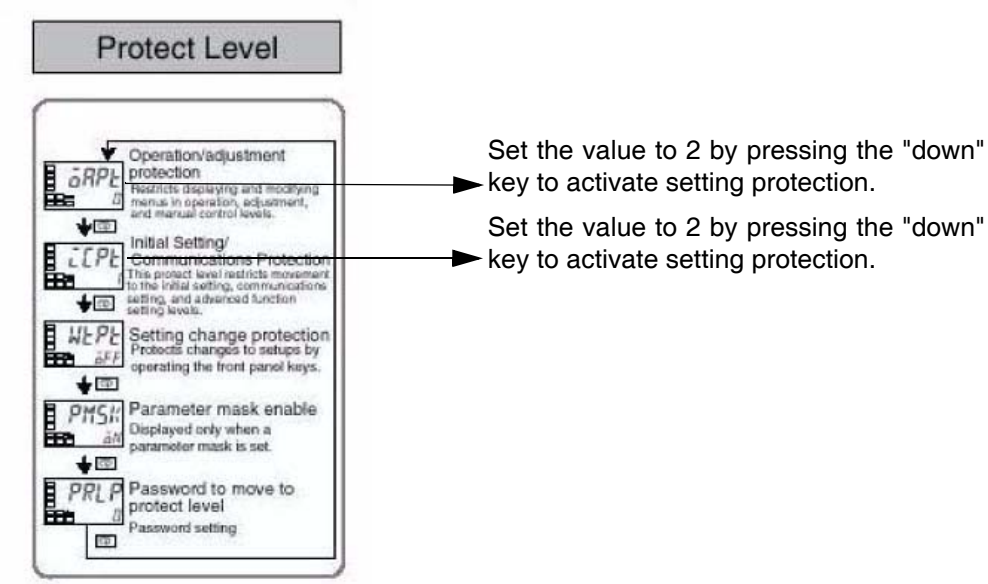


7) Press the level key for at least 1 sec to go back to **Operation Level**.



8) Press the level and mode keys together for at least 3 seconds. Display indicators will flash for 1 sec and controller enters to Protect Level.

4.2-1.7 Protect Level



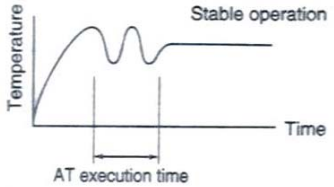
● Error display (trouble shooting)
When an error has occured, the No. 1 display alternately indicates error codes together with the current display item.

No. 1 display	Meaning	Action	Status at error	
			Control output	Alarm
S.Err (S. Err)	Input error *2	Check the wiring of inputs, disconnections, shorts, and input type.	OFF	Operates as above the upper limit.
E333 (E333)	A/D converter error *2	After the correction of input error, turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF
E111 (E111)	Memory error	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF

In the input value exceeds the display limit (-1999(-199.9) to 9999(999.9)), though it is within the control range, [cccc] will be display under -1999(-199.9) and [ɔɔɔɔ] above 9999(999.9). Under these conditions, control output and alarm output will operate normally.
Refer to "E5CN User's Manual" for details of control range.
*2: Error shown only for "Process value / Set point". Not shown for other status.

● AT (auto-tuning)
• AT in adjustment level
Designate "on: AT execute" to execute AT and "oFF : AT cancel" to cancel AT.

Also when AT execution ends, the display automatically returns to "oFF".
• Example



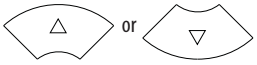
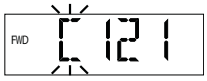
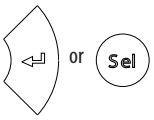
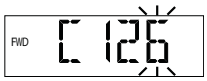
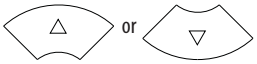
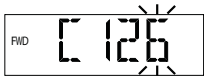
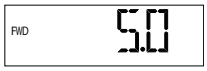
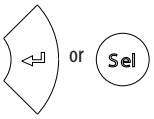
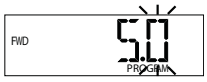
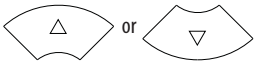
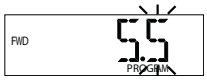
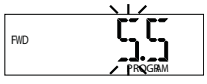
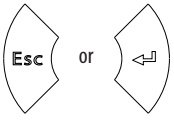
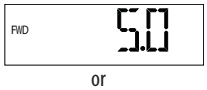
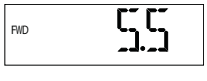
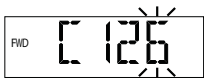
Run time for auto-tuning varies with the thermal capacity of the control system.

4.2-2 Inverter Setting

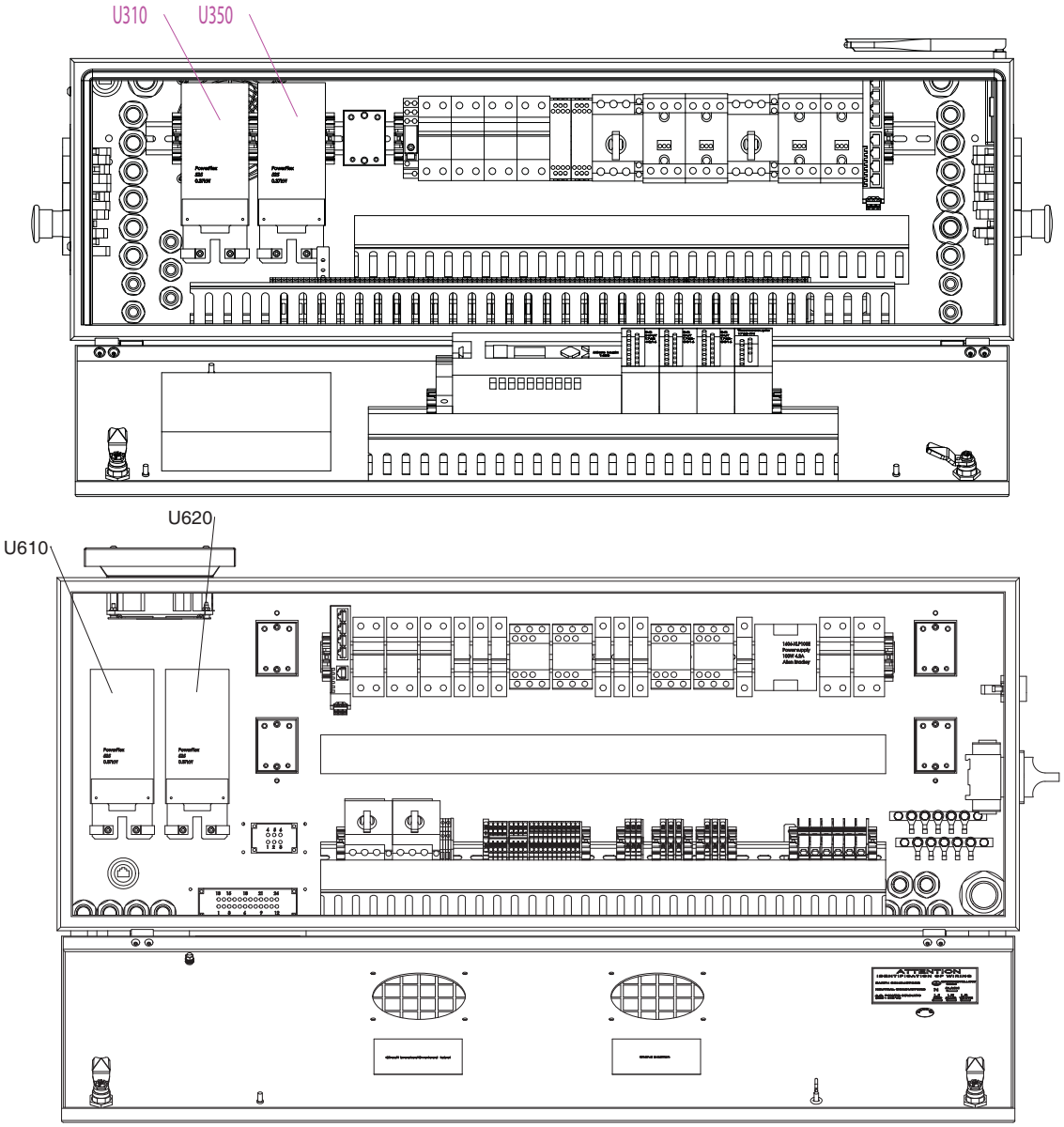
4.2-2.1 PowerFlex 525 (optional)

Using the Drive Keypad Interface to Access Parameters

The following is an example of basic integral keypad and display functions. This example provides basic navigation instructions and illustrates how to program a parameter.

Step	Key(s)	Example Display
1. When power is applied, the last user-selected Basic Display Group parameter number is briefly displayed with flashing characters. The display then defaults to that parameter's current value. (Example shows the value of b001 [Output Freq] with the drive stopped.)		
2. Press Esc to display the Basic Display Group parameter number shown on power-up. The parameter number will flash.		
3. Press Esc to enter the parameter group list. The parameter group letter will flash.		
4. Press the Up Arrow or Down Arrow to scroll through the group list (b, P, t, C, L, d, A, f, N, M, and Gx).		
5. Press Enter or Sel to enter a group. The right digit of the last viewed parameter in that group will flash.		
6. Press the Up Arrow or Down Arrow to scroll through the parameter list.		
7. Press Enter to view the value of the parameter. Or Press Esc to return to the parameter list.		
8. Press Enter or Sel to enter Program Mode and edit the value. The right digit will flash and the word Program on the LCD display will light up.		
9. Press the Up Arrow or Down Arrow to change the parameter value.		
10. If desired, press Sel to move from digit to digit or bit to bit. The digit or bit that you can change will flash.		
11. Press Esc to cancel a change and exit Program Mode. Or Press Enter to save a change and exit Program Mode. The digit will stop flashing and the word Program on the LCD display will turn off.		 or 
12. Press Esc to return to the parameter list. Continue to press Esc to back out of the programming menu. If pressing Esc does not change the display, then b001 [Output Freq] is displayed. Press Enter or Sel to enter the group list again.		

4.2-2.2 Inverter location



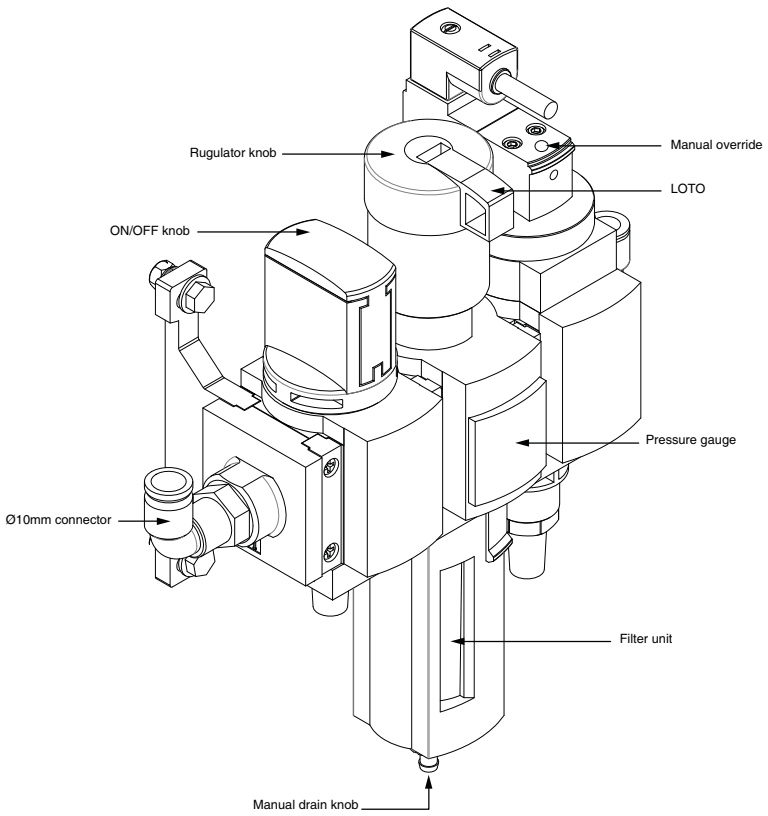
4.2-2.3 Inverter Parameter Setting

Function Code	Description	PF525 parameters			
	Parameters source	PLC	PLC	PLC	PLC
	Inverter descryption	Infeed conveyor	Table conveyor	Tunnel Conv. ST	Tunnel discharge Conveyor (Optional) ST
	Inverter number	U310	U350	U610	U620
	Rated motor power, kW	0.37	0.37	0.37	0.18
	Rated motor current, A	1.82	1.82	1.82	1.04
	Rated motor speed, RPM	1375	1375	1375	1340
	Gear Box	20:1	20:1	20:1	30:1
-					
A410	Preset Freq 0, Hz (Ter05=0, Ter06=0) Use Acc/Dec1	40.00	40.00	20.00	40.00
A411	Preset Freq 1, Hz (Ter05=1, Ter06=0) Use Acc/Dec1	0.00	0.00	50.00	0.00
A412	Preset Freq 2, Hz (Ter05=0, Ter06=1) Use Acc/Dec1	0.00	0.00	0.00	0.00
A413	Preset Freq 3, Hz (Ter05=1, Ter06=1) Use Acc/Dec1	0.00	0.00	0.00	0.00
A484	Current limit 1, A	3.6	3.6	3.6	2.1
A541	Auto Rstrt Tries	1	1	1	1
A542	Auto Rstrt Delay, s	0.0	0.0	0.0	0.0
A544	Reverse disable (1=disabled)	0	0	0	0
A573	Mtr options Cfg(10=fast Accel/Decel)	10	10	10	10
t062	DigIn TermBlk 02 (48=2-wire FWD)	48	48	48	48
t063	DigIn TermBlk 03 (0=not use)	0	0	0	0
t064	2-wire mode (0=edge trigger)	0	0	0	0
t065	DigIn TermBlk 05(7=Preset freq)	7	7	7	7
t066	DigIn TermBlk 06(7=Preset freq)	7	7	7	7
t067	DigIn TermBlk 07(29=Acc/Dec2 disable)	29	29	29	29
t068	DigIn TermBlk 08(11=Acc/Dec2 disable)	11	11	11	11
t105	Safety Open En(1=FaultDisable)	1	1	1	1
P031	Motor NP Volts,V	230	230	230	230
P032	Motor NP Herz, Hz	50	50	50	50
P033	Motor OL current, A	2.7	2.7	2.7	1.6
P034	Motor NP FLA, A	1.8	1.8	1.8	1.0
P035	Motor NP Poles	4	4	4	4
P036	Motor NP RPM, rpm	1375	1375	1375	1340
P037	Motor NP Power, kW	0.37	0.37	0.37	0.18
P038	Voltage class (only 3=600V can set)	3	3	3	3
P041	Accel time 1, s	1.00	0.30	0.20	0.20
P042	Decel time 1, s	1.00	0.30	0.20	0.20
P043	Minimum freq, Hz	0.00	0.00	13.00	0.00
P044	Maximum freq, Hz	70.00	70.00	70.00	70.00
P046	Start source 1 (2=DigIn TrmBlk, 5=Ethernet)	2	2	2	2
P047	Speed reference 1 (7=Preset Freq,15=Ethernet)	7	7	7	7
	Ethernet TCP/IP communication				
C121	Comm write mode(0=EEPROM, 1=RAM)	1	1	1	1
C128	EN Addr Sel (1 = Parameters, 2=BOOTP)	1	1	1	1
C129	EN IP Addr Cfg 1	10	10	10	10
C130	EN IP Addr Cfg 2	66	66	66	66
C131	EN IP Addr Cfg 3	13	13	13	13
C132	EN IP Addr Cfg 4	31	35	61	62
C133	EN Subnet Cfg 1	255	255	255	255
C134	EN Subnet Cfg 2	255	255	255	255
C135	EN Subnet Cfg 3	248	248	248	248
C136	EN Subnet Cfg 4	0	0	0	0
C137	EN Gateway Cfg 1	10	10	10	10
C138	EN Gateway Cfg 2	66	66	66	66
C139	EN Gateway Cfg 3	10	10	10	10
C140	EN Gateway Cfg 4	10	10	10	10

4.2-3 Air Service Unit

The unit supplied with Autopack machine consists of the filter unit with the manual drain option at the bottom side for removal of moisture, manually adjustable rotary knob diaphragm based regulator.

The setting values of pressure can be seen on the gauge and there is locking option for the knob after an adjustment has been made. There are some optional accessories which can be fitted with the service unit if requested.



4.2-3.1 Regulator lock (optional)

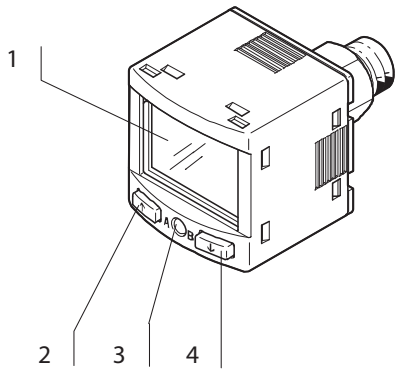
The regulator lock is a cap which is made of Polyacetal material. It is attached to the rotary knob to prevent unauthorized persons adjusting the air pressure. It is fixed to the normal air service unit with Lock plate of galvanized steel mounted on the pressure regulating valve using the knurled nut.

4.2-3.2 On Off valve

This is a 3/2 way manual shut off valve which is coming with a recognizable switching position. The unit is vented when the valve is switched off.

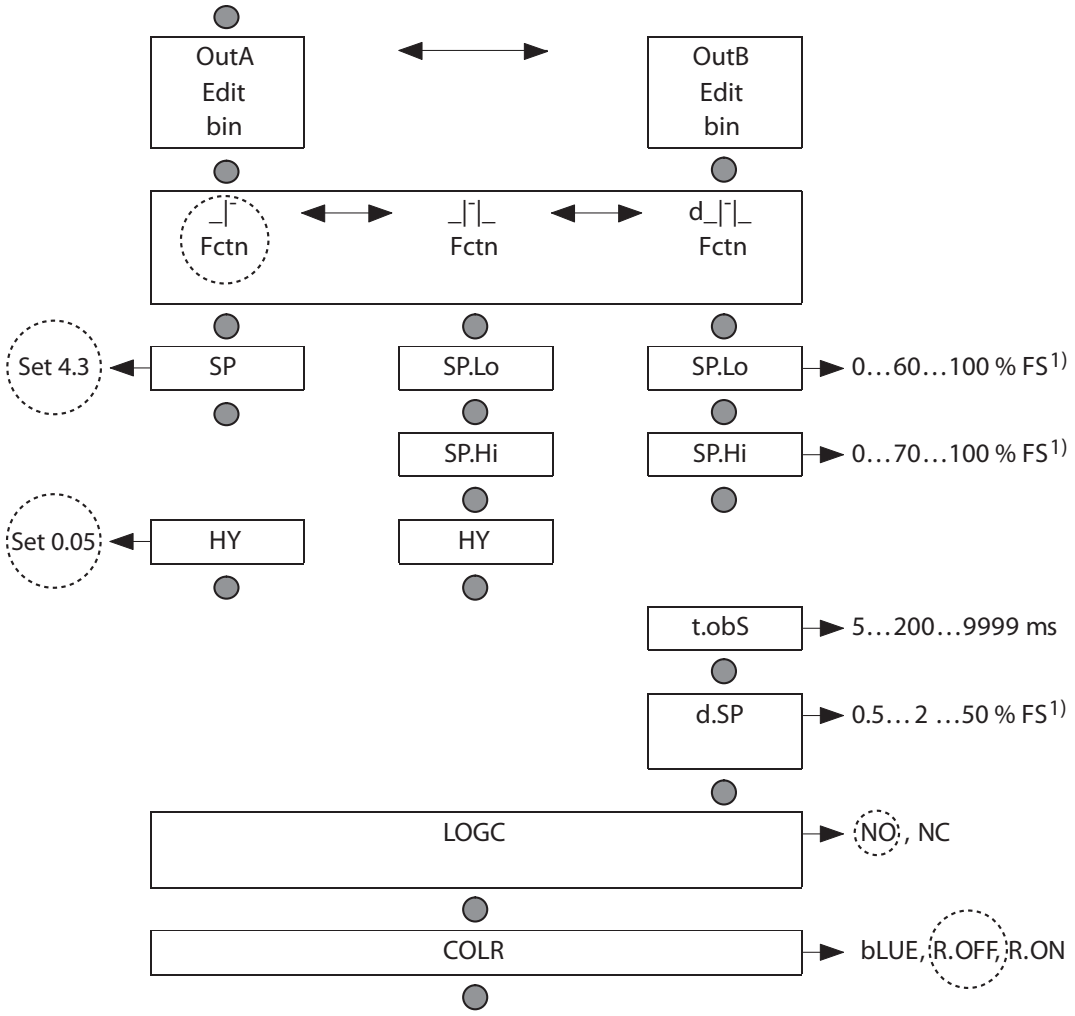
4.2-4 Air Pressure Switch

Overview



1 Display
2 A-key
3 Edit button
4 B-key

Settings



= Edit button
= A- or B-key
xxx = Set/Select items in circle

1) The values refer to the respective measuring range. The display takes place in the selected unit.

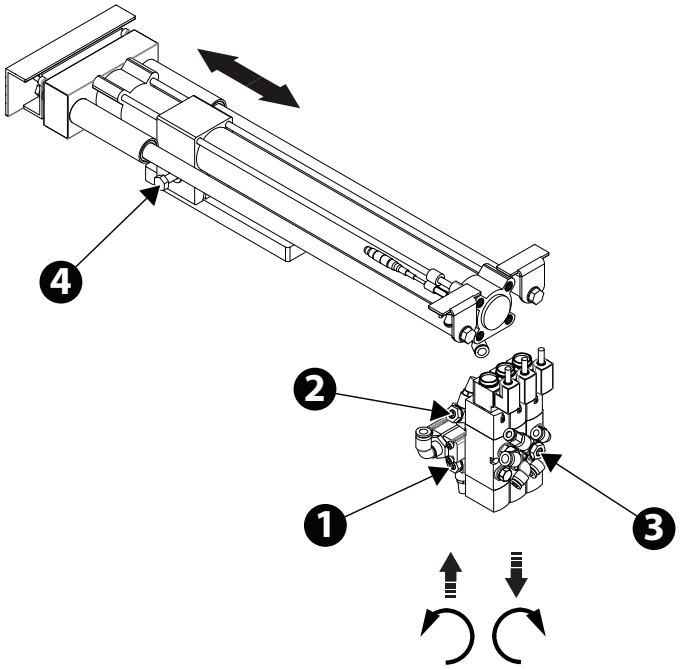
4.2-5 Pusher Speed Adjustment (WLX)

Turn screw anticlockwise to increase or turn clockwise to decrease the speed of pusher both forward (1) or backward (2).

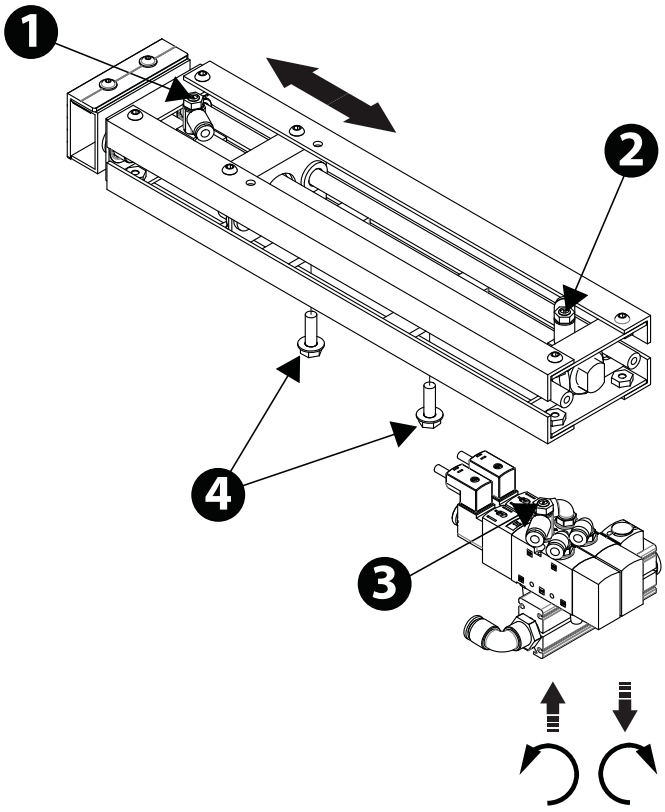
This flow control (3) is for adjusting speed of the pusher cylinder in the very beginning of the stroke. Turn screw anticlockwise to increase (or clockwise - to decrease) the speed of pusher in the beginning of the push.

Unlock screw (4) to move cylinder.

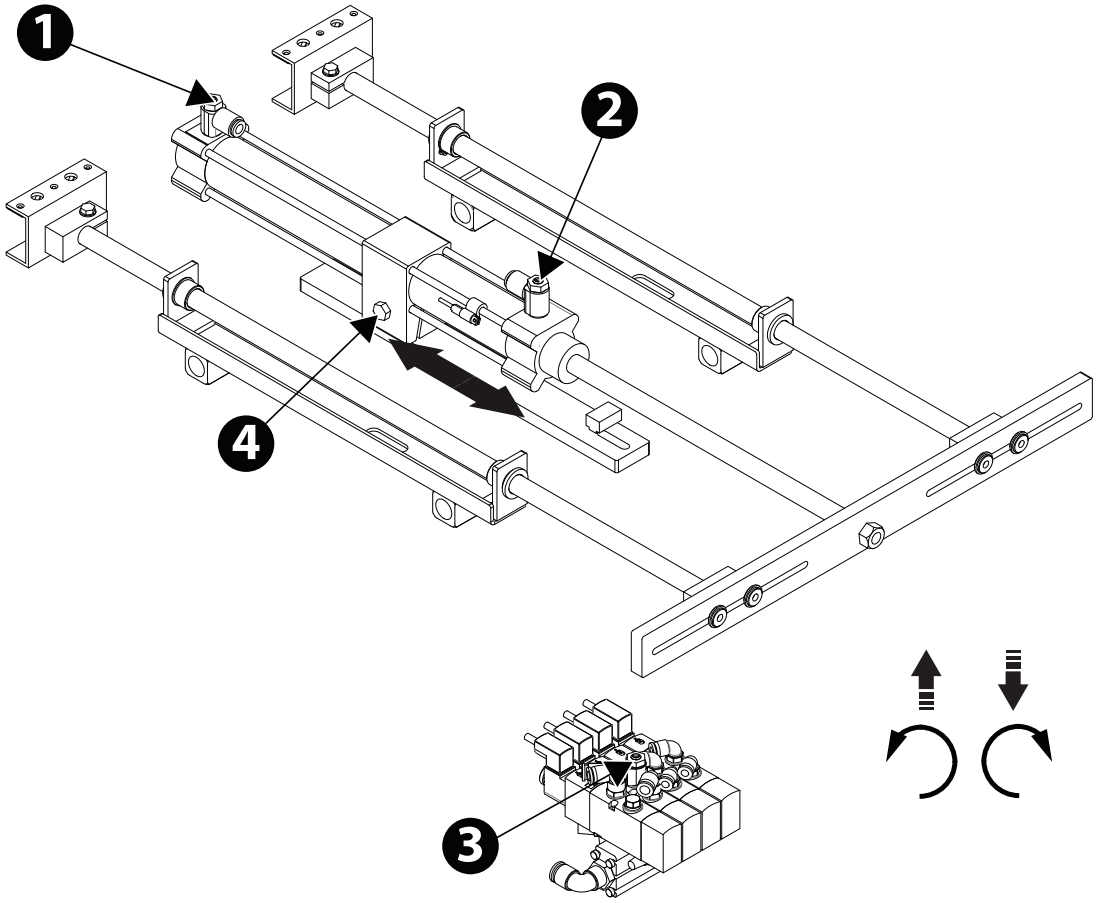
DSBG



DSNU



Tandem



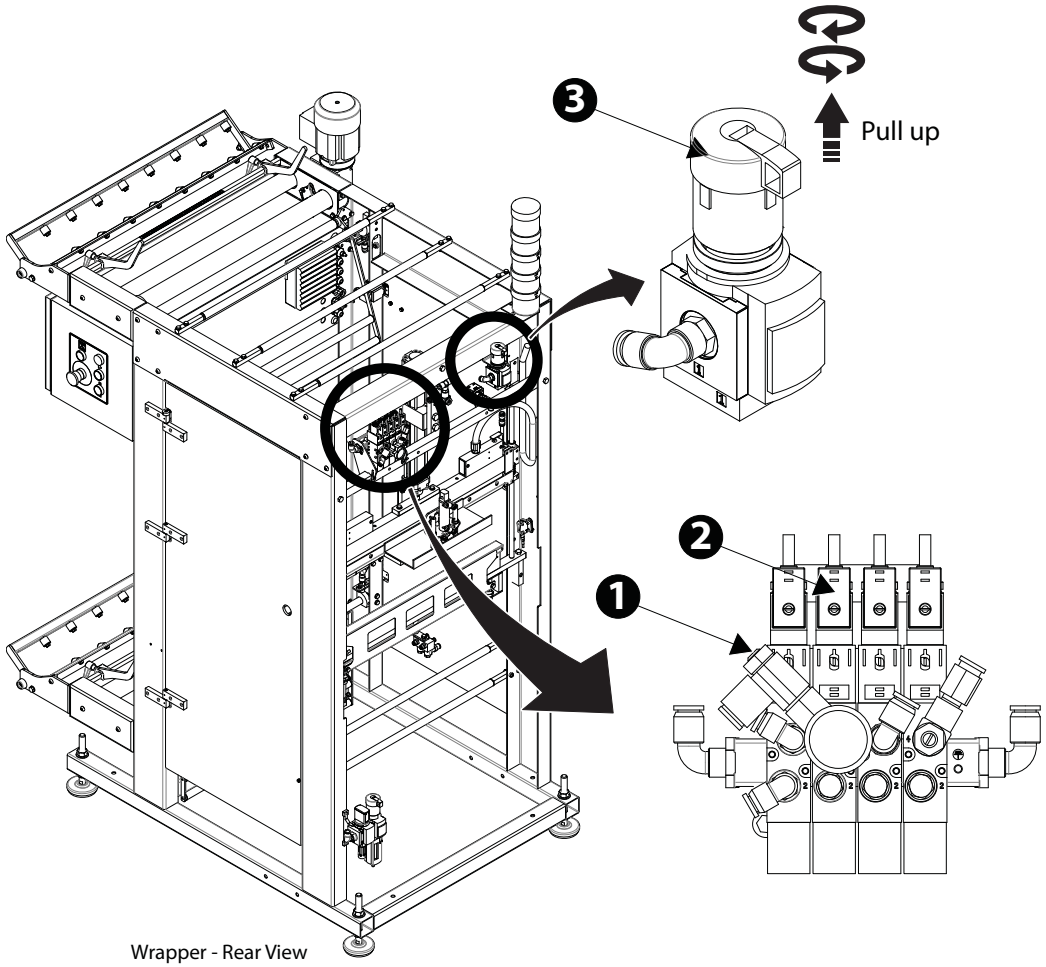
4.2-6 Welding Bar Speed Adjustment

Welding bar UP speed

- Use the flathead screw driver to turn the flow control (1) belonging to the pneumatic valve Y511 (2):
  - Clockwise = **Decrease** welding bar **UP** speed.
  - Counterclockwise = **Increase** welding bar **UP** speed.

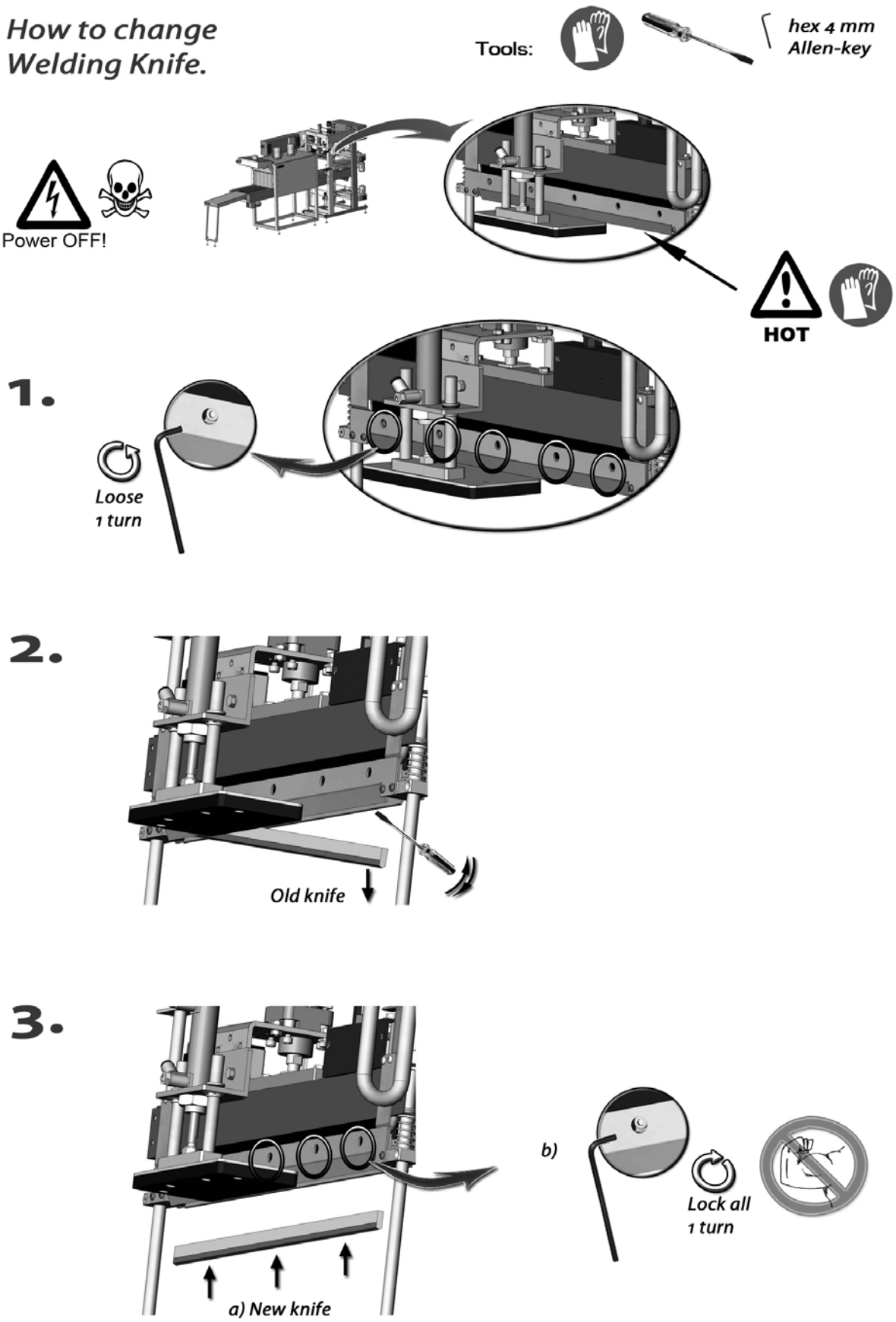
Welding bar DOWN speed

- Pull up rotary regulator knob (3) and rotate:
  - Clockwise = **Increase** welding bar **DOWN** speed.
  - Counterclockwise = **Decrease** welding bar **DOWN** speed.
- Push down the rotary regulator knob to lock.

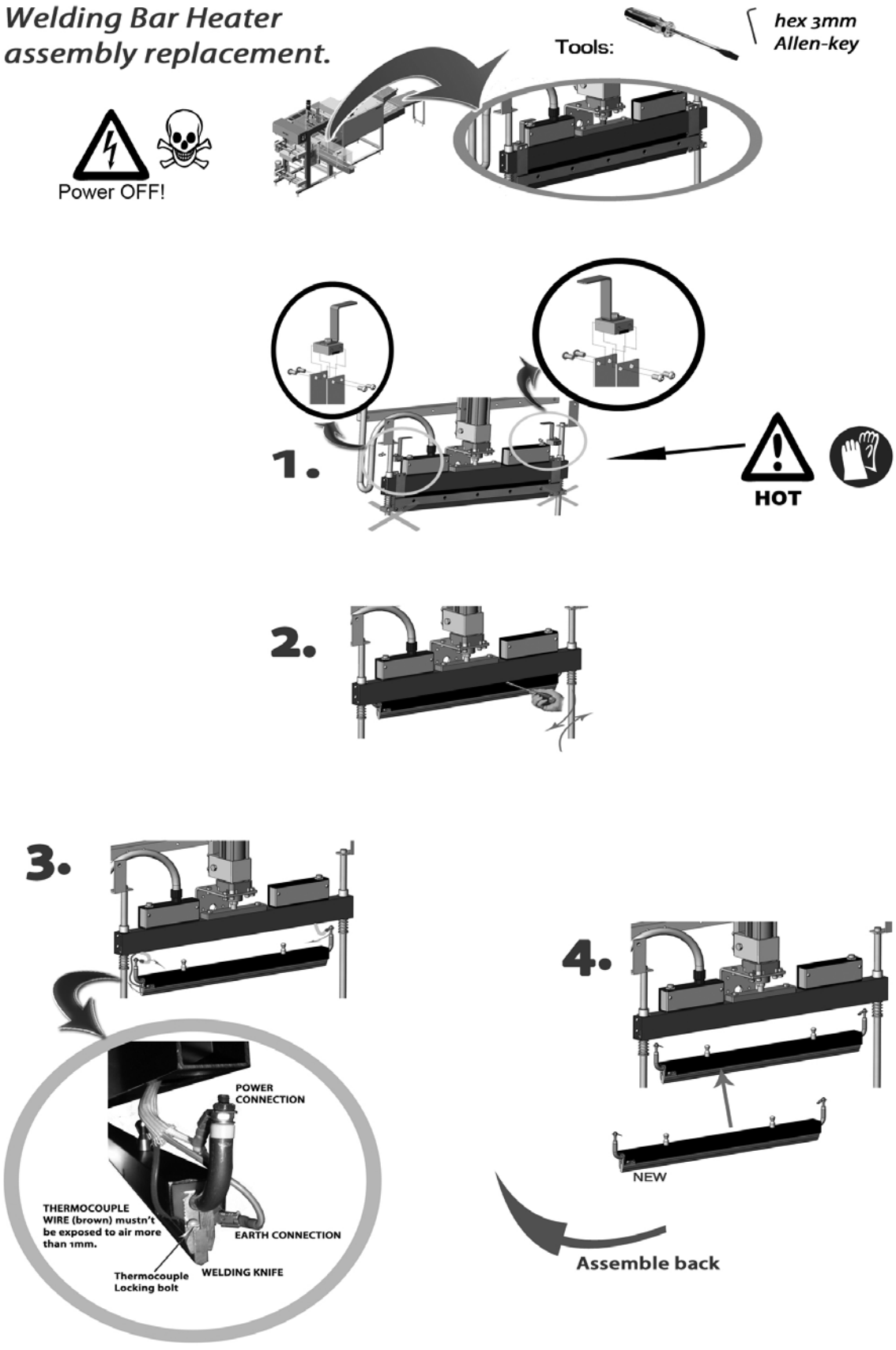


Wrapper - Rear View

4.2-7 Knife Replacement



4.2-8 Welding Bar Heater Assembly Replacement



4.2-9 Film Supply Adjustments and Checks

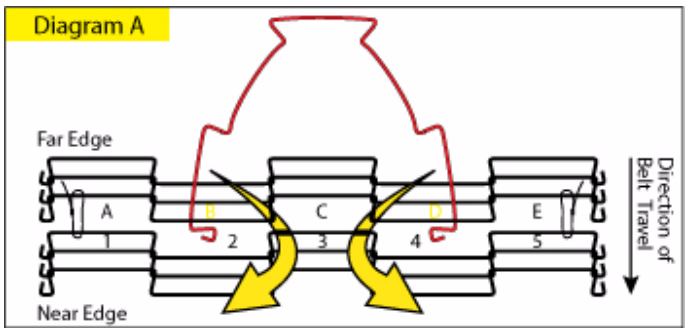
Proper operation of the film supply system is important for efficient operation of the wrapping unit.

a) **Rollers** - should be checked periodically for free turning.

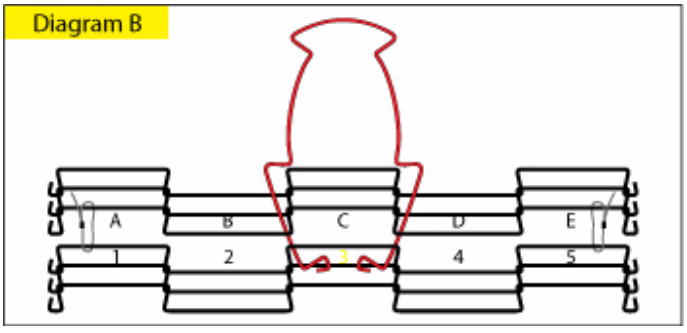
b) **Dancer bars with rollers** - should be not bent, rollers must be parallel to stationary rollers.

4.2-10 Wire belt joining instruction (Standard Wire Belt Only)

STEP 1 – Begin splicing in the center

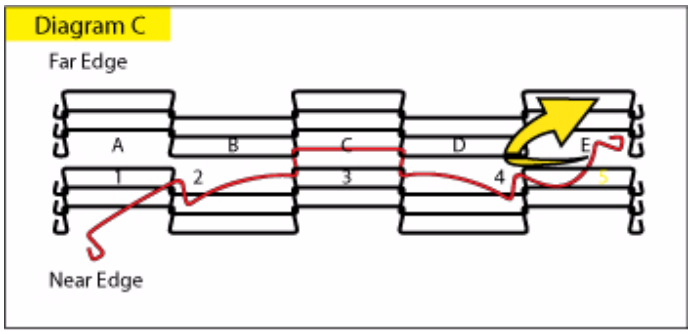


- Move the two ends of the belt to be spliced to the discharge end of the conveyor unit.
- Confirm that the edge loops are curving back away from the direction of belt travel (as shown in Diagram A). If not, check to be sure that the belt is not threaded backwards on the conveyor.
- Lay the strand down between the two belt edges and check to see that the edge loops are going in the same direction as the belt's edge loops. (The strand must also be "right side up" for it to lay flat. You will know immediately if you have installed the splice strand "wrong side up" and will have to start over.)
- BEND the strand from each side enough to INSERT the ends into the two spaces next to the center space **(Spaces B and D in Diagram A)**

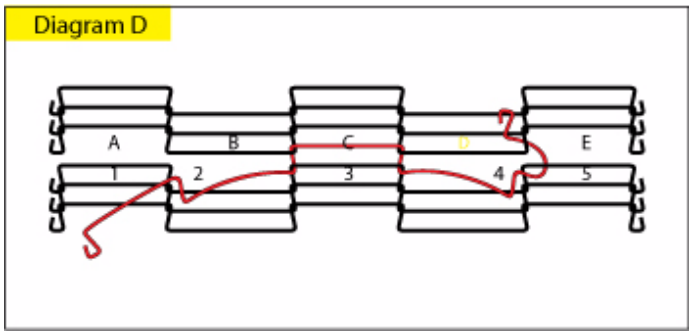


- INSERT the strand ends into the center space of the opposite edge **(Space 3 in Diagram B)**
- Pull the ends of the strand through until the center space "locks" in place (You should be pulling the strands toward you)
- Use pliers or the Wire Belt Wire Straightening Tool to STRAIGHTEN the wire in the center space (Once the center is connected, you may remove the ties holding the belt edges together)

STEP 2 – Weave strand to one side



- BEND one end of the wire up and INSERT it around the Z-bend in the next space on the edge of the wire closest to you **(Space 5 on Diagram C)**. Always try to avoid bending the wire at the Z-bend!



- BEND the wire toward the center and INSERT around the Z-bend next to the center space **(Space D on Diagram D)**
- Pull the strand wire through the mesh and STRAIGHTEN it with your pliers
- Repeat these three moves until you reach the side edge of the belt
- Using your pliers, connect the strand's edge loop to the belt's edge loop (on the far edge)
- Connect the edge loop on the near edge of the belt to the strand's edge loop
- STRAIGHTEN the strand with your pliers

STEP 3 – Weave strand to the other side

Diagram E

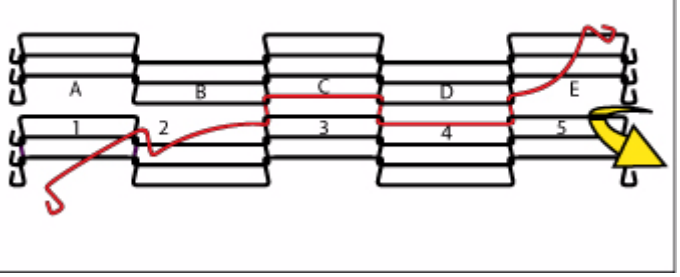


Diagram F

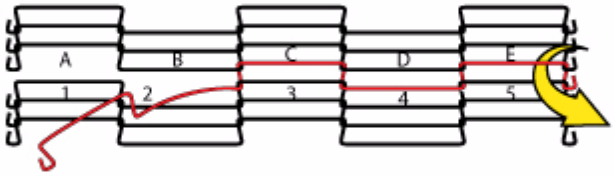
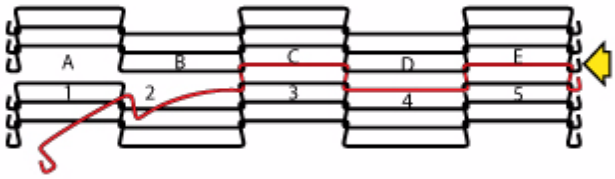


Diagram G



- Repeat the steps in #3, going in the opposite direction, weaving to the other side edge of the belt (Diagrams C through G)
- If you are installing a new belt, you are finished splicing

STEP 4 – Check drive shaft sprocket alignment

- There should be a 3/16” clearance between all sprockets (and/or blanks) and the Z-bends next to them
- Check alignment of sprocket teeth with a straight edge (only necessary if the sprockets are not keyed to the Drive Shaft)

STEP 5 – Check entire belt circuit

- Z-bends should NOT come in contact with ANY conveyor component (including end rolls, wear strips, transfer support rails or nose bars, etc.)
- Adjust as needed

STEP 6 – Adjust tension

- Use minimal tension, only enough so that drive sprockets properly engage the belt
- Run conveyor and check to be sure it runs smoothly

Part No.	Qty TL/TM/ TH	Description
WIRE BELT FOR 45W		
MBEL24340- 0W	3/4/6m	BELT WIRE 356 x 1m SS
WIRE BELT FOR 60W		
MBEL252A0- 0W	3/4/6m	BELT WIRE 508 x 1m SS

4.2-11 Maintenance checks

Checks are done during commissioning of the System and scheduled maintenance time.

Sleeve wrapper

1 - Main frame

- Check that all guard doors and safety switches working correctly.
- Feet - adjusted, locknuts tight, remove tape etc. from panels.
- Panels - Check for scratches.

2 - Raw Material

Film feed - if Gravity:

- Dancer bar and brake - adjustment
- Pulleys, cones and shaft - condition of
- Brake shoe - check for wear, adjustment
- Shaft end - play adjustment

Film feed - if Motor driven:

- Cam for sensor adjustment
- Take cover off and check chain lubrication
- General - Check for all rollers (film support/feed) - must be free to spin (Very Important!)

3 - Infeed Conveyor

- Belt - tracking and tension, condition of
- Drive & idler roller - noisy bearing, worn rubber clad, lube
- Belt support - clean (wear strips-for intralox belt only)
- AC Motor - brushes, noisy gearbox, sprocket alignment, slack in chain, lube
- Speed control - function, fuse
- Conveyor guides - correct pieces used, adjusted, no missing/loose screws

4 - Grouping System

4.1 - Pusher

- shafts/bearings, lube
- front bracket holes, mounting bolts
- adjust relative speed & coushions
- positions for limit switches
- action of short stroke SW/trigger

4.2 - Table gate

- operation with cylinders in extreme positions
- adjust speed
- PS switch check action and adjust/check if sticky

5 - Process System

5.1 - Welding systems

Welding bar - Top:

- check that conduit is fixed properly and going up down well, not broken
- exchange module, check terminal heating
- check up/down speeds relative to production
- adjust top and open fully bottom coushion
- check WBTop and WBBottom Sensors, switch operation
- Safety / Clamp bar/screws/straightness/Springs/bushes
- check Condition/glueing of knife assy
- check connections of thermocouple and wires

Anvil:

Check sponge and teflon, change if necessery:

- Sponge - change every 6 months
- Teflon - change every 1-3 months (or as needed)

5.2 - Outfeed pack clamp

- check/fix sponge pad
- adjust speed

6 - Discharge

Outfeed table:

- Adjust guides relative to production
- Slide plate - adjusted, Check gap with tunnel belt not rubbing too much or gap too big and product jumping

8 - Pneumatic system

ASU:

- Check oil (if used) - Check oil feed rate: 1 drop/30 operations. Check for oil near exhausts. Drain water, primary (main) & secondary pressure.
- Valves - check for leaks, check coils are screwed on.

9 - Electrical System

Control box:

- Check fuse, replace relays every 2 years
- Check inside connections
- Cable duct covers in place
- Safety lamp(s), all lamps are flashing.

Shrink tunnel

1 - Main Frame

- Check that all guard doors and safety switches working correctly
- Feet - adjusted, locknuts tight, remove tape etc. from panels
- Panels - Check for scratches.

5 - Process System

5.1 - Fan System

Main Fan:

- Motor - check direction(s)
- Impeller - check if direction of blades correspond to desired rotation

5.2 - Hot Chamber

- Inside - check for materials or other objects on the bottom of the tunnel, check product guides, runners and the belt for dislodgement
- Air flow - check if deflectors are in correct position with respect to fan rotation
- Curtains - Slit in correct position, repair if broken
- Check for hot spots
- Heat system - check the heater current indicators (in tunnel cabinet) if all heaters are working. If an indicator is found not illuminating, check the corresponding heater's circuit. Replace the heater if neccessary.

5.3 - Outfeed Cooling Fan

- Check motor for noise
- Fan blades - rotation
- Grilles - not damaged

6 - Transport-Main Tunnel belt conveyor

- Belt - tracking, bent links, lubrication
- Drive & idler roller - sprocket alignment, noisy bearing
- Belt support - lubrication, wear, plastic
- Motor - noisy gearbox, slack in chain, lube
- Bridging roller - lube, check if rotates, check polycord belt
- Check speed control operation

7 - Discharge

Outfeed conveyor:

- Product stop - fitted
- Legs - correct adjustment
- Outfeed sensor adjustment (if used)

8 - Pneumatic system (TxE tunnels)

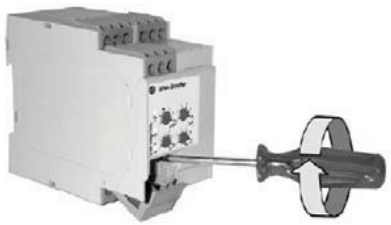
ASU:

- Check oil, water, primary & secondary pressure, lube rate
- Check oil feed rate. Check for oil near exhausts
- Valves- check for leaks, check coils are screwed on

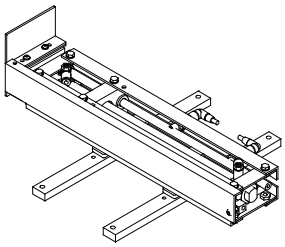
9 - Electrical system

- Circuit breaker - check if all are "ON".
- Check contactors for browning on top (if used), check wire terminations for burning, etc.
- Junction boxes - check screws are tight, check Glands are tight, check name labels are there
- Check Voltage Relay if all status are according to below table.

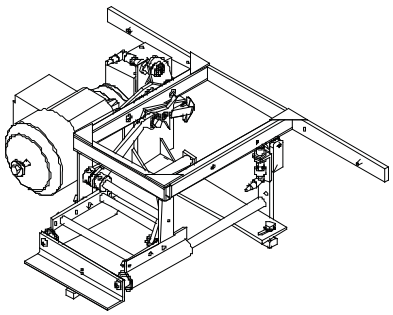
Input range (PH-PH)	Model	SW1	SW2	SW3	SW4	SW5	SW6	ASY %	Tol %	Delay 1	Delay 2
208V	813S-V3-230V	OFF	OFF : PH-PH	ON	ON	OFF	ON	10	10	3s	3s
220V	813S-V3-230V	OFF	OFF : PH-PH	ON	OFF	OFF	ON	10	10	3s	3s
230V	813S-V3-230V	OFF	OFF : PH-PH	OFF	ON	OFF	ON	10	10	3s	3s
380V	813S-V3-400V	OFF	ON : PH-N	ON	ON	OFF	ON	10	10	3s	3s
400V	813S-V3-400V	OFF	ON : PH-N	ON	OFF	OFF	ON	10	10	3s	3s
415V	813S-V3-400V	OFF	ON : PH-N	OFF	OFF	OFF	ON	10	10	3s	3s



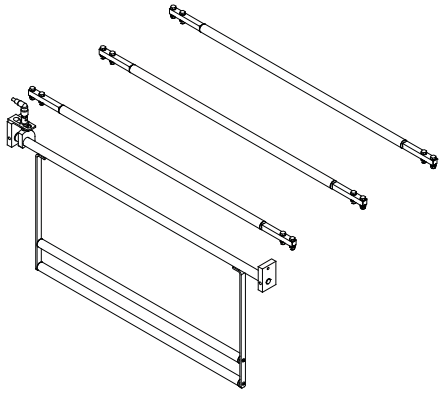
4.3 Quick guide for sensor settings



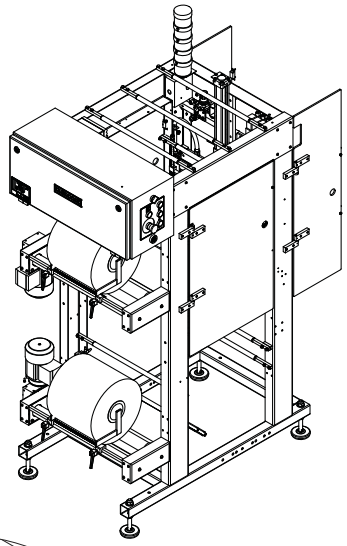
Moving back pusher

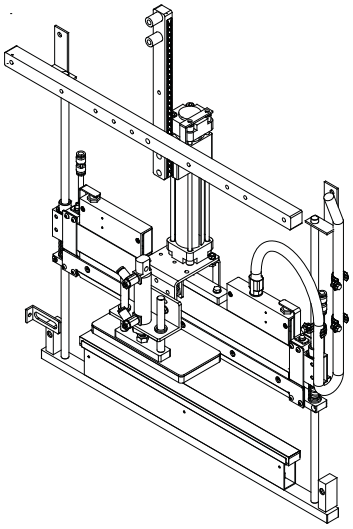


Cycling pusher

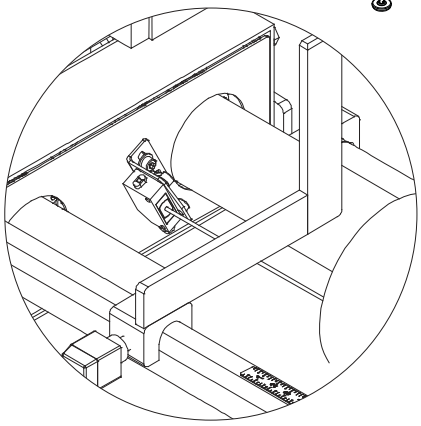


Dancer bar SW
(Top, bottom)



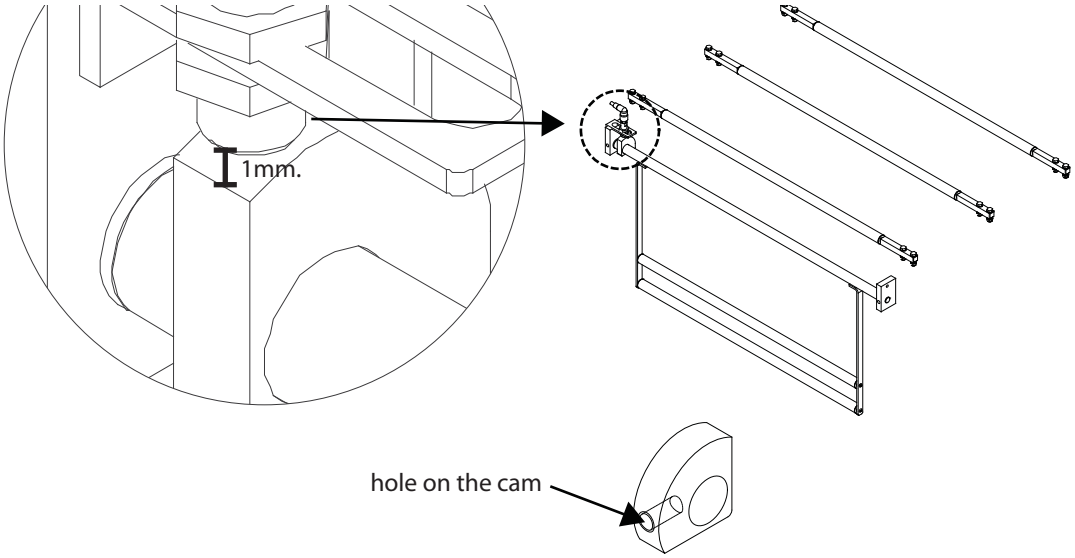


Welding bar safety SW
(Left, right, top, bottom)



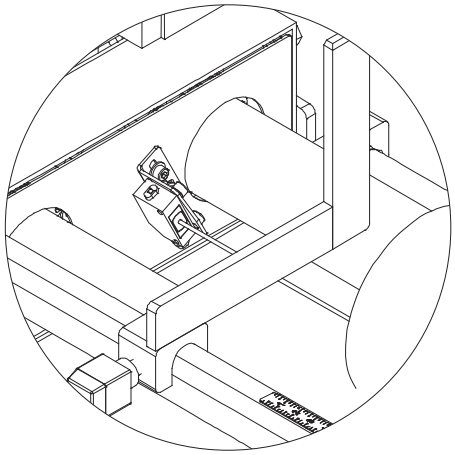
Low Film Detection SW
(Top, bottom)

4.3-1 Dancer Bar SW



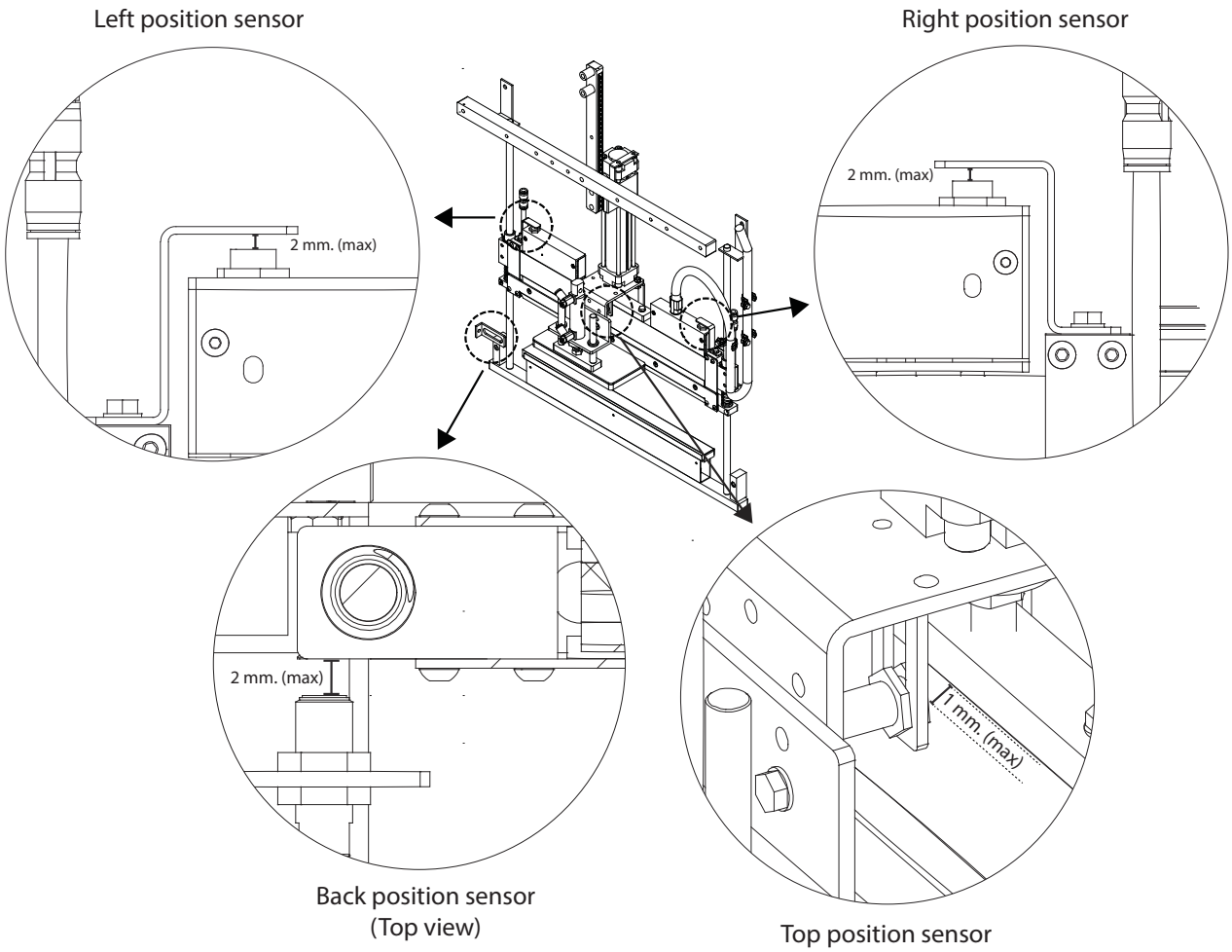
Position: top, bottom
Cam adjustment: Insert 4 mm. allen key into the hole on the cam and twist to start adjusting the cam. Adjust the cam's angle to correspond to desired degree of dancer bar.
Sensor adjustment: Loosen two nuts locking the sensor and adjust up or down, making sure that the distance between the sensor and cam is 1mm.

4.3-2 Low Film Detection SW



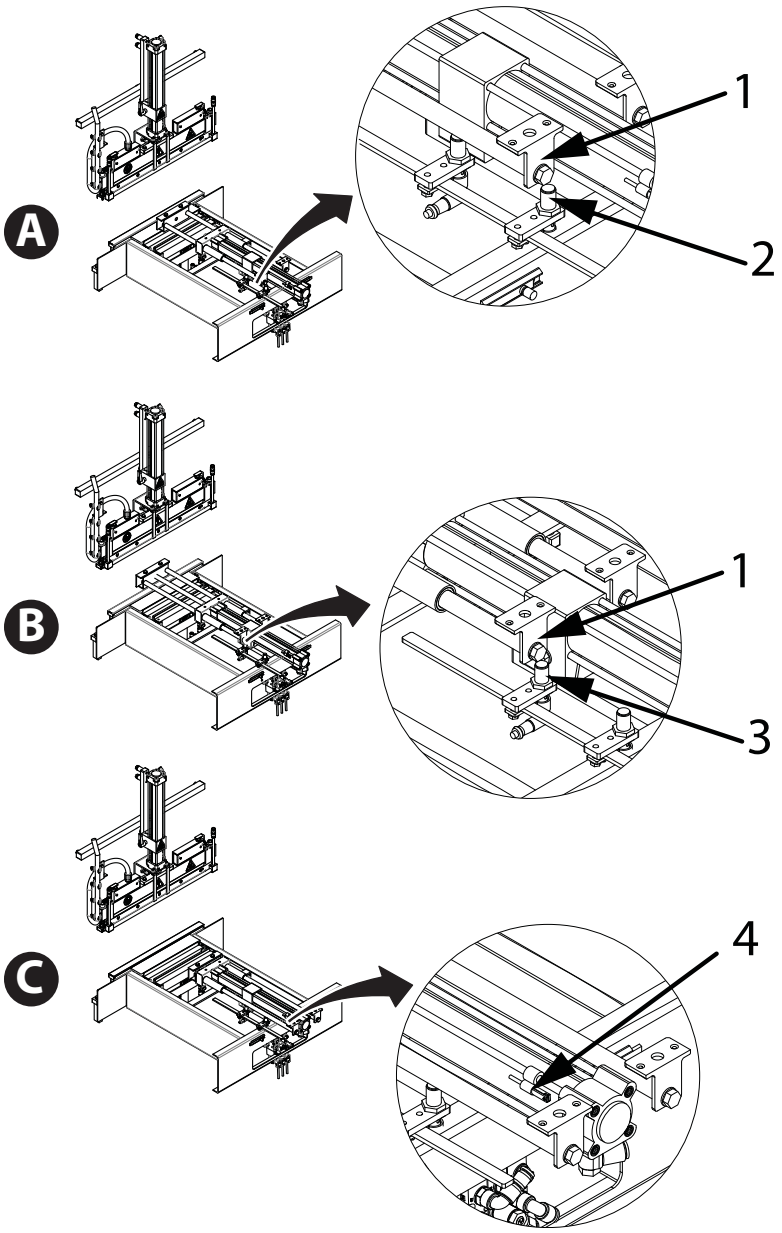
Position: top, bottom
Sensor adjustment: Loosen two nuts connecting bracket and film drive set and two nuts connecting sensor and bracket to adjust angle of the sensor. Use small screwdriver to turn small plastic buttons on the photocell to adjust sensitivity of the sensor.

4.3-3 Welding Bar Safety SW



Position: top, bottom, left, right
Sensor adjustment (top): With welding bar being fully retracted, adjust sensor's position by loosening two nuts locking the sensor. Make sure that the sensor is not over 1mm. from welding bar.
Sensor adjustment (bottom): The botom position sensor is located at lower right back of the welding (if standing in front of the machine). Loosen two nuts locking the sensor and adjust up or down, making sure that the distance between the sensor and the welding bar is not over 2mm.
Sensor adjustment (left, right): Loosen two nuts locking the sensor and adjust up or down, making sure that the distance between the sensor and the safety guard bracket is not over 2mm.

4.3-4 Pusher (DSBG)



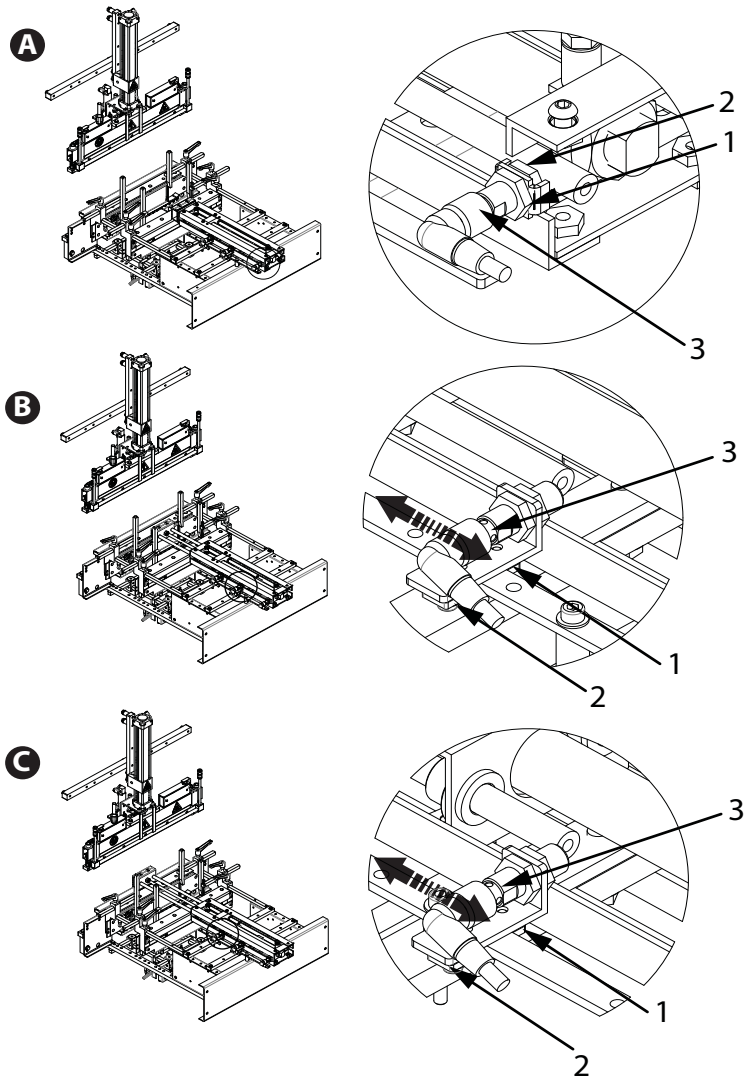
1. Bracket
2. Pusher short stroke sensor
3. Pusher long stroke sensor
4. Pusher home sensor

Set pusher short forward stroke limit (A): Slide pusher forward until the pusher plate reaches table gate on collation table. Loosen the screw fixing sensor(2) and slide the sensor(2) to detect the bracket(1) fixed at the end of the pusher. Make sure the sensor light is off when the pusher pushes a bit past table gate. Lock in place.
Set pusher long forward stroke limit (B): Slide pusher forward until the pusher plate is under the welding bar area. Loosen the screw fixing sensor(3) and slide the sensor(3) to detect the bracket(1) fixed at the end of the pusher. Make sure the sensor light is off when the pusher pushes a bit past the area under welding bar. Lock in place.

Note: Proper distance for forward short and long stroke limit might vary depending on pusher speed and properties of the product (weight, shape, friction, etc.) Ex. If the pusher speed is faster, stroke limit distance should be shortened to compensate the increased pushing force of the pusher.

Set pusher home sensor (C): Loosen the screw that locks the sensor(4) and slide the sensor to the point where the light is on when pusher is at fully retracted position. Lock in place. **(Note: home sensor is properly set during machine testing process at Autopack factory. No further adjustment should be done.)**

4.3-5 Pusher (DSNU)



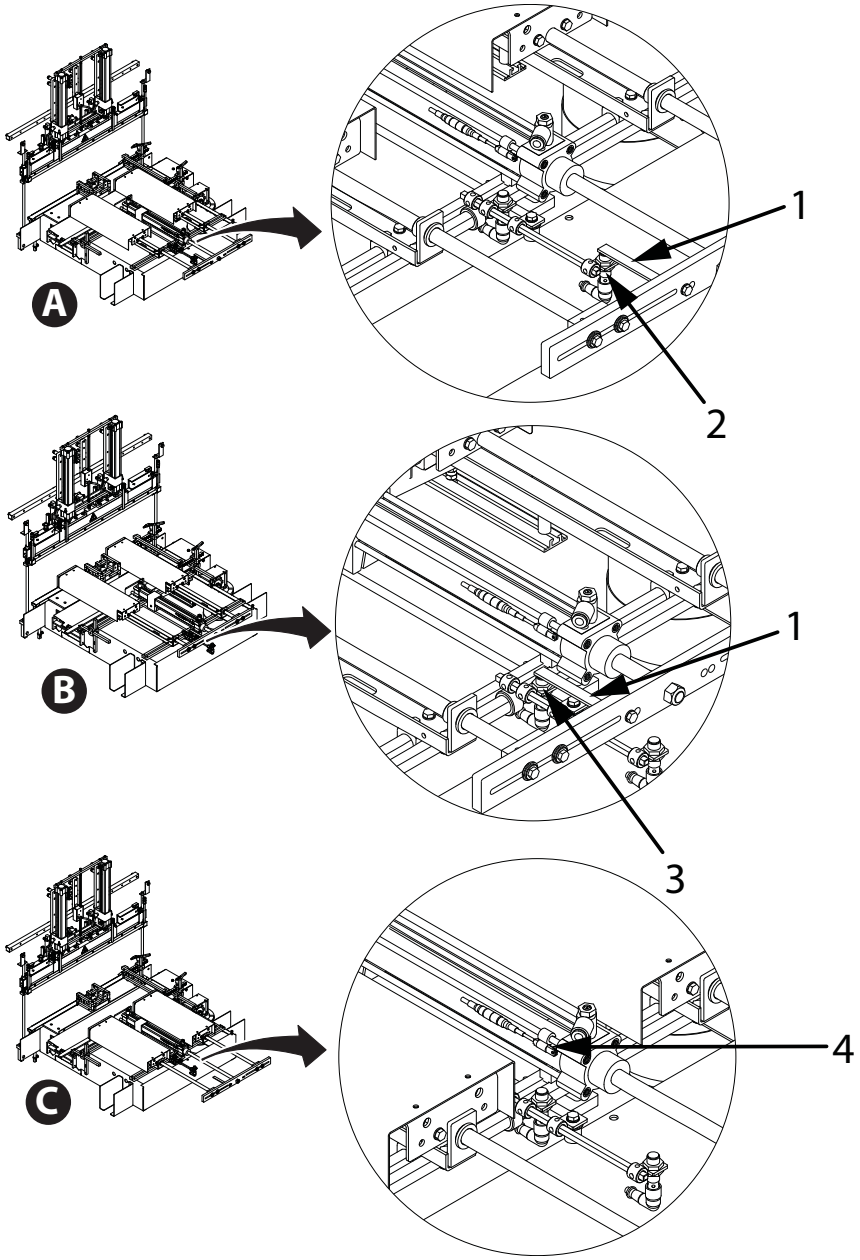
Set pusher home sensor (A): Loosen the nuts(1, 2) fixing home sensor(3) and slide the sensor to the point where the light is on when pusher is at fully retracted position. Lock in place. **(Note: home sensor is properly set during machine testing process at Autopack factory. No further adjustment should be done.)**

Set pusher short forward stroke limit (B): Slide pusher forward until the pusher plate reaches area before table close to the welding bar. Loosen screws(1, 2) fixing sensor and slide the sensor(3) backward until the signal is lost. Make sure the sensor is off when pusher pushes past stacking unit and stops before table area close to welding bar. Tighten the screws. (If not SLV, make sure the sensor is off when the pusher pushes a bit past table gate).

Set pusher long forward stroke limit (C): Slide pusher forward until the pusher plate is under the welding bar area. Loosen screws(1, 2) fixing sensor and slide the sensor(3) backward until the signal is lost. Make sure the sensor is off when the pusher pushes a bit past the area under welding bar. Tighten the screws.

Note: Proper distance for forward short and long stroke limit might vary depending on pusher speed and properties of the product (weight, shape, friction, etc.) Ex. If the pusher speed is faster, stroke limit distance should be shortened to compensate the increased pushing force of the pusher.

4.3-6 Tandem Pusher (finger detection)



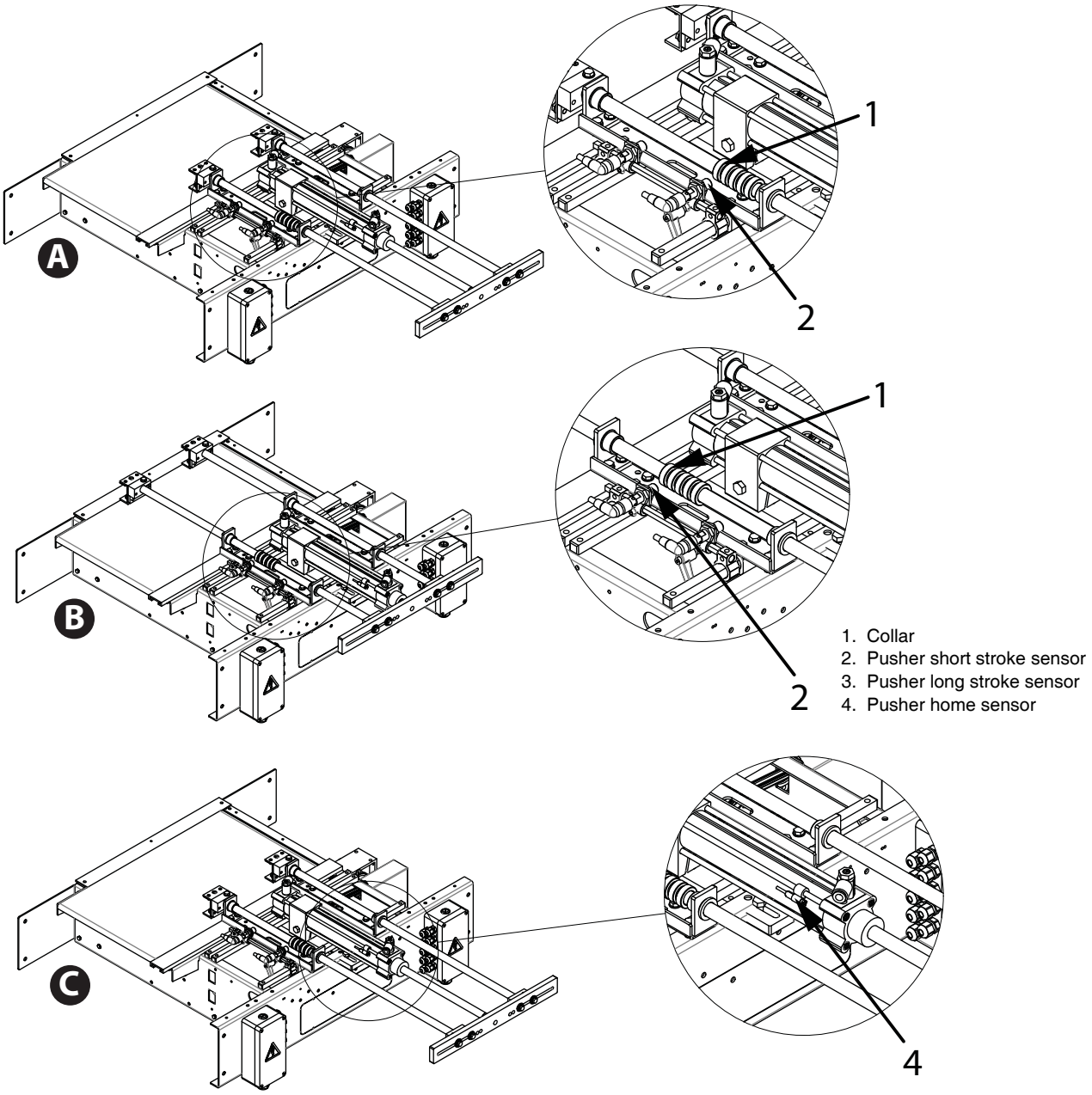
1. Finger
2. Pusher short stroke sensor
3. Pusher long stroke sensor
4. Pusher home sensor

Set pusher short forward stroke limit (A): Slide pusher forward until the pusher plate reaches table gate on collation table. Loosen the screw fixing sensor(2) and slide the sensor(2) to detect the tip of finger(1) above. The sensor light is ON.
Set pusher long forward stroke limit (B): Slide pusher forward until the pusher plate is under the welding bar area. Loosen the screw fixing sensor(3) and slide the sensor(3) to detect the tip of finger(1) above. The sensor light is ON.

Note: Proper distance for short and full stroke might vary depending on pusher speed and properties of the product (weight, shape, friction, etc.) Ex. If the pusher speed is faster, full stroke distance should be shortened to compensate the increased pushing force of the pusher.

Set pusher home sensor (C): Loosen the screw that locks the sensor(4) and slide the sensor to the point where the light is on when pusher is at fully retracted position. Lock in place. **(Note: home sensor is properly set during machine testing process at Autopack factory. No further adjustment should be done.)**

4.3-7 Tandem Pusher (collar detection)

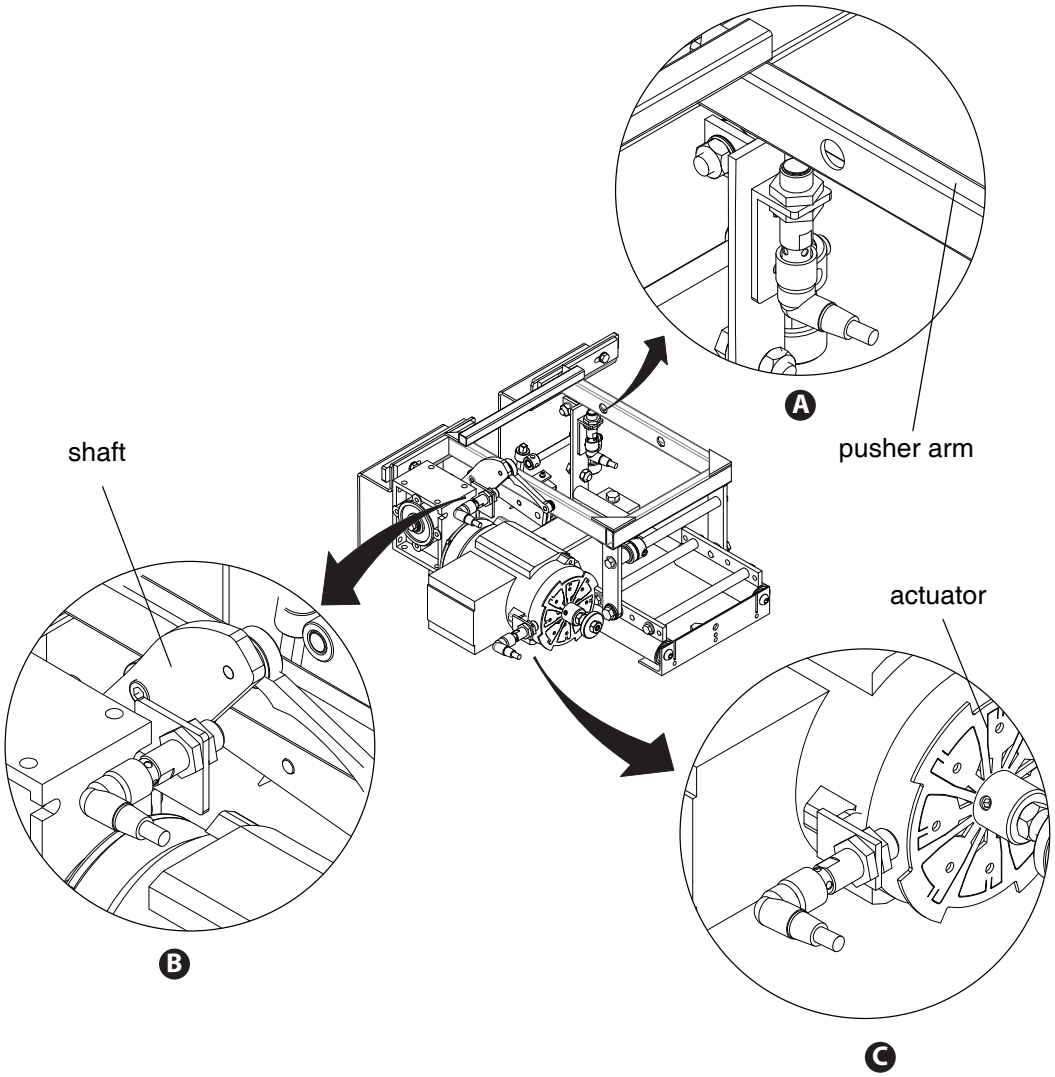


Set pusher short forward stroke limit (A): Slide pusher forward until the pusher plate reaches table gate on collation table. Loosen the screw fixing sensor(2) and slide the sensor(2) to detect the collar(1) above. The sensor light is ON.
Set pusher long forward stroke limit (B): Slide pusher forward until the pusher plate is under the welding bar area. Loosen the screw fixing sensor(3) and slide the sensor(3) to detect the collar(1) above. The sensor light is ON.

Note: Proper distance for short and full stroke might vary depending on pusher speed and properties of the product (weight, shape, friction, etc.) Ex. If the pusher speed is faster, full stroke distance should be shortened to compensate the increased pushing force of the pusher.

Set pusher home sensor (C): Loosen the screw that locks the sensor(4) and slide the sensor to the point where the light is on when pusher is at fully retracted position. Lock in place. **(Note: home sensor is properly set during machine testing process at Autopack factory. No further adjustment should be done.)**

4.3-8 Cycling pusher



Position: A, B, C
Loosen nuts fixing each sensor and adjust as follow:
A: Move the sensor and lock 2mm from the pusher arm.
B: Move the sensor and lock 2mm from the shaft.
C: Move the sensor and lock 2-3mm from the actuator.

4.4 Sensor Setting Instruction

BAUMER (O330.GP)

LED Indication

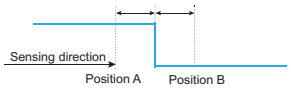
Legend

- LED on
- 1 LED flashing 1 Hz
- 2 LED flashing 2 Hz
- 8 LED flashing 8 Hz

Operating Mode

LED Indicators	Green	Yellow
Power on	●	
Short circuit	1	
Output 1 active		○
Output 1 signal close to threshold		8
Teach-in mode	see Teach-in Instruction	

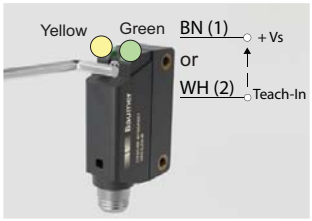
Teach-In Description Level 1 & 2

	O330.G, Background suppression sensors		
Level 1	1-Point Teach (Green) Set the switchpoint at the position of the object +TPO* (teach point offset) TPO: See packaging (typ. 0% or 10%) 	Level 2	2-Point Teach (Yellow) Set the switchpoint in the middle of position A & B 

Teach-in Instruction

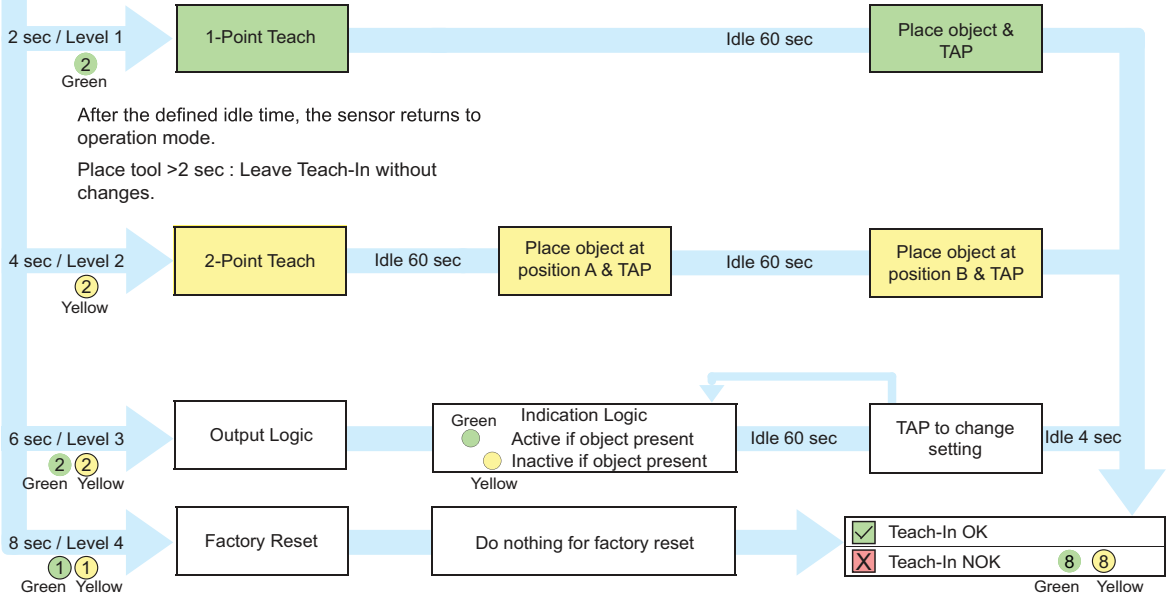
Enter Teach Level
- Place ferromagnetic tool as shown on the right to activate *qTeach*® or connect Teach-In wire to +Vs
- Green and yellow LED light up if tool / Teach-In is recognized properly
- Remove after n sec for desired level

A TAP is a short touch (>100 ms) of the tool as shown on the right

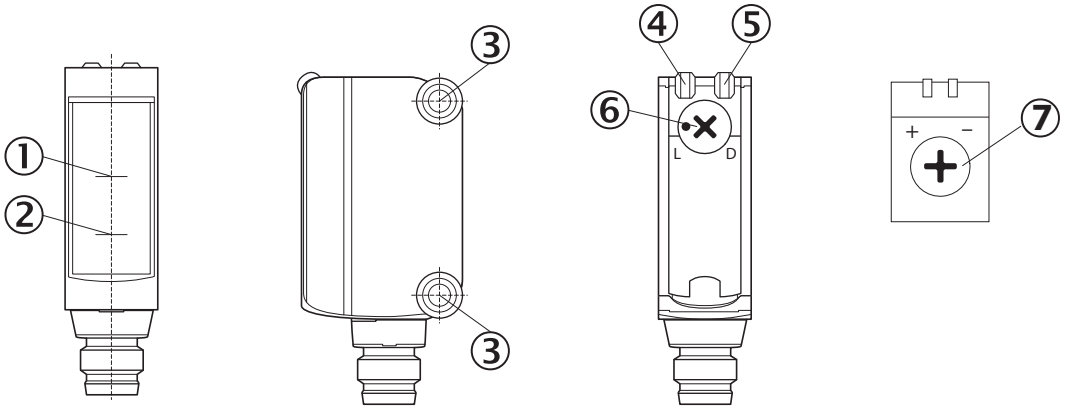


General Information

qTeach® locks 5 mins after power up*
- If locked, *qTeach*® can be reactivated by re-apply-power or by connecting the Teach-In wire for >15 sec. to +Vs
- External teach-in is always possible (no locking)
- In teach mode the output changes to 0V
- During operation the teach wire should be connected to 0V
- For external Teach-In connect Teach-In to +Vs



SICK - Reflective Type (GL6-P4212) & Through Beam Type (GSE6-P4212)



① Optical axis, receiver
② Optical axis, sender
③ Mounting holes M3
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Light/ dark rotary switch: L = light switching, D = dark switching
⑦ Sensitivity control: potentiometer

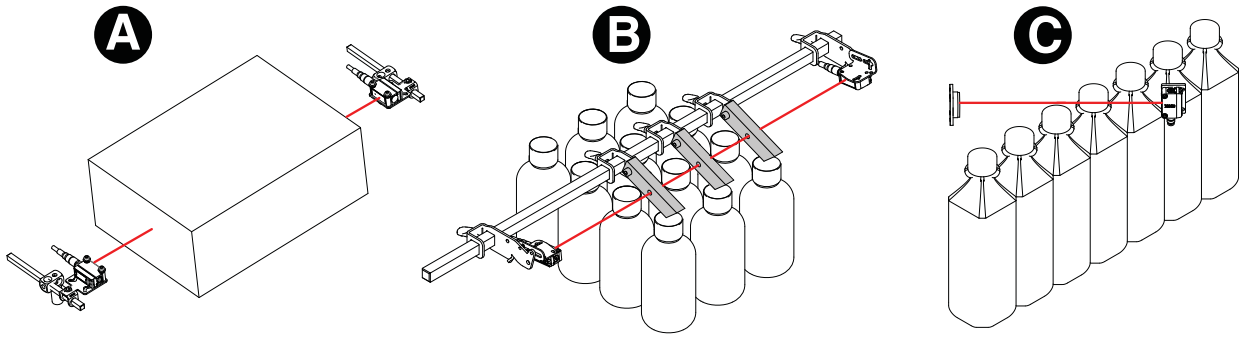
Adjustments

Rotate the knob (6) to either L = light switching or D = dark switching as required.

Rotate the knob (7) to adjust sensitivity.
Clockwise rotation: sensing range increased
Counterclockwise rotation: sensing range reduced.

Manually run a product pass between transmitter and receiver to check if the light status is ON and OFF properly.

Examples of Application



A. Transmitter - Receiver: Single-lane running with large package such as tray and case.

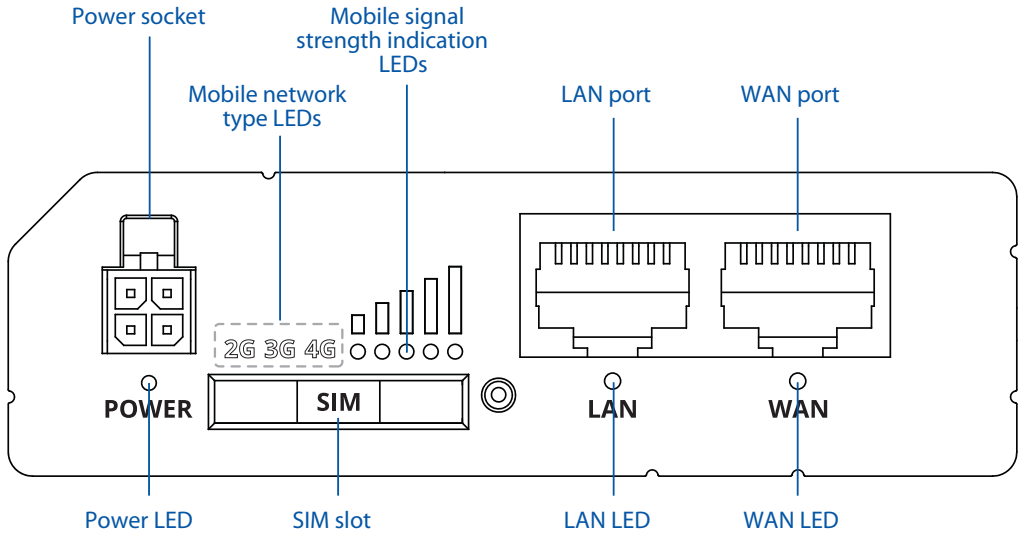
B. Transmitter - Receiver: Multi-lane running with each finger for each lane.
Suitable when product detection requires high-precision .

C. Transmitter - Reflector: Single-lane running when high presicion is less required.

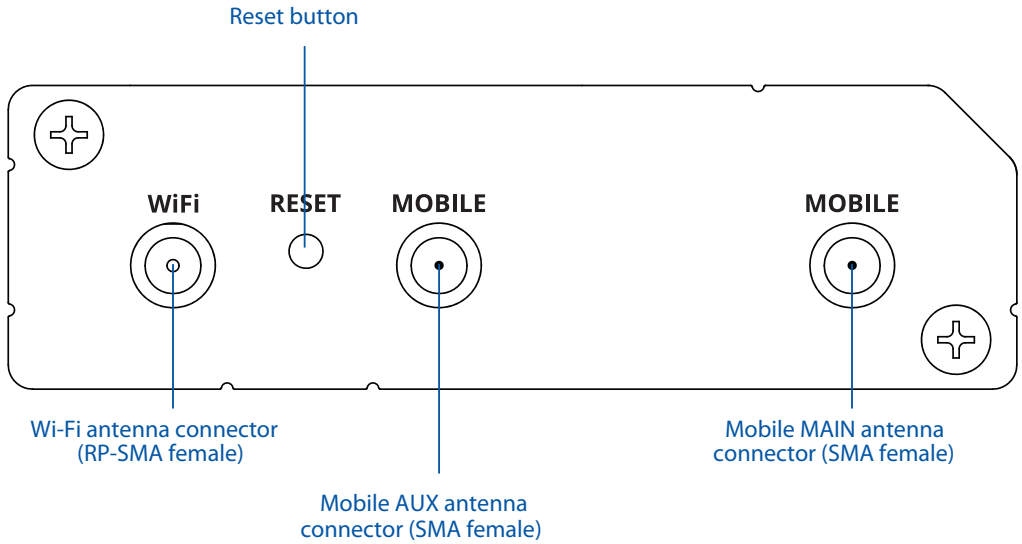
4.5 Router (RUT240) Quick Start Guide

Hardware

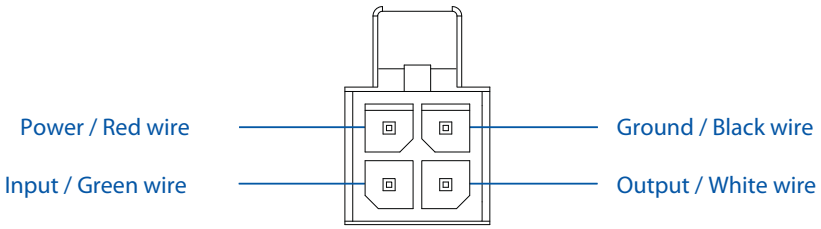
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



Network

WAN (Recommended)

a) Plug-in internet cable with stable internet signal to the router, using the extended WAN port (X902) located at the back of wrapper cabinet.

b) Contact Autopack to check if the router is successfully connected.

WiFi

Note! Connect via WiFi only if WAN is not possible and there is available access point.

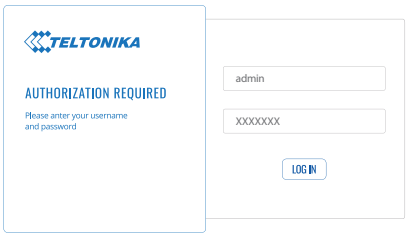
a) Attach WiFi antenna. Also connect your computer to the router via LAN port.

b) Enter the router's Web interface (WebUI), type **http://10.66.10.10** into the URL field of your internet browser.

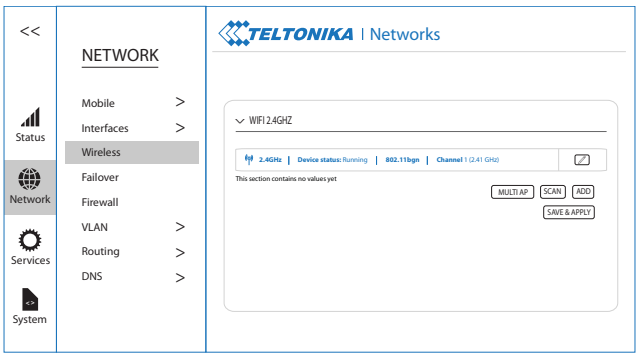
c) When the authorization page appears, contact Autopack for the ID and Password. Fill in and click “LOG IN” (See 1).

d) Click Network > Wireless > Scan (See 2).

1



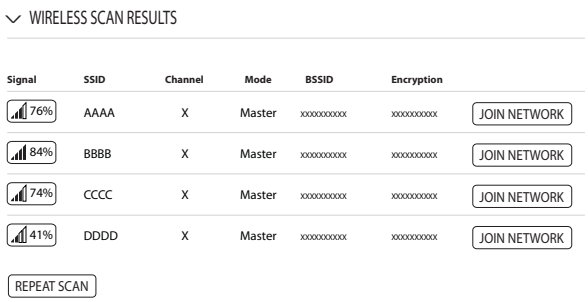
2



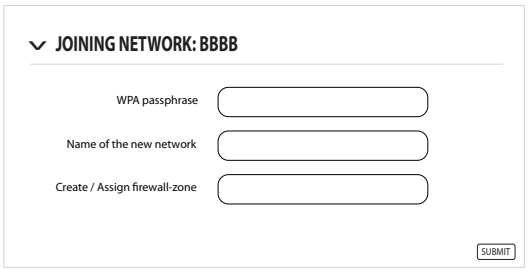
e) Select an access point, then click “JOIN NETWORK” (See 3).

f) Enter the password of the selected access point and give it the name of your choice. Skip the “Create / Assign firewall-zone”. Click “SUBMIT” (See 4).

3



4

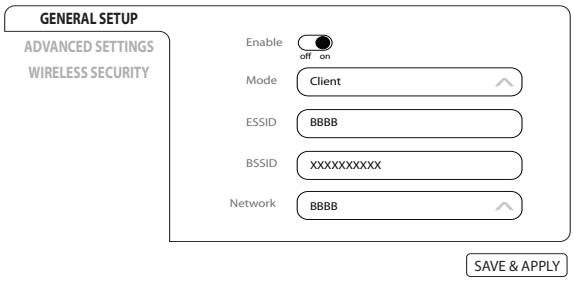


g) On “General Setup page”, select “Client”. Click “SAVE & APPLY” (See 5).

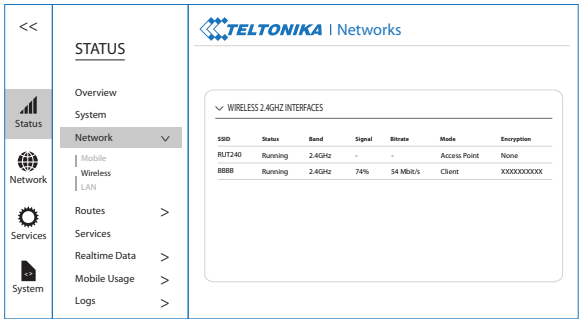
h) Click Status > Network > Wireless. Pay attention to “Signal” and “Bitrate”. Try adjusting the antenna to optimize connection performance (See 6).

i) Contact Autopack to check if the router is successfully connected.

5

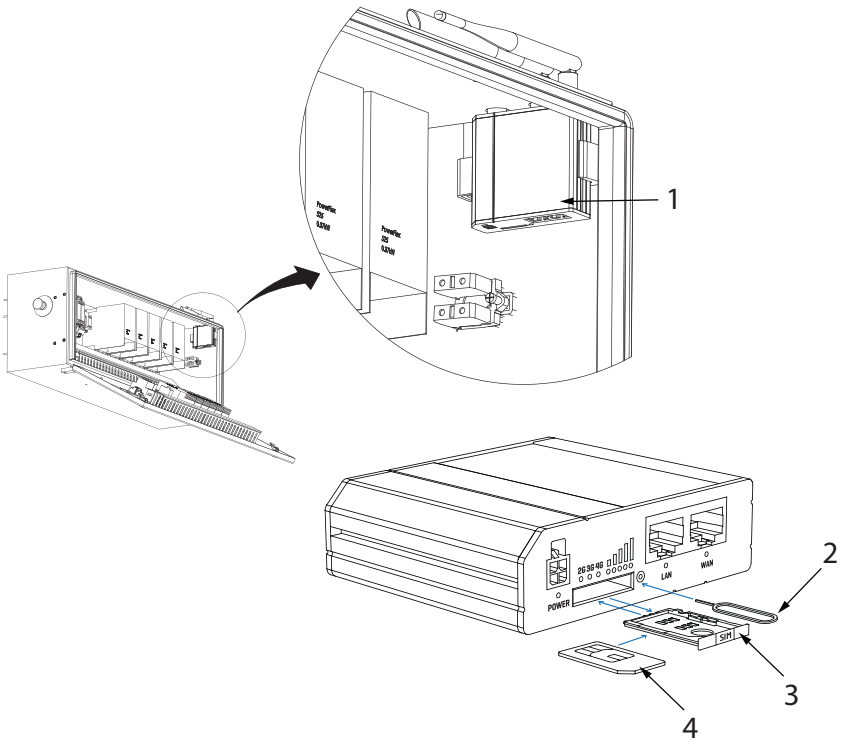


6



SIM Card

Note! Connect by using SIM card only if there is no available access point in the vicinity.



a) Open the wrapper cabinet's door to get access to the router (1).
b) Push the SIM button with the SIM needle (2).
c) Pull out the SIM holder (3). Insert your SIM card (4) into the SIM holder.
d) Slide the SIM holder back into the router.
e) Attach Mobile antennas.
f) Contact Autopack to check if the router is successfully connected.

SIM Card recommendations

- The SIM card must have internet access and sufficient internet data.
- Before installing the SIM cards, please apply a thin layer of dielectric grease to the SIM card contacts for devices used in environments with high-vibration levels. This will help avoid SIM cards losing touch with the SIM slot and prevent unexpected failures.
- Industrial Grade SIM cards are recommended for devices requiring a long lifespan used in environments with extreme temperatures, corrosive or extra humid climates, or hard-to-reach locations.

Possible Causes for Poor Connection

Common Causes

- Slow / Unstable internet signal
- Antennas in enclosed space
- Internet cable not securely plugged to either the router or the other end
- Certain firewall settings blocking the connection
- SIM card not registered
- No data left in the SIM card
- Router may need reboot, try rebooting

Rare Causes

- Ambient temperature exceeding router's operating temperature (-40° to +75° Celsius)
- Humidity out of the range of 10% to 90% (non-condensing)

5 Electrical Components

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5.1 Document Information

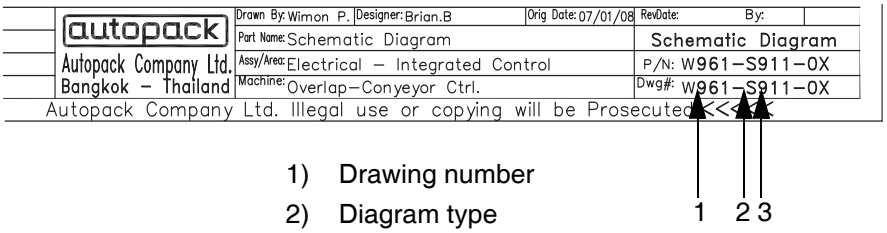
5.1.1 Connection/Wiring Diagram Information

The documents and drawings for connection/wiring are identified by drawing number(1), version code (2) and page number (3). The page number is the consecutive numbering of the pages that belong to the main number and is used as a reference in the diagrams.

Drawing Number
9 - Electrical diagram
8 - Pneumatic diagram

Diagram Type
S - Schematic diagram
C - Connection diagram
W - Wiring diagram

Machine Area Number
0 - Control panel
1 - Frame system
2 - Supply of film
3 - Infeed unit
4 - Grouping unit
5 - Process unit
6 - Transport unit
7 - Discharge unit
8 - Pneumatic unit
9 - Electrical unit

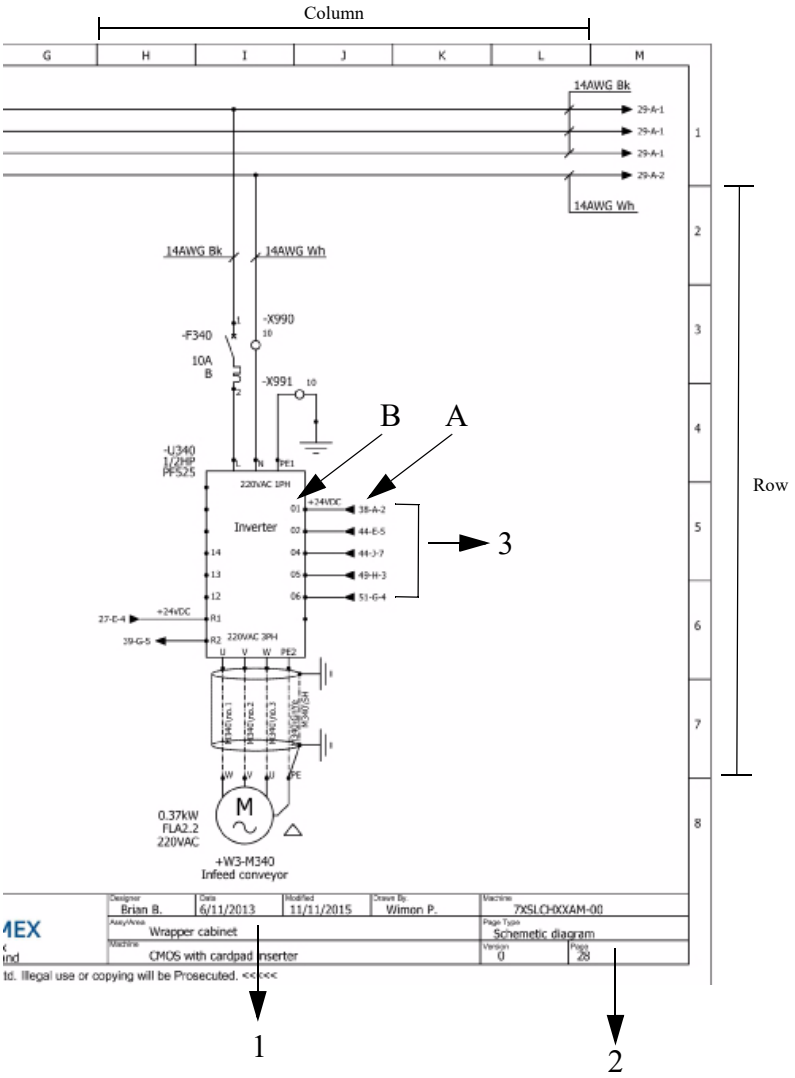


1) Drawing number
2) Diagram type
3) Machine area number

5

5.1.2 Schematic Diagram Information

The documents and drawings for Schematic Diagram are identified by Machine Type (1), Page Number (2) and Circuit Reference (3). The page number is the consecutive numbering of the pages that belong to the main number and is used as a reference in the diagrams.



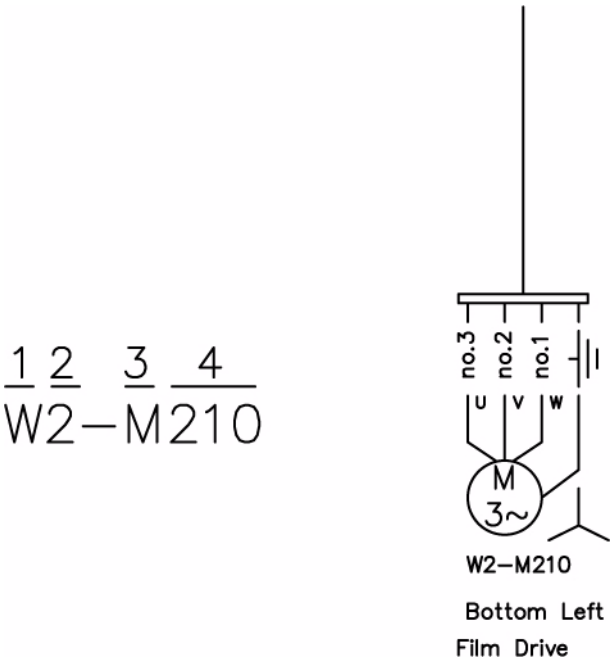
1) Machine Type indicates the type of the machine (wrapper or tunnel).

2) Page Number indicates the running number of the diagram page.

3) Circuit Reference indicates the page no., column and row where the next linking circuit can be found. (Ex. Refer to the above diagram, 38-A-2 (See. A) is the page-column-row where the linking circuit of “01” (See. B) can be found.

5.1.3 Numbering System for Components

Components are identified by the a location designation (1), location area(2), function designation (3) , and a running number (4).



1 Location designation
2 Location area
3 Function designation
4 Running number

Location Designation (1)

The location designation shows the location of the component.

- T indicates that the component is fitted on the tunnel machine.
- W indicates that the component is fitted on the Wrapper machine.
- C indicates that the component is fitted on the cardboard machine.

Location Area (2)

- 0 - Control panel
- 1 - Frame system
- 2 - Supply of film / Tray / Card
- 3 - Infeed unit
- 4 - Grouping unit
- 5 - Process unit
- 6 - Transport unit
- 7 - Discharge unit
- 8 - Pneumatic unit
- 9 - Electrical unit

Function Designation (3)

The function designation is indicated in accordance with international standards. See the table below.

Designation	Signification in Electrical Diagram
A	Assemblies, Sub-assemblies
B	Switch
F	Protective devices
G	Generators, Power supplies
H	Signalling devices
K	Relays, Contactors
M	Motors
Q	Switching devices for power circuites
R	Resistors
S	Switching devices for control circuits selectors
T	Programmable display
U	Modulators, Changers
W	Transmission paths
X	Terminals, Plugs, Sockets
Y	Electrically operated mechanical devices

Running Number (4)

This electrical components are given numbers in a consecutive, non-logical order.

5.1.4 Supply voltage / line connection order

The supply voltage in the electrical cabinet is named

- L01 - L09: Power voltage
- L10 and above: Control voltage

Main circuits	AC or DC	Black
Control circuits	+24 V DC	Blue / Red
	0 V DC	Blue / White
Neutral conductor		Light blue

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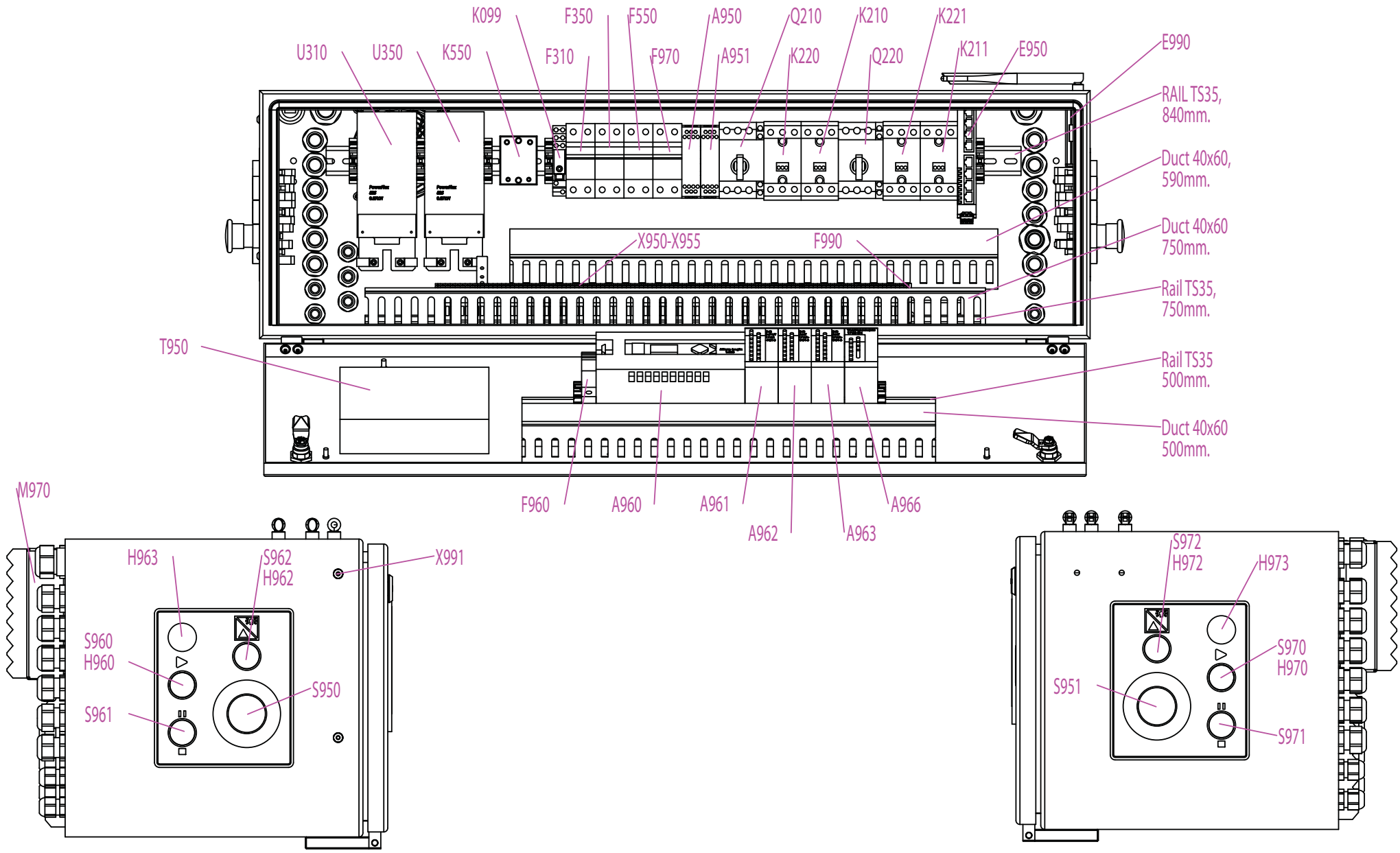
5.2 Electrical system description

5.2-1 Safety system

See schematic diagrams in TeM > Chapter 8

5.3-1 Electrical Cabinet (Wrapper)

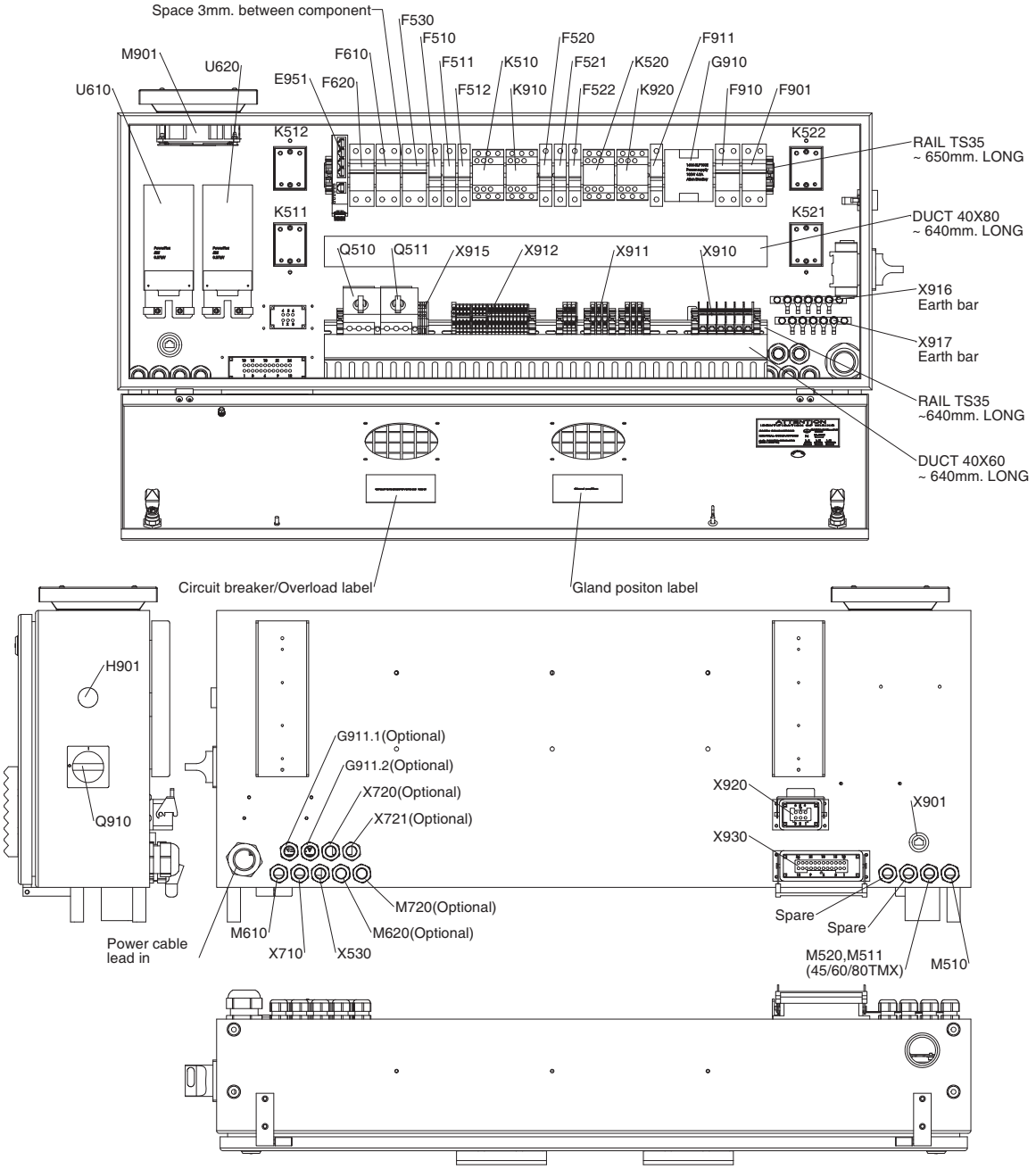


Assembly Drawing:

Pos	Component	Optional	Part No.
Electrical Cabinet (Wrapper)			
A950	Safety Relay, Emergency Stop		EREL22524-0J
A951	Safety Relay, Doors		EREL22524-0J
A960	CPU built-in 20 Inputs/12 Outputs		EPLC12140-0A
			EPLC0MEM0-1A
A961	Expansion 16 Inputs		EPLC120G3-1A
A962	Expansion 16 Outputs		EPLC120G5-0A
A963	Expansion 16 Outputs		EPLC120G5-0A
A966	Thermocouple Module		EPLC04000-0A
E950	Ethernet switch		ECON1783S-0A
F310	Infeed Conveyor		EBRE020A0-0E
F350	Table Conveyor	WLR WLO	EBRE020A0-0E
F320	Extra Infeed Conveyor	Optional	EBRE020A0-0E
F550	Element Welding Bar		EBRE02060-0E
F950	Cooling fan outlet		EBRE02010-0E
F960	PLC	AM	EBRE01020-0M
K099	Ready Signal To Upstream		EREL12050-0O
			ESOC08081-0O
K210	Film Drive, Bottom Left		ESSR24040-0S
K220	Film Drive, Top Left		ESSR24040-0S
K211	Film Drive, Bottom Right		ESSR24040-0S
K221	Film Drive, Top Right		ESSR24040-0S
K550	Element Welding Bar		ESSR26145-0C
M950	Cooling fan outlet		EFAN221B4-0E
Q210	Film Drive , Bottom	220VAC main supply	EOVE24-G0-0K
			EOVA01010-0K
Q220	Film Drive , Top	220VAC main supply, 62/82WX	EOVE24-G0-0K
			EOVA01010-0K
T950	Human Machine Interface		ELCD1K1D6-0A
U310	Infeed Conveyor		EINV22237-1A
U350	Table Conveyor	WLR WLO	EINV22237-1A
U320	Extra Infeed Conveyor	Optional	EINV22237-1A
X950	Main Power Supply, Wrapper Unit		ETER-3040-8E
			ETER-3040-5E
X951	Control supply		ETER-3025-6E
			ETER-3040-5E
X952	Control supply		ETER-3025-6E
			ETER-3040-5E
X953	Control supply		ETER-3025-6E
			ETER-3040-5E
			ETER-3041-8E

Pos	Component	Optional	Part No.
X954	Control supply		ETER-3025-6E
			ETER-3041-8E
X955	Control supply		ETER-3025-6E
			ETER-3040-5E
			ETER-3041-8E
			ETER-3042-8E
X956	Control supply	Splitter optional	ETER-3025-6E
		Splitter optional	ETER-3040-5E
X960	Control supply , L10	FP	ETER-3025-6E
			ETER-3041-8E
X961	Control supply , L11	FP	ETER-3025-6E
			ETER-3041-8E
X962	Control supply , L12	FP	ETER-3025-6E
			ETER-3040-5E
			EFUS16063-8E
			ETER-3046-0W
X902	RJ45 connector		ECON-RJ45-CN
X991	Earth bar 5P	45WX	ATER-X916-00
X991	Earth bar 10P	60/80WX	ATER-X991-00
Control Panel			
S950	Emergency Stop Knob		EBUT12040-2T
			EBUT12000-0T
			EBUT12020-0T
S960	Step Up Button		EBUT12123-5T
H960	Step Up Lamp		
S961	Step Down Button		EBUT12000-2T
			EBUT12000-0T
			EBUT12010-0T
S962	Reset / Lamp test Button		EBUT12123-4T
H962	Reset / Lamp test Lamp		
H963	Run Lamp		ELAM12120-5T

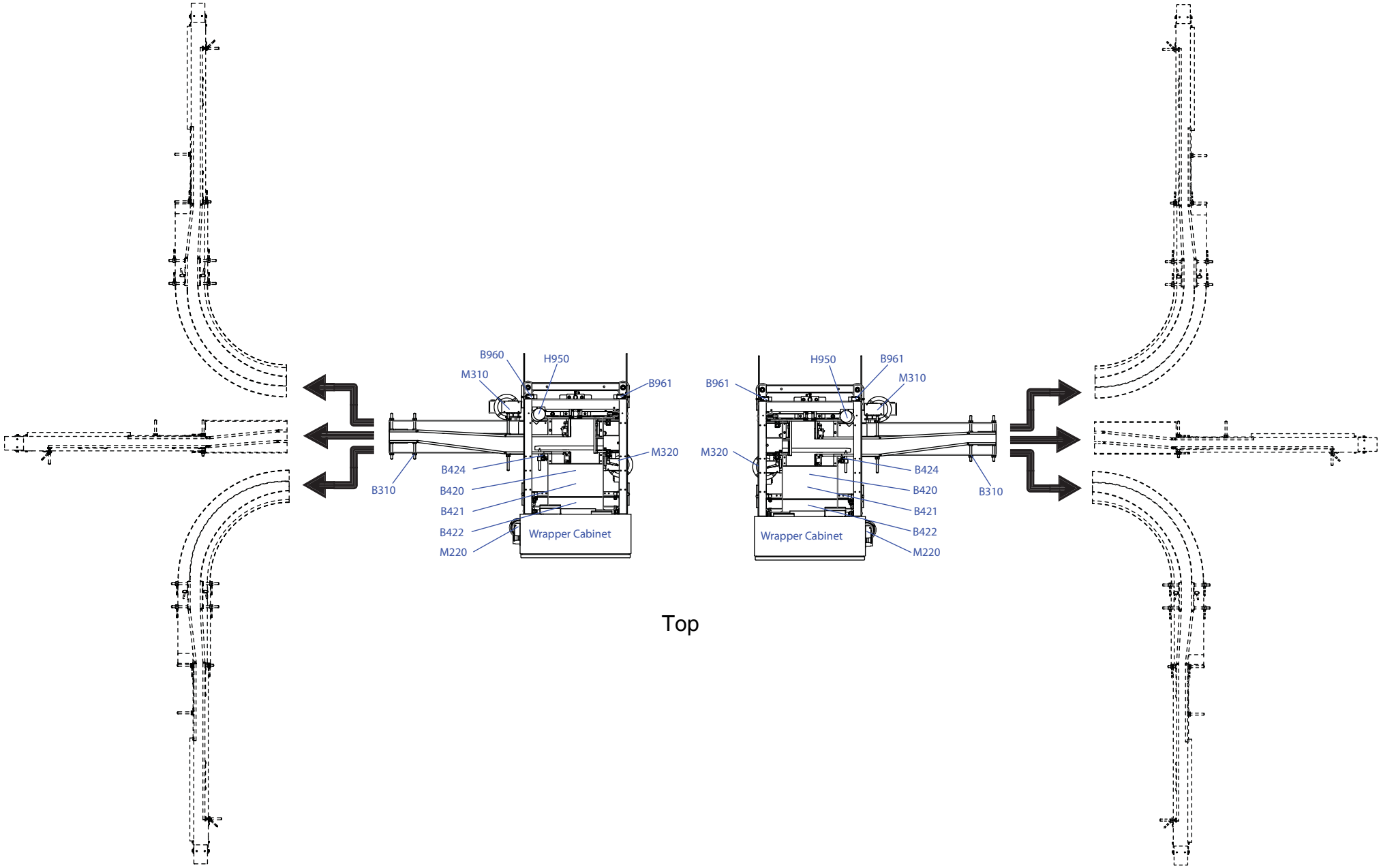
5.3-2 Electrical Cabinet (Tunnel)



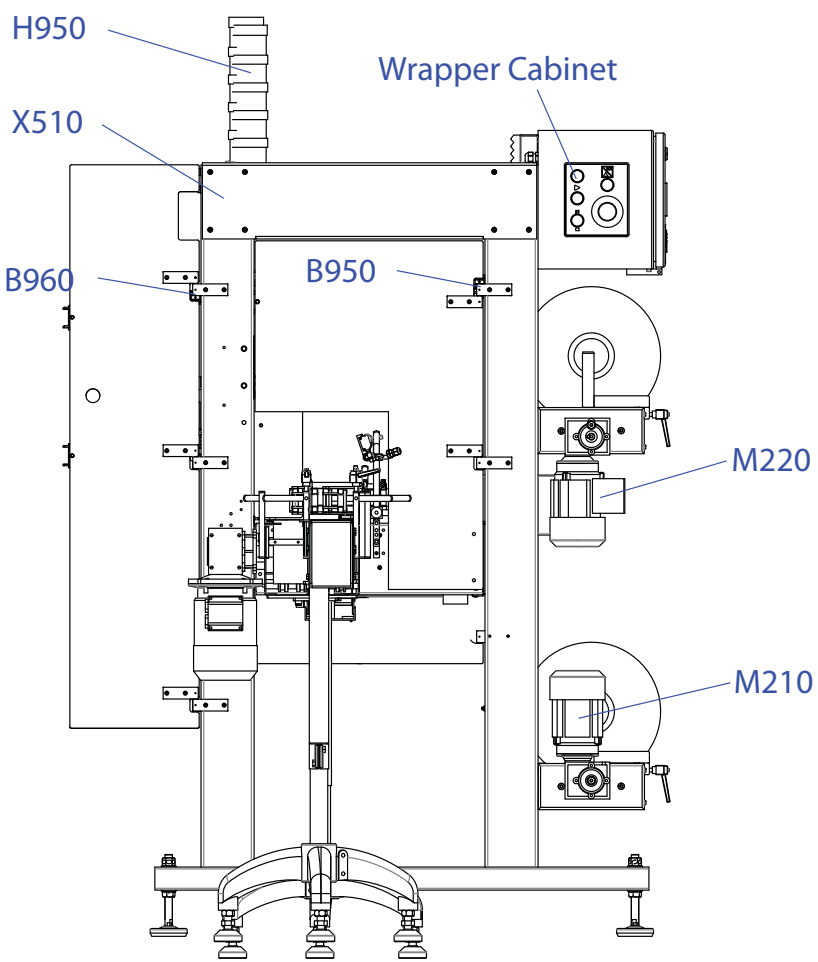
Pos	Component	Optional	Part No.
Electrical Cabinet (Tunnel)			
F510	Element Shrink Unit, Phase A	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F511	Element Shrink Unit, Phase B	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F512	Element Shrink Unit, Phase C	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F520	Element Shrink Unit, Phase A	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F521	Element Shrink Unit, Phase B	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F522	Element Shrink Unit, Phase C	Heater 1500W, 1750W	EBRE01120-0M
		Heater 2000W	EBRE01125-0M
		Heater 2500W	EBRE01132-0M
F530	Cooling Fan Shrink Unit		EBRE02010-0E
		THX	EBRE02020-0E
F901	Cabinet cooling fan&Main supply indicator		EBRE02010-0E
F902	Control Voltage, Phase Indicator	UPS	EBRE03010-0S
F910	Control Voltage, Input supply 230V AC		EBRE02040-0E
F911	Control Voltage, Output supply +24VDC		EBRE01040-0M
F610	Speed Control for Tunnel Conveyor		EBRE020A0-0E
F620	Speed Control for Tunnel Discharge Conveyor	Optional	EBRE020A0-0E
F720	Speed Control for Outfeed Conveyor	Optional	EBRE020A0-0E
G910	Power supply +24VDC		EPOW12042-0A
K510	Element Shrink Unit		ECON12140-1T
K520	Element Shrink Unit		ECON12140-1T
K910	Main Power Supply, Wrapper Unit		ECON12140-1T
K920	Main Power Supply, Wrapper Unit		ECON12140-1T
K911	Phase Indicator	UPS	EREL24040-0A
K511	Element Shrink Tunnel		ESSR26145-0C
K512	Element Shrink Tunnel		ESSR26145-0C
K521	Element Shrink Tunnel		ESSR26145-0C
K522	Element Shrink Tunnel		ESSR26145-0C
F900	Surge Protector	Optional	EOVE19019-9W
Q910	Main Switch		ESWR24140-0T
		208VAC TMX, THX	ESWR24160-0T
H910	Main Supply Indicator		ELAM12220-2T

Pos	Component	Optional	Part No.
Q510	Main Fan Shrink Tunnel, Front Left		EOVE24-Q0-0K
			EOVA01010-0K
Q511	Main Fan Shrink Tunnel, Front Right	60/80TM/TH	EOVE24-Q0-0K
			EOVA01010-0K
Q520	Main Fan Shrink Tunnel, Rear Left	45TM/TH	EOVE24-Q0-0K
			EOVA01010-0K
Q521	Main Fan Shrink Tunnel, Rear Right	THX	EOVE24-Q0-0K
			EOVA01010-0K
M910	Cooling Air Outlet		EFAN221B4-0E
U610	Speed Control, Tunnel Conveyor	SC	EINV22237-0D
		FP/AM	EINV22237-1A
U620	Speed Control for Tunnel Discharge Conveyor	Optional, SC	EINV22237-0D
		Optional, FP/AM	EINV22237-1A
U720	Speed Control for Outfeed Conveyor	Optional, SC	EINV22237-0D
		Optional, FP/AM	EINV22237-1A
X910	Main terminal supply		ETER0D060-8P
			ETER0D061-8P
			ETER-3042-8E
X911	Motor&Heater supply		ETER-3040-8E
			ETER-3040-5E
			ETER-3041-8E
			ETER-3042-8E
X912	Control supply		ETER-3025-6E
			ETER-3040-5E
			ETER-3041-8E
			ETER-3042-8E
X914	Main terminal supply	UPS	ETER0D060-8P
			ETER0D061-8P
			ETER-3040-5E
			ETER-3041-8E
X915	Earth terminal		ETER-3025-6E
			ETER-3040-5E
			ETER-3041-8E

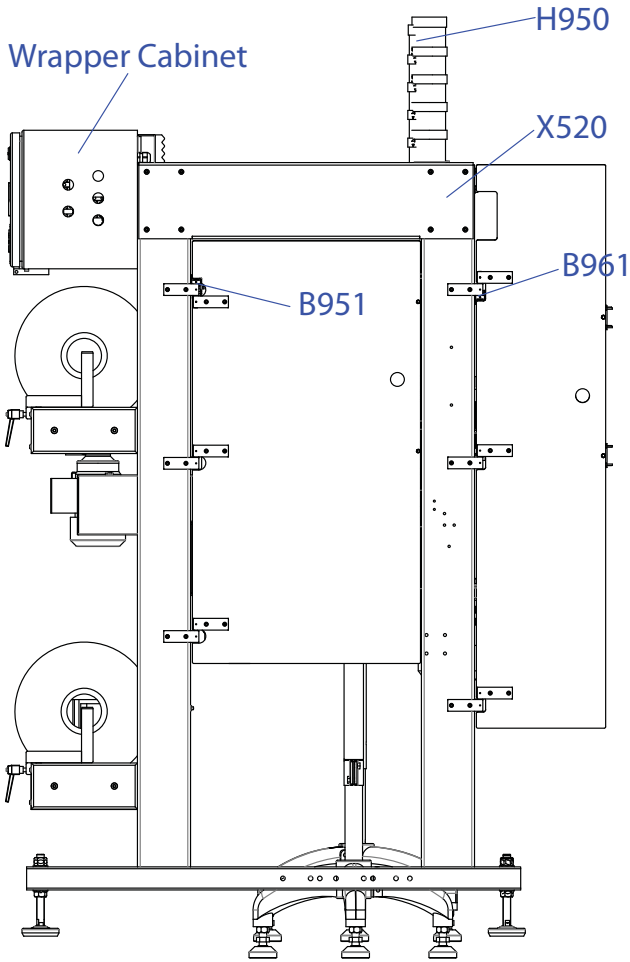
5.3-3 Electrical Components (Wrapper)



Top


H950
X510
Wrapper Cabinet
B960
B950
M220
M210

Left


Wrapper Cabinet
H950
X520
B961
B951

Right

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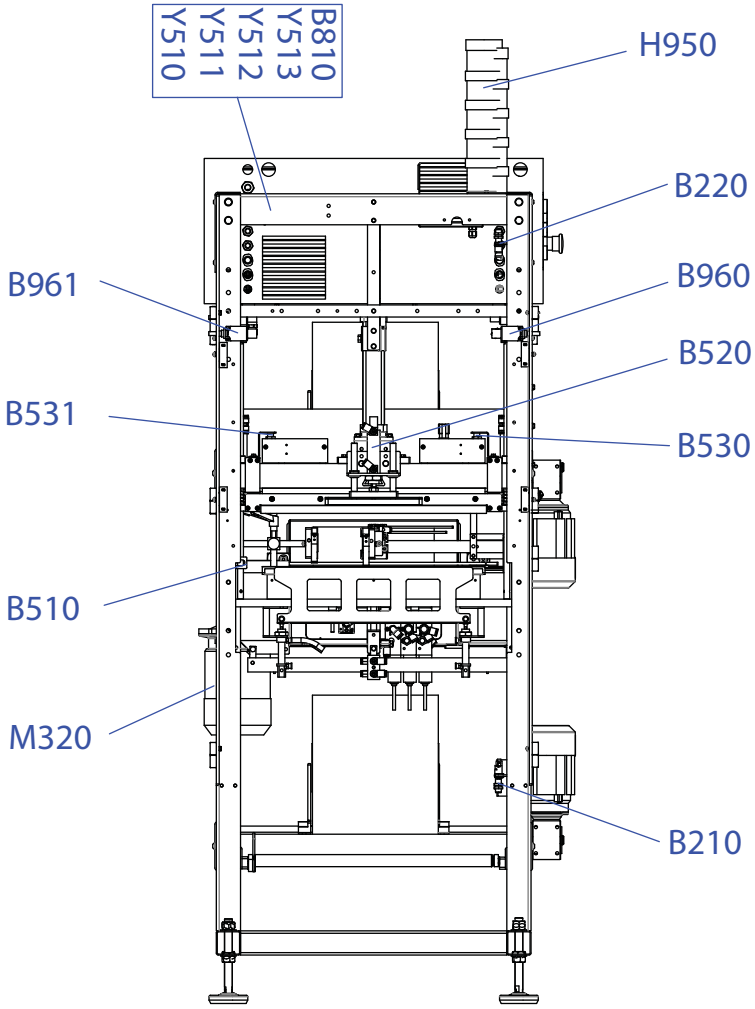
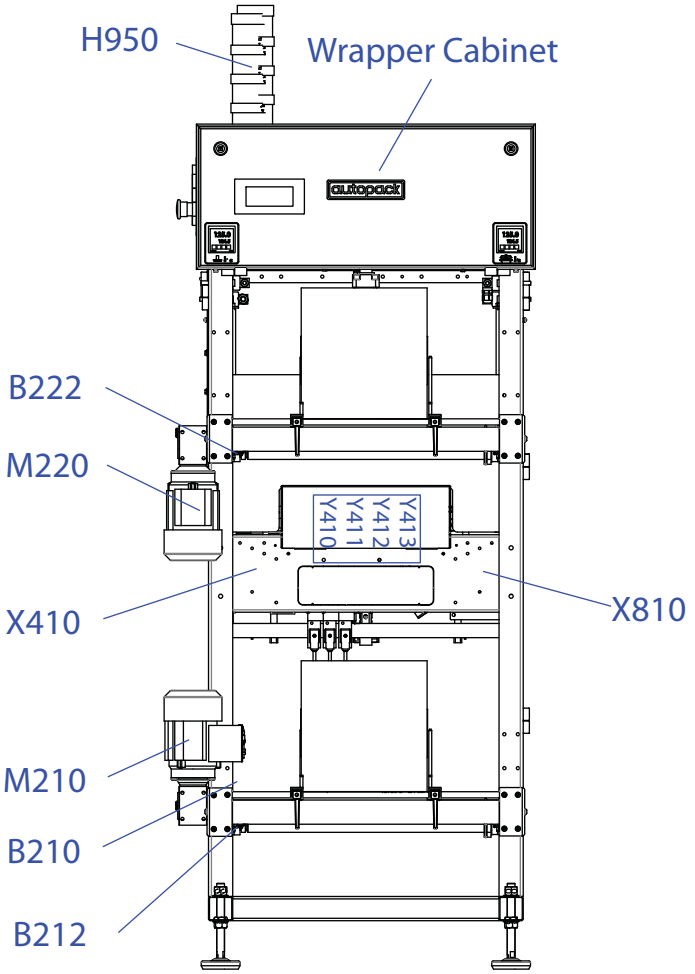


Rear



Front

Assembly Drawing:

Pos	Component	Optional	Part No.
Photocells and Proximity switches			
B220	Top Left Film Dancer		ESEI120C4-1O
			ECAB0402C-2O
B221	Top Right Film Dancer	62/82WX	ESEI120C4-1O
			ECAB0402C-2O
B210	Bottom Left Film Dancer		ESEI120C4-1O
			ECAB0402C-2O
B211	Bottom Right Film Dancer	62/82WX	ESEI120C4-1O
			ECAB0402C-2O
B222	Top Film Low		ESEO12322-2O
			ECAB04018-2O
			EREF12000-0F
B212	Bottom Film Low		ESEO12322-2O
			ECAB04018-2O
			EREF12000-0F
B230	Printed film 1-LHS	Optional	ESEO12130-0F
		Optional	ECAB03028-0F
B231	Printed film 2-RHS	Optional	ESEO12130-0F
		Optional	ECAB03028-0F
B310	Fallen Detect Bottom POS	Optional	ESEO12220-0S
		Optional	ECAB04028-5O
B321	Fallen Detect Top POS	Optional	ESEO12220-0S
		Optional	ECAB04028-5O
B410	Product Sensing		ESEI120C4-1O
			ECAB0402C-2O
B420	Pusher Forward Position		ESEI120C4-1O
			ECAB0402C-2O
B421	Short Stroke Position		ESEI120C4-1O
			ECAB0402C-2O
B422	Pusher Return Position	DSBG	ESEI12064-2F
			ECAB03028-0F
		DSN	ESEI120C4-1O
			ECAB0402C-2O
B424	Table Full Detect, Gap Detect		ESEO12220-0S
			ECAB04028-2O
B520	Welding Bar Top Position		ESEI120C4-0O
B510	Welding Bar Bottom Position		ESEI120C4-1O
			ECAB0402C-2O
B550	Thermocouple Welding Bar		DTHE2K00E1-00
B530	Safety Bar, LHS		ESEI120C4-0O
B531	Safety Bar, RHS		ESEI120C4-0O

Pos	Component	Optional	Part No.
B810	Pressure Sensor		ASEN01080-00
			ECAB04028-2O
B950	Left Front Guard Door Switch		ASWD900001-20
B951	Right Front Guard Door Switch		ASWD900001-20
B960	Left Rear Guard Door Switch		ASWD900001-20
B961	Right Rear Guard Door Switch		ASWD900001-20
B970	Left Front Film Guard Door Switch		ASWD900001-20
B971	Right Front Film Guard Door Switch		ASWD900001-20
Warning Lamp			
H950	Base		ELAM17000-7T
H950.1	Green		ELAM17000-5T
			EBUL12015-0C
H950.2	Blue		ELAM17000-6T
			EBUL12015-0C
H950.3	Yellow		ELAM17000-4T
			EBUL12015-0C
H950.4	Red		ELAM17000-2T
			EBUL12015-0C
H950.3	White	Optional	ELAM17000-9T
		Optional	EBUL12015-0C
H950.4	Buzzer	Optional	ELAM17000-0T
Motors			
M220	Film Drive, Top Left Motor		EMOT241J2-0S
M221	Film Drive, Top Right Motor	62/82WX	EMOT241J2-0S
M210	Film Drive, Bottom Left Motor		EMOT241J2-0S
M211	Film Drive, Bottom Right Motor	62/82WX	EMOT241J2-0S
M310	Infeed Conveyor		EMOT24244-0S
M350	Table Conveyor	WLR, WLN, WLO	EMOT24244-0S
M320	Extra Infeed Conveyor	Optional	EMOT241J2-0S
Heater Element			
R550	Element Welding Bar	45WX	EHEA22250-0I
		60WX	EHEA22265-0I
		80WX	EHEA222A0-0I
			ECUR15250-0Y
Button			
S510	Manual welding, LHS		EBUT12000-4T
S511	Manual welding, RHS		EBUT12000-4T

Assembly Drawing:

Pos	Component	Optional	Part No.
Terminals			
X410	Connection Box Area 4		ABOX4-X411-10
X510	Connection Box Area 5		ABOX5-D1B1-00
X520	Connection Box Area 5		ABOX5-D1B1-01
X810	Connection Box Area 8		ABOX8-X810-10
X921	Connector Plug, Power Supply (Male)		APLU6HS000-20
X931	Connector Plug Control Supply (Male)	Optional	APLUPHS000-00
Valves			
Y210	Pull film 1 LHS	Optional	PVAL12150-0F
		Optional	PSOL12000-0F
		Optional	ESOC03120-2P
Y211	Pull film 2 RHS	Optional	PVAL12150-0F
		Optional	PSOL12000-0F
		Optional	ESOC03120-2P
Y220	Brake film 1-LHS	Optional	PVAL12150-0F
		Optional	PSOL12000-0F
		Optional	ESOC03120-2P
Y221	Brake film 2-RHS	Optional	PVAL12150-0F
		Optional	PSOL12000-0F
		Optional	ESOC03120-2P
Y410	Safety Valve for Grouping Area		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y411	Pusher		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y412	In Clamp/Lifter		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y413	Table Gate	WLR, WLO	PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y510	Pack Clamp		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y511	Welding Bar Up		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y512	Welding Bar Down		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P

Pos	Component	Optional	Part No.
Y513	Seal Lifter/Cooling		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Y515	Tunnel Guide		PVAL12150-0F
			PSOL12000-0F
			ESOC03120-2P
Speed Box X340			
X340	Control supply	Optional	ETER-3040-8E
		Optional	ETER-3040-5E
X341	Control supply	Optional	ETER-3025-6E
		Optional	ETER-3041-8E
F340	Extra Infeed Conveyor	Optional	EBRE010A0-0M
H340	Extra Infeed Conveyor	Optional	ELAM0F222-2G
R340	Extra Infeed Conveyor	Optional	EPOT35-25-0G
		Optional	EKNO06140-0I
U340	Extra Infeed Conveyor	Optional	EINV53715-0F
M340	Extra Infeed Conveyor	Optional	EMOT241J2-0S

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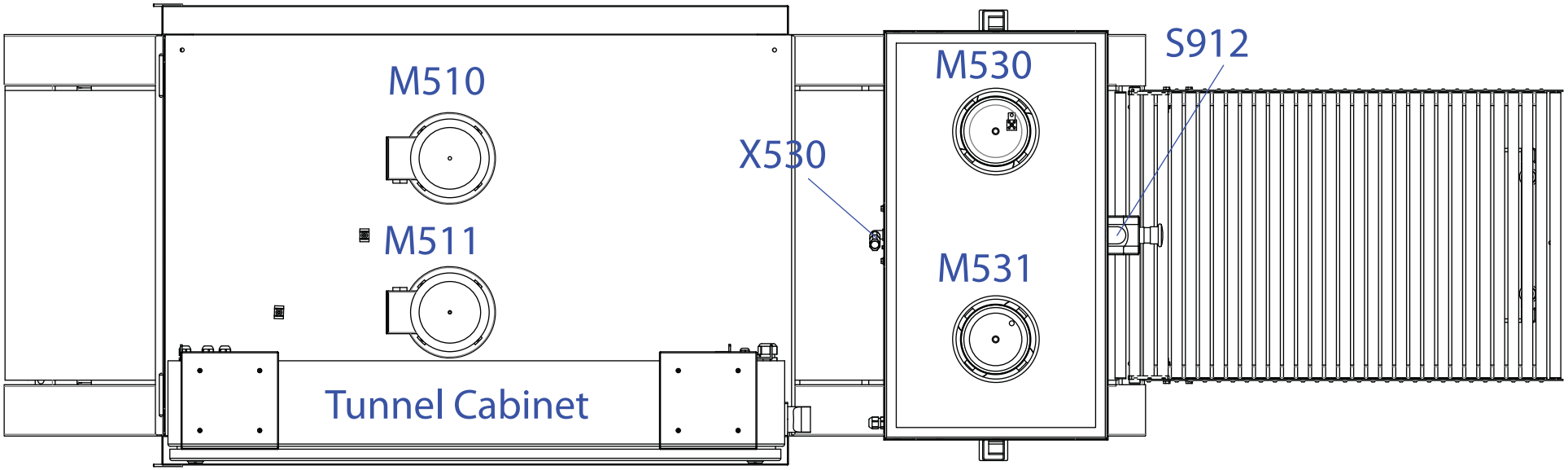
5.3-4 Electrical Components (Tunnel)



top

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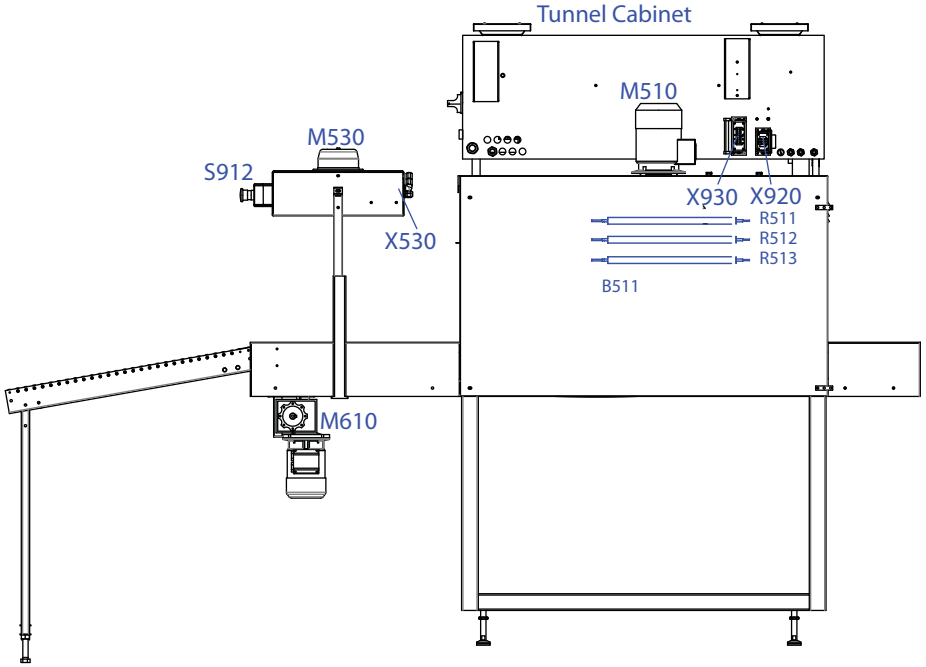

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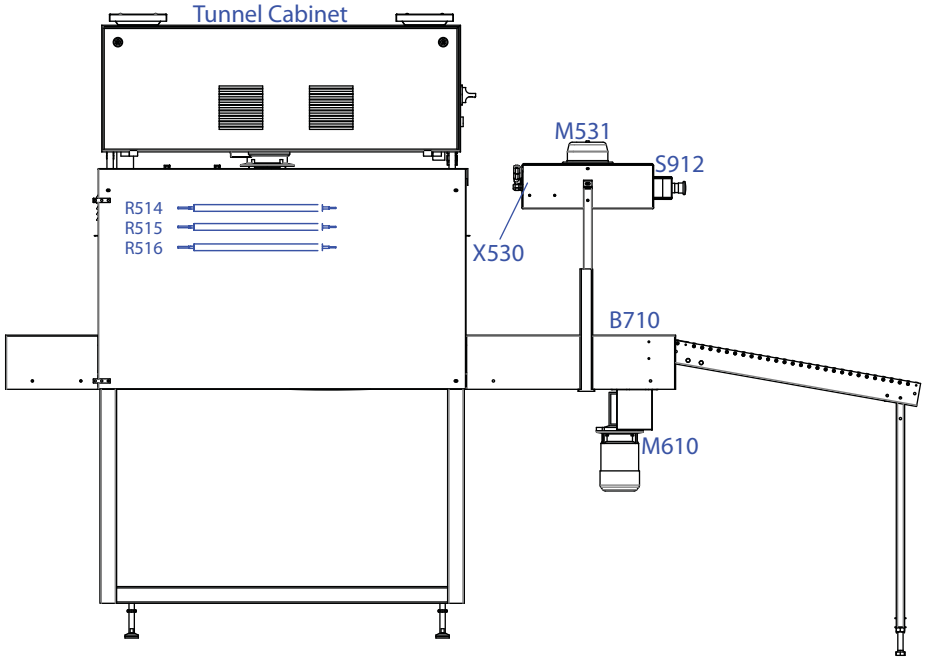

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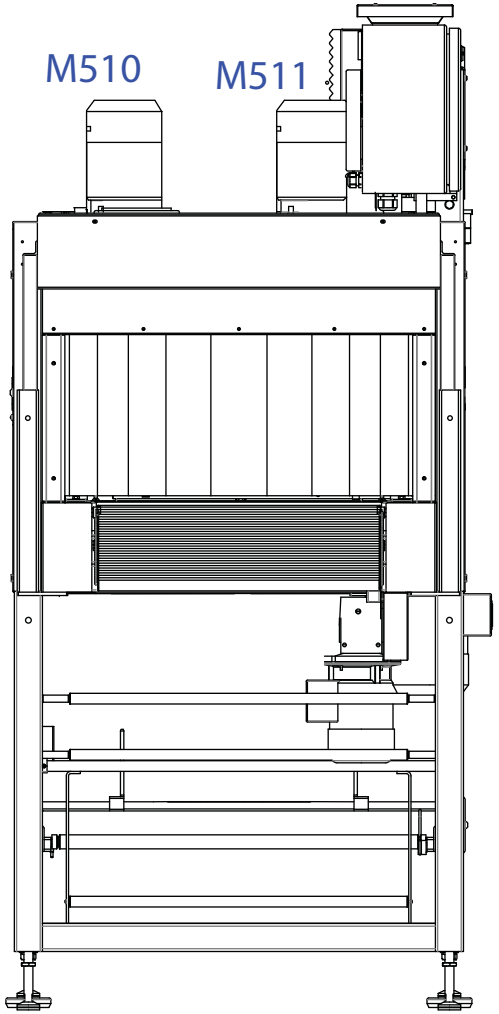
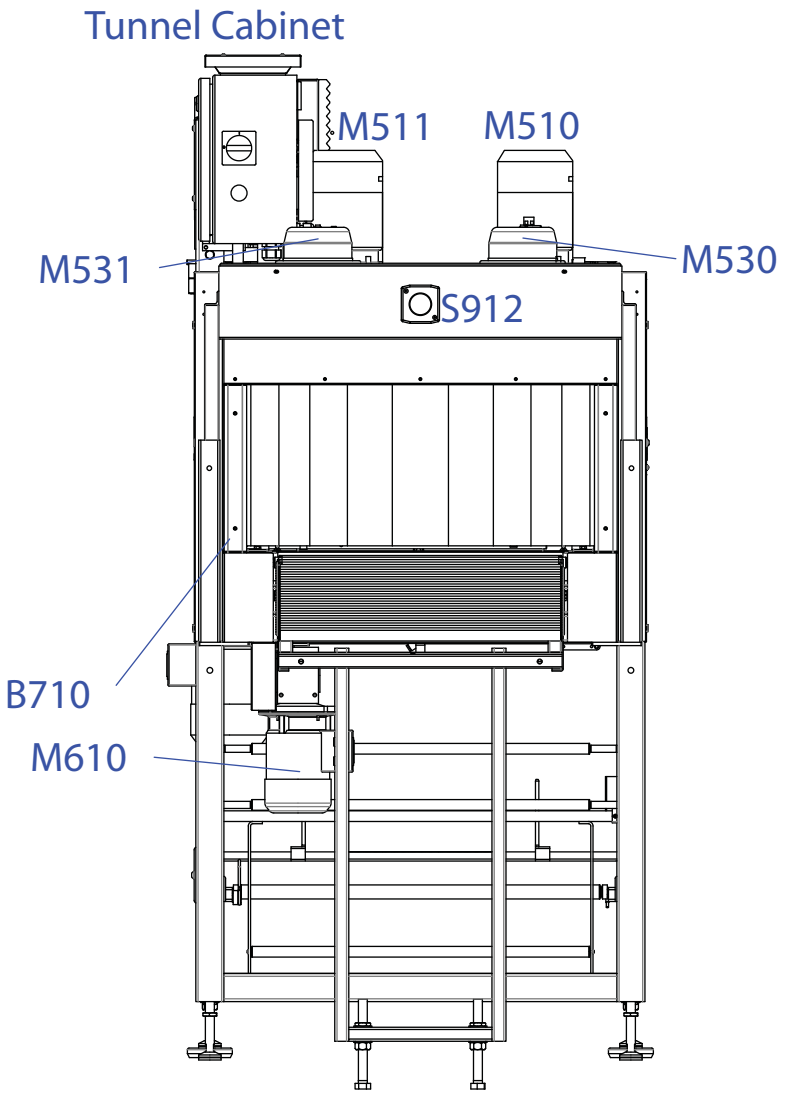

Tunnel Cabinet
M510
M511

front


Tunnel Cabinet
M511
M510
M531
M530
S912
B710
M610

rear

Pos	Component	Optional	Part No.
Electrical Components (Tunnel)			
Photocells and Proximity switches			
B511	Thermocouple Shrink Tunnel		DTHE2280E2-00
B710	Tunnel Discharge Queue		ESEO12322-2O
			ECAB04018-2O
			EREF12000-0F
B711	Outfeed Queue	Optional	ESEO12220-0S
			ECAB04018-5O
B610	Pack Detector Left	Optional	ESEO12322-2O
			ECAB04028-2O
			EREF12000-0F
B611	Pack Detector Right	Optional	ESEO12322-2O
			ECAB04028-2O
			EREF12000-0F
Motors			
M510	Main Fan Shrink Unit, Front left		EMOT24244-0S
M511	Main Fan Shrink Unit, Front right	60TMX	EMOT24244-0S
M520	Main Fan Shrink Unit, Rear left	45TMX	EMOT24244-0S
M521	Main Fan Shrink Unit, Rear right	60/80TH	EMOT24244-0S
M530	Cooling Fan Shrink Unit, Front Left		EFAN22230-0G
M531	Cooling Fan Shrink Unit, Front Right	60TMX	EFAN22230-0G
M540	Cooling Fan Shrink Unit, Rear Left	45/60THX	EFAN22230-0G
M541	Cooling Fan Shrink Unit, Rear Right	80THX	EFAN22230-0G
M610	Tunnel Conveyor		EMOT24244-0S
M620	Tunnel Discharge Conveyor	Optional	EMOT24244-0S
M720	Outfeed Conveyor	Optional	EMOT24244-0S
Emergency Stop			
S912	Fan Box Tunnel	Optional	EBOX04001-0T
Cooling Fan Switch			
S530	Cooling on/off switch box		EBOX17171-0T
Terminals			
X530	Connection Box area 5	60TMX	ABOX5-T500-20
			ABOX5-T500-00
X710	Connection Box area 7		ABOX7-T700-10
X720	Connection Box area 7	Optional	ABOX3-E205-00
X920	Connector Plug, Power Supply (Female)		APLU6BP000-00
X930	Connector Plug Control Supply (Female)		APLUPBP000-00

Pos	Component	Optional	Part No.
UPS			
G911	UPS Black 1400VA		EUPS11000-0A
Heater Element			
R511	Element Shrink Tunnel, Front left	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y
R512	Element Shrink Tunnel, Front left	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y
R513	Element Shrink Tunnel, Front left	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y
R514	Element Shrink Tunnel, Front right	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y
R515	Element Shrink Tunnel, Front right	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y
R516	Element Shrink Tunnel, Front right	45TM25	EHEA222F0-3I
		45TM35	EHEA222H5-3I
		45TME35/60TM25/80TM25/60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
		50TM25-35/60TM35-40/70TM/80TM35-40	EHEA22325-3I
			ECUR15250-0Y

Assembly Drawing:

Pos	Component	Optional	Part No.
R521	Element Shrink Tunnel, Rear left	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y
R522	Element Shrink Tunnel, Rear left	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y
R523	Element Shrink Tunnel, Rear left	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y
R524	Element Shrink Tunnel, Rear right	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y
R525	Element Shrink Tunnel, Rear right	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y
R526	Element Shrink Tunnel, Rear right	60TH25-40	EHEA22320-3I
		80TH25-40	EHEA22324-3I
			ECUR15250-0Y

Pos	Component	Optional	Part No.

6 Spare Parts

Recommended Spare Parts

PLEASE NOTE !

ONLY USE GENUINE AUTOPACK PARTS. AUTOPACK WILL NOT TAKE RESPONSIBILITY FOR ANY FAULTS RESULTING FROM THE USES OF NON-GENUINE PARTS.

Below list is to provide the service technicians and contact personnel with information necessary to order parts from Autopack.

PLEASE CONTACT AUTOPACK REPRESENTATIVE TO ORDER.

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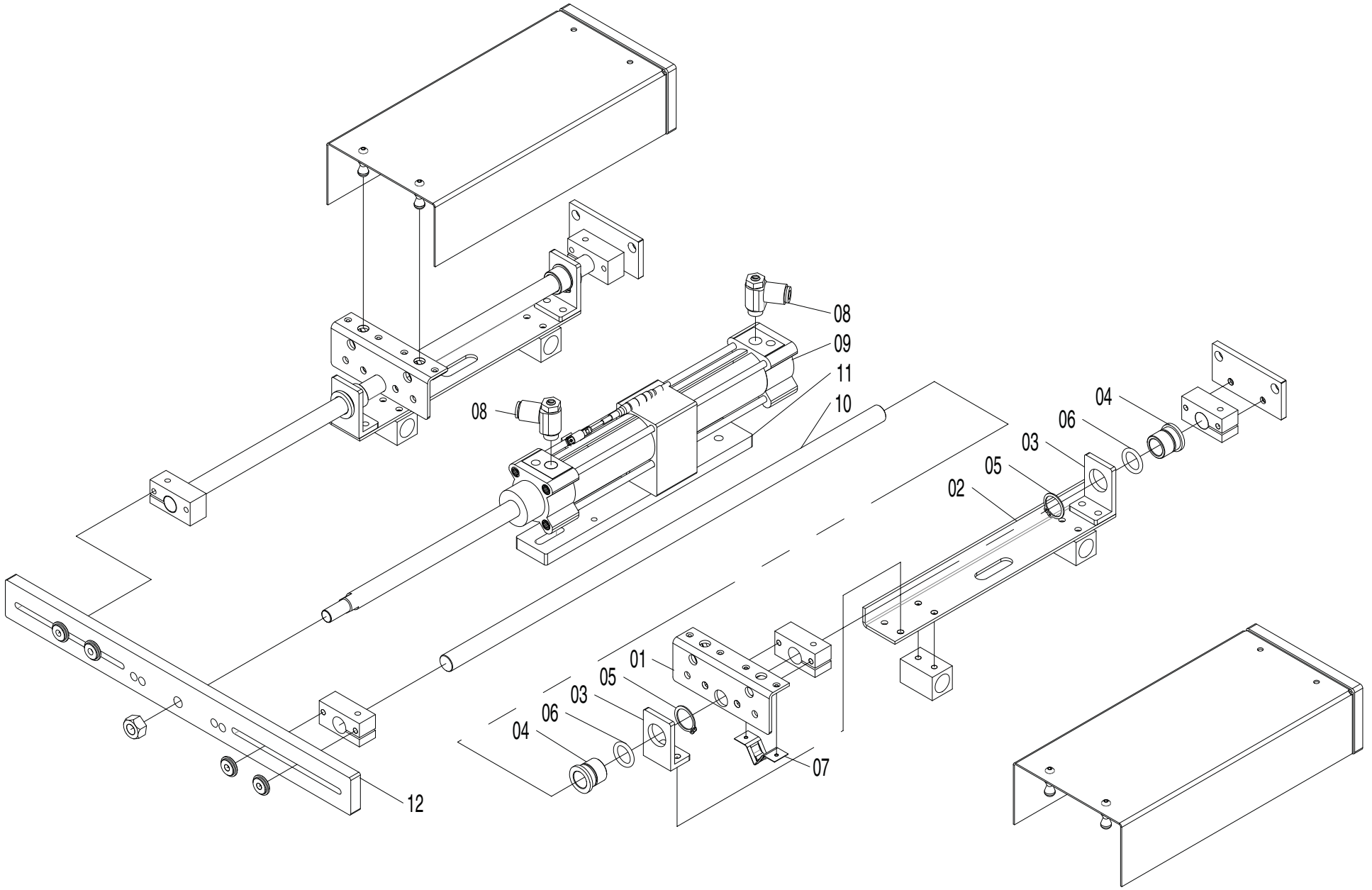
Tandem Pusher

Assembly drawing



Assembly Drawing:

Pos	Part No	Description	Qty		UN
			300 Stroke	350 Stroke	
01	ANG141C05-00	ANG25x44x120L 11Holes W4 SS	2	2	EA
02	***ANG40x20**				
	ANG142375-00	ANG40x20x375 Stroke 300 mm.	2	-	EA
	ANG142425-00	ANG40x20x425 Stroke 350 mm.	-	2	EA
03	ANG151343-00	Angle 25x50x34L 3Hls W4 AL	4	4	EA
04	BUS0G1221-00	Bush 16x21x23L 26FL W4PE	4	4	EA
05	FCIR12122-0S	Circlip Ø23.2 STW25 SS	4	4	EA
06	MORI0K025-00	Oring Ø19x2.5T	4	4	EA
07	MSPR0J150-0M	Spring 17x50L Ø9.5 Pin 2Hls SZ	4	4	EA
08	PFLO02080-0F	Flow Contol 1/4" - 8 Tube	2	2	EA
09	***Cylinder DSBG 40**				
	PCYL14230-0F	Cylinder DSBG 40 X Stroke 300 mm.	1	-	SET
	PCYL14235-0F	Cylinder DSBG 40 X Stroke 350 mm.	-	1	SET
10	***Rod Ø16**				
	ROD0G2740-00	Rod Ø16 x 740L Push 300 Stroke	2	-	EA
	ROD0G2840-00	Rod Ø16 x 840L Push 350 Stroke	-	2	EA
11	***Push Cyl Sprt 38**				
	RSB142358-00	Push Cyl Sprt 38x358 AL 300 Stroke	1	-	EA
	RSB142414-00	Push Cyl Sprt 38x414 AL 350 Stroke	-	1	EA
12	****Pusher Bar 40**				
	RSB142433-00	Pusher Bar 40x430L 2 Slots AL 62W	1	1	EA
	RSB142508-00	Pusher Bar 40x508L 2 Slots AL 82W	1	1	EA

*Refer to cylinder stroke that belongs to the machine.
**Refer to pusher bar (62W or 82W) and stroke (300 or 350) that belong to the machine.

Pos	Part No	Description	Qty	UN

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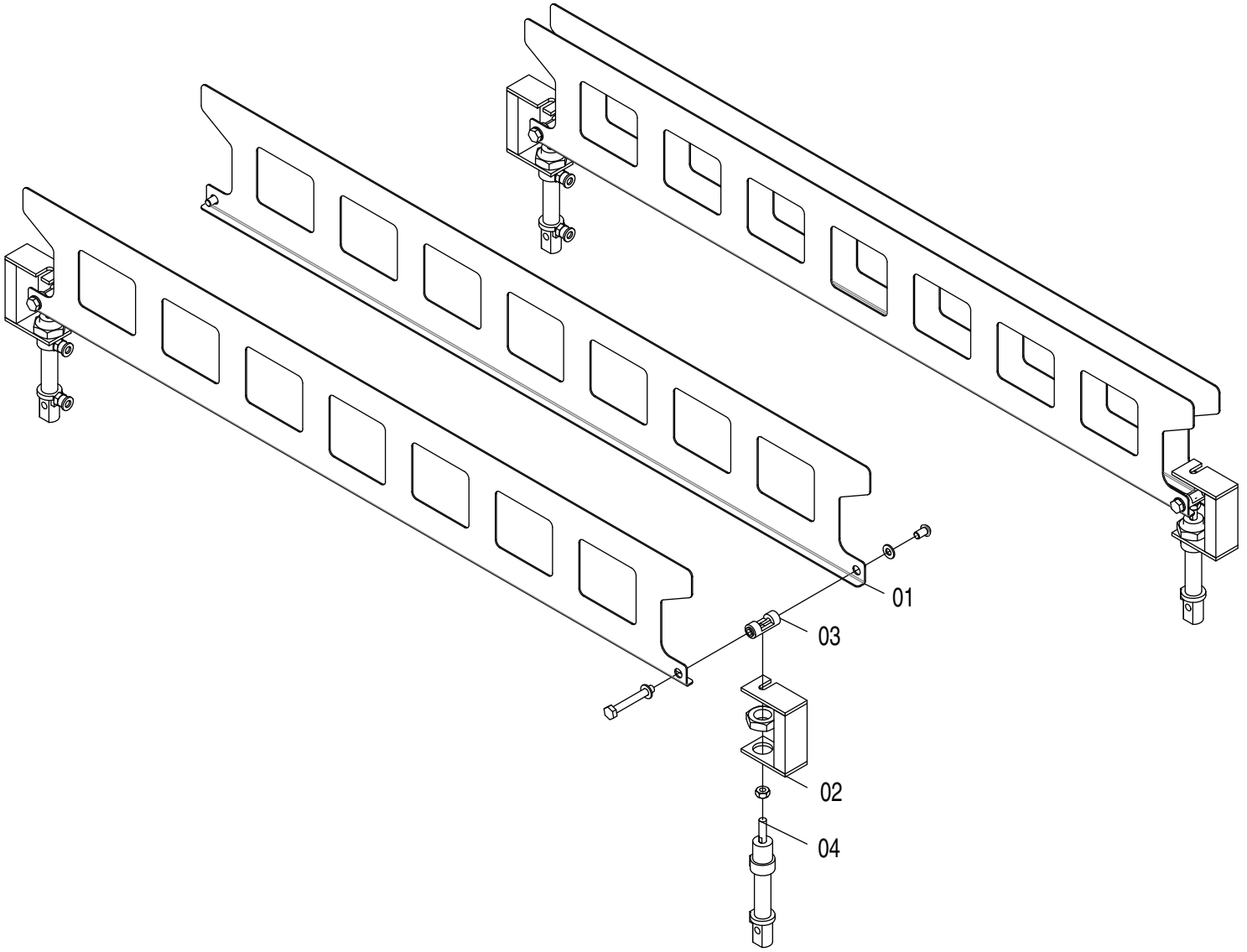
Seal Lifter - 80/82WLX

Assembly drawing



Assembly Drawing:

Pos	Part No	Description	Qty	UN
01	ANG1D2762-20	Angle Blade9x760Lx116H SS	2	EA
02	BRA161252-00	Bracket seal lifter ss	2	EA
03	CLV0C1312-00	Clevis 12 Dia x 30.6L SS	2	EA
04	PCYL0C0F0-0F	Cylinder-12x15 DSN Festo	2	EA

Pos	Part No	Description	Qty	UN

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Seal Lifter - 80/82WLX

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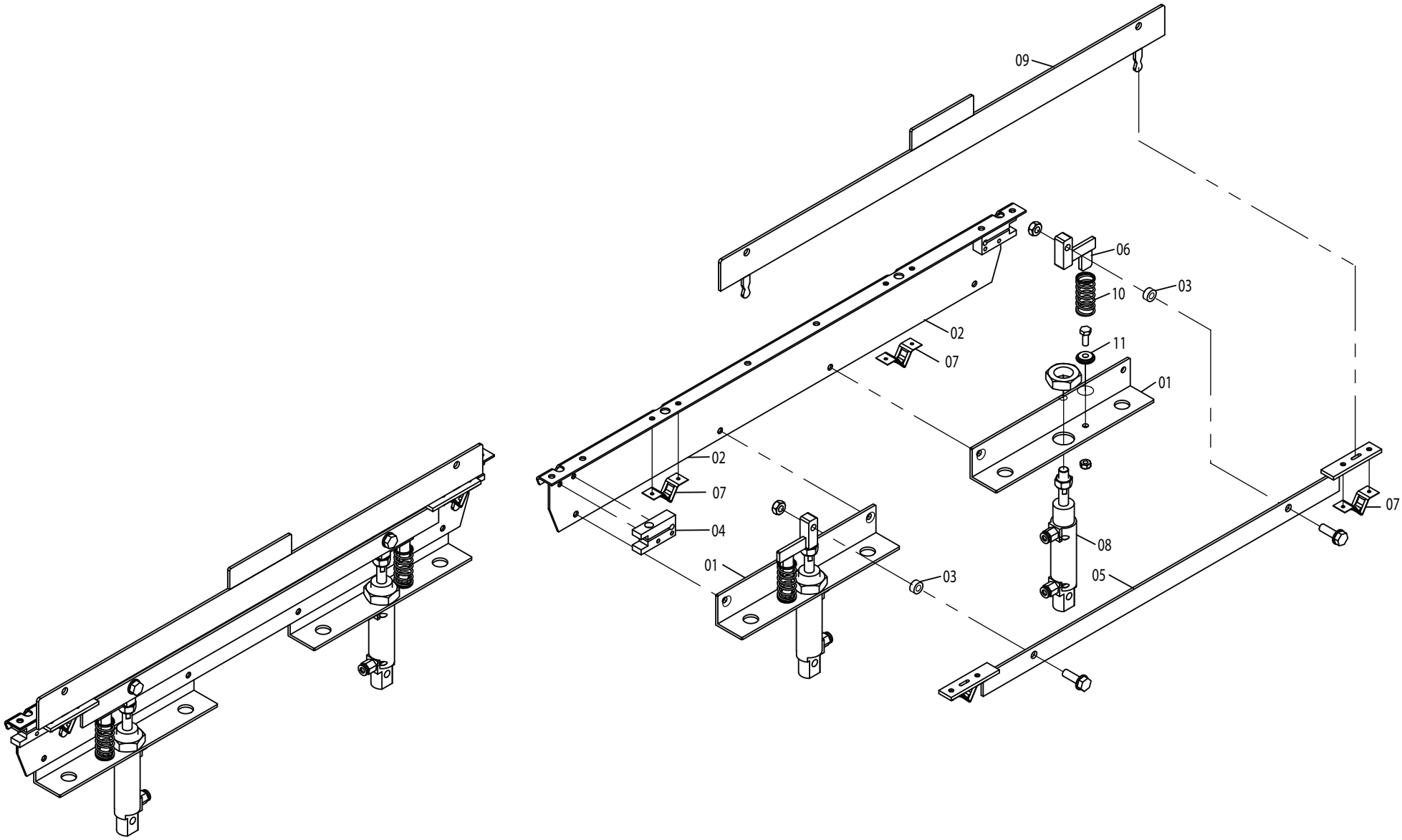
Table Gate - 82WLX

Assembly drawing



Assembly Drawing:

Pos	Part No	Description	Qty	UN
01	ANG142235-00	Gate cylinder support angle 45WLX	2	EA
02	ANG182540-10	AngTable/gate support 82WL Front	1	EA
03	SPA080J00-00	Spacer 8X16X18L	2	EA
04	BLO131505-00	Block 12.7x25.4x50L SS Adjst.gate	2	EA
05	BRA132476-20	Suit gate bracket 476L 82WL	1	EA
06	CLE0C1350-10	Clevis 12x12x35 SS	2	EA
07	MSPR0J150-0M	Spring-17x50L Dia. 9.50Pin 2Holes SZ	4	EA
08	PCYL130F0-0F	Cylinder DSN 25x15 DAC Fes	2	SET
09	RSF152496-40	Insert Gate 50x3x496L SS	1	EA
10	SPR121500-00	Spring 16ID 6.78P for safety trip bar 51H SS	2	EA
11	WAS060K04-00	Washer 4mm for M6 screws	2	EA

Pos	Part No	Description	Qty	UN

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Table Gate - 82WLX

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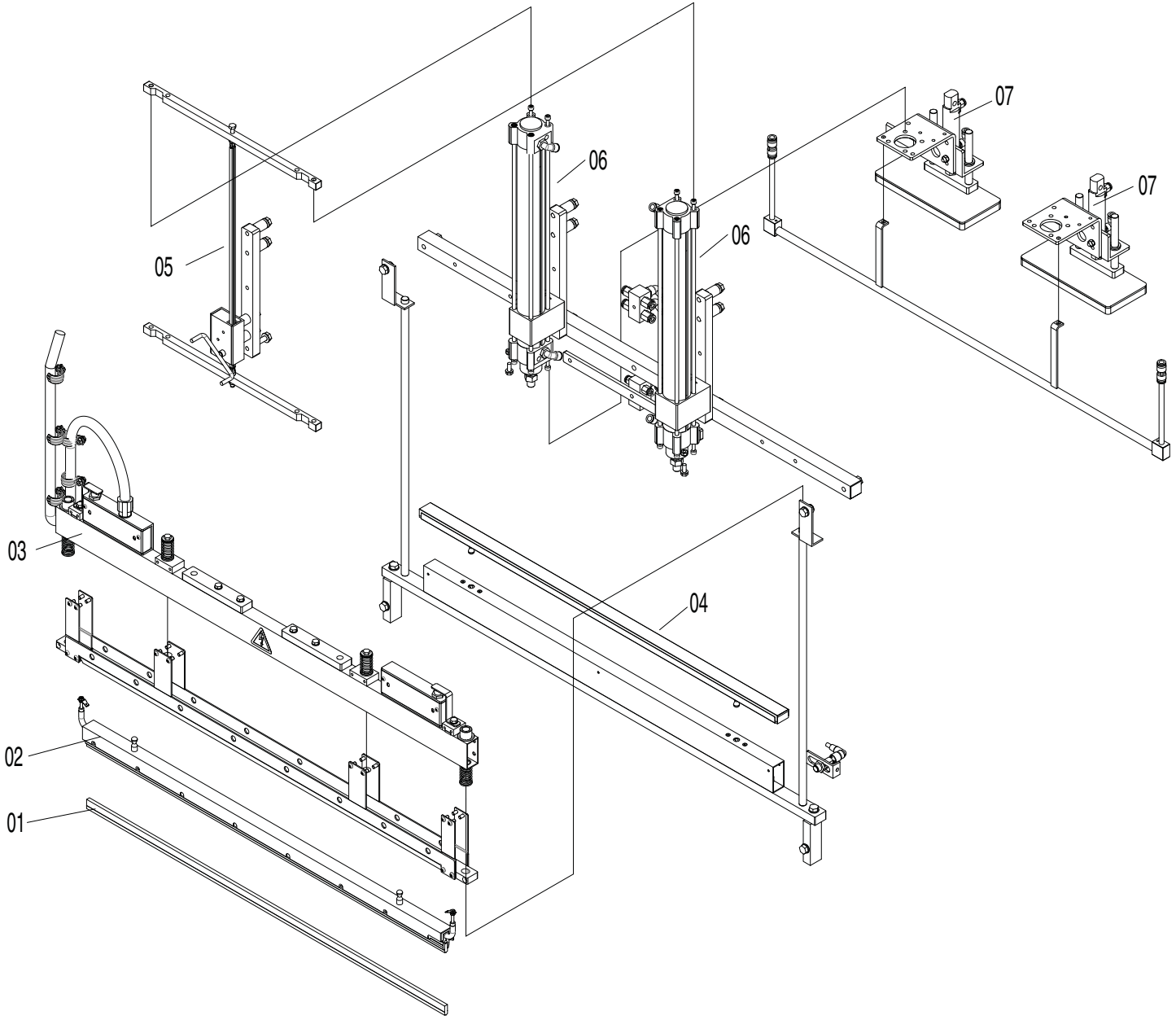
Assembly drawing

Welding Bar - 82WLX



Assembly Drawing:

Pos	Part No	Description	Qty 300 Stroke	Qty 350 Stroke	Qty 400 Stroke	UN
01	KNI122810-02	Knife for Machine 80	1	1	1	EA
02	AKNI13280-00	Knife Assy 80Wx No Knife	1	1	1	SET
03	AWEL13280-00	Welding Bar 80-82WLx Assembly	1	1	1	SET
04	AANV13280-00	Completed Anvil Bar 80WLx Red	1	1	1	SET
05	AADJW5-230-10	Welding bar Adjustment 82WLx	1	1	1	SET
06	*PCYL14230-2F	Cylinder DSBG 40x300 PPVA-N3 Festo	2	-	-	SET
	*PCYL14235-2F	Cylinder DSBG 40x350 PPVA-N3 Festo	-	2	-	SET
	*PCYL14240-2F	Cylinder DSBG 40x400 PPVA-N3 Festo	-	-	2	SET
07	ACLA191250-02	Pack Clamp 90Pad DSN25-25 SS	2	2	2	SET

*Refer to cylinder stroke that belongs to the machine.

Pos	Part No	Description	Qty	UN

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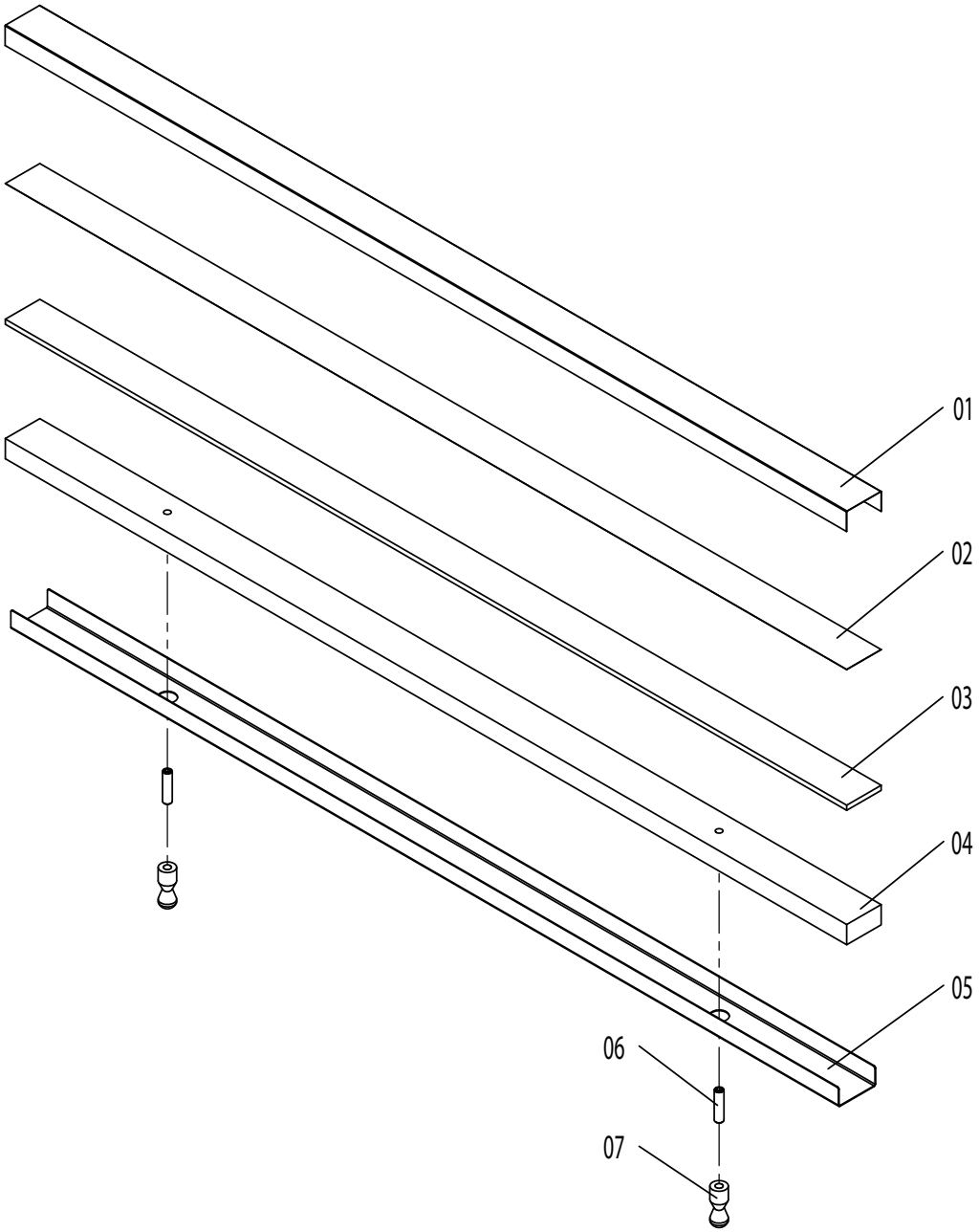
Anvil Bar 80WXX

Assembly drawing



Assembly Drawing:

Pos	Part No	Description	Qty	UN
01	DTEF152810-00	Teflon Shield 50x0.15 810mm	1	EA
02	DTEF132810-00	Teflon Shield 25x0.075 810mm	1	EA
03	DRUB132810-00	Anvil Rubber Pad for 80W	1	EA
04	DRSB132812-00	Anvil Bar 25x12x810L 80/82W5	1	EA
05	DCHA132802-00	Channel 26x800L 2H11 80/82W5 SS	1	EA
06	FSCR050C0-3Z	Screw SocSet M5x12 ST Blk	2	EA
07	DPIN0A1251-00	Latch Pin 9.5x25L 1M5 SS	2	EA
If order as a roll:				
01	RTEF153A0-0P	Teflon Shield 50mm.x10m./roll	1	Roll
02	RTEF133A0-0P	Anvil Liner 25mm.x10m./roll	1	Roll
03	RRUB133900-2T	Rubber-25x3.2x9M Anvil SI Orange	1	Roll

Pos	Part No	Description	Qty	UN

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Anvil Bar 80WXX

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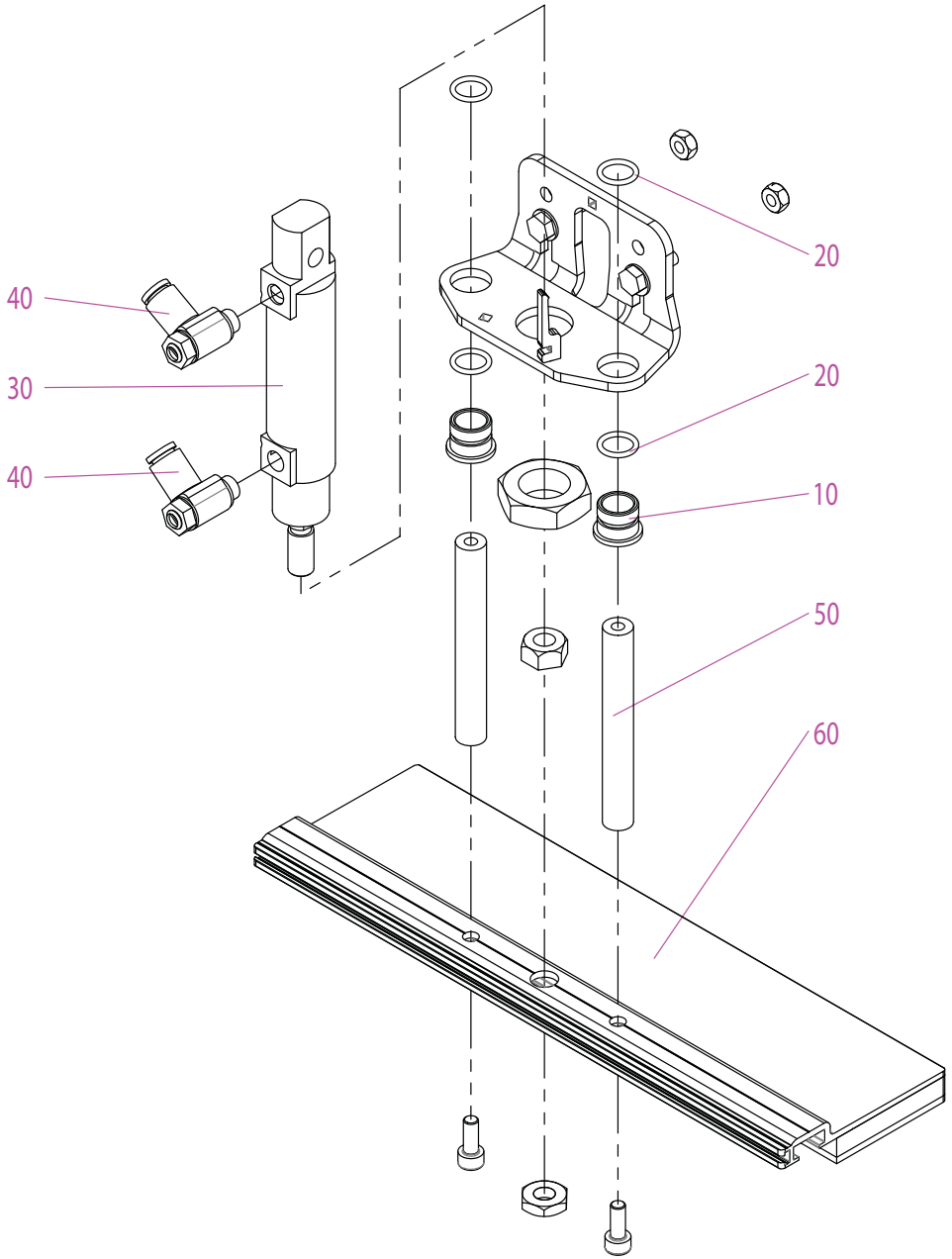
Pack Clamp - AL

Assembly drawing



Assembly Drawing:

Pos	Part No	Description	Qty	UN
10	BUS0C0G01-00	Flanged Bush 12x16x14L Grooved PE	2	EA
20	MORI0G020-00	Oring Outside 16x2.0mm Black	4	EA
30	PCYL13125-2F	Cylinder DSNU 25x25 P Fes	1	SET
40	PFLO01060-0F	Flow Contol G1/8-T6 Fes	2	EA
50	ROD0C1922-00	Rod D12x92L 2H6 SS	2	EA
60	CLA1922903	PackClamp Plate w/t Rubber 90x288L	1	EA

Pos	Part No	Description	Qty	UN

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Pack Clamp - AL

Assembly drawing

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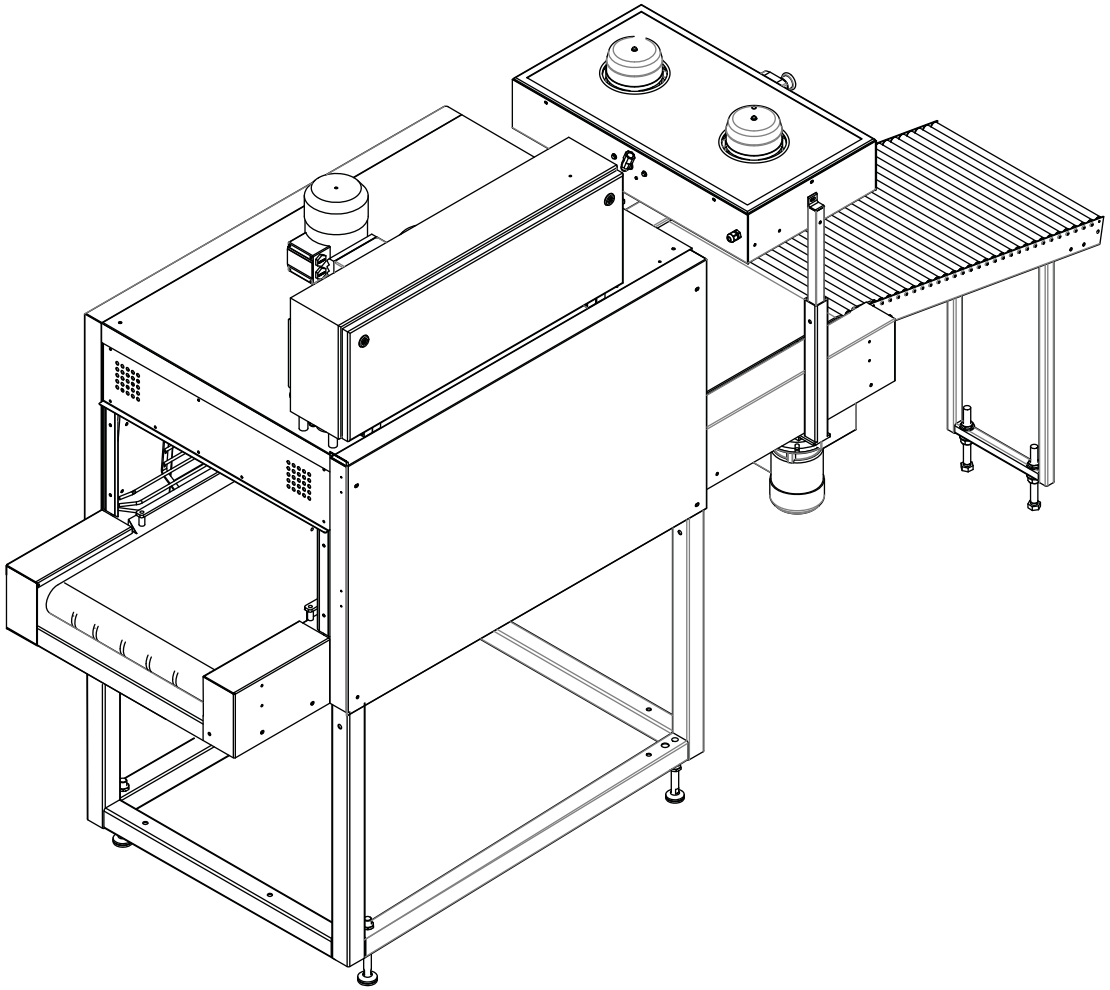
Tunnel 82TMW35 Side



Assembly Drawing:

Pos	Part No	Description	Qty	UN
8	MBEL272A0-0W	Wirebelt 711Wx7.26Px1.57 80Tx	3.9	M
9	MGEA14120-3M	GearBox 40 1:20 14/160 AW Motovario	1	EA
10	MBEL04222-0H	Belt Polycord 4Dx220L	1	EA
11	DSPR071294-00	Sprocket 7.26P 29T 25B 1M8 TX ZP G	12	EA
12	DDIS131692-00	Disc Belt Support 25x69 1M8 TXW ZP	12	EA
*50Hz				
19	MWHE1K1A0-0G	FanWheel 7.5"x4" ACW 14AN Gal Ca	1	EA
20	MWHE1K1A0-1G	FanWheel 7.5"x4" CW 14BN Gal Ca	1	EA
*60Hz				
22	MWHE1K176-0G	FanWheel 7.5"x3" ACW 14AN Gal Ca	1	EA
23	MWHE1K176-1G	FanWheel 7.5"x3" CW 14BN Gal Ca	1	EA
Rubber curtain 82T				
4	DCUR823500-00	RUBBER CURTAIN for 82Tx35	1	EA

*Refer to these data depending on current usage of mains frequency.

Pos	Part No	Description	Qty	UN

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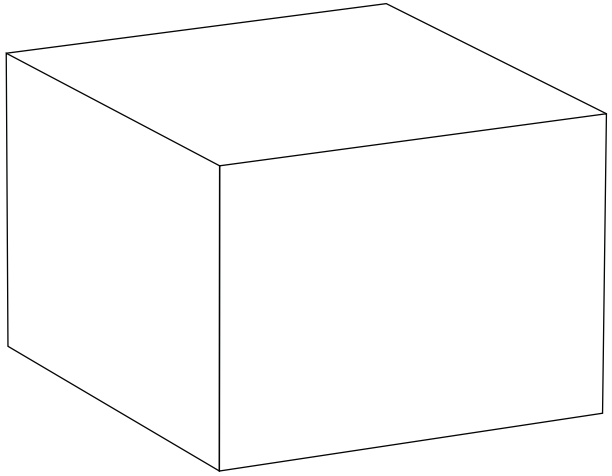
Optional Stocks



Assembly Drawing:

Pos	Part No	Description	Qty	UN
Wrapper				
01	PVAL12150-0F	Valve Solenoid VUVS-L20 Fes	1	EA
02	PSOL12000-0F	Solenoid Coil VACS-C Fes	1	EA
03	ESOC03120-2P	Socketcoil 24V+Diode2m. for VUVS Pet	1	EA
04	ETEM22030-2O	Temperature Ctrl 220V E5CD Rel Om	1	EA
05	PQEV02020-1F	Quick Exh Val 1/4-1/4-Sil Fes	1	EA
06	PASU02100-0F	AirSU Wx 1/4 FR MS4	1	SET
07	PVAL02030-1F	Valve On-Off MS4 EE	1	EA
08	PREG02021-0F	Regulator 1/4 MS4 Mini	1	EA
09	MGEA14120-30	Gearbox 40 1:20 14/160	1	EA
10	MGEA130F0-10	Gearbox 30 1:15 11/90	1	EA
11	MGEA130A0-10	Gearbox 30 1:10 11/90	1	EA
12	MHAN08120-0E	Handle M8	4	EA
13	AKIT-00W20-00	Repair kit for Film System	2	SET
14	ESSR2C180-0R	SSR-1200VAC 80A 3-32VDC RLei	1	EA
15	ESEI120C4-1O	Sensor Ind 24DC 12D PNP 4mm. Plug	1	EA
16	ESEI120C4-0O	Sensor Ind 24DC 12D PNP 4mm. CBL2m.	1	EA
17	DTHE2K00E1-00	ThermoCoupp for Wrapp 1900mm, Ye/Rd	1	EA
Tunnel				
01	MWHE221A0-1G	FANWHEEL 200x100x14 ACW GAL CA	1	EA
02	MWHE221A0-0G	FANWHEEL 200x100x14 CW GAL CA	1	EA
03	MWHE221A0-1S	FANWHEEL 200x100x14 ACW S/S	1	EA
04	MWHE221A0-0S	FANWHEEL 200x100x14 CW S/S	1	EA
05	EFAN22230-0G	FAN UNIT 220V 12” DIA STM	1	EA
06	DROL121201-00	Roller-Groved Ø20x20L UHMD PE	15	EA
07	DDIS131692-00	Disc Belt Support ZP	8	EA
08	DSPR071294-00	Conveyor Sprocket 29 Teeth	8	EA
09	MBEA13152-00	Bearing Ball 25x52 SA YAR SK	4	EA
10	MCHA0A231-00	Drive Chain	2	FT
11	MCHA0A010-00	Chain Joiner	1	EA
12	DSPR0A0H32-00	Drive Sprocket 17T For G'Box	1	EA
13	DSPR0A1242-00	Follow Sprocket 21T for Pulley	1	EA
14	ESSR2C180-0R	SSR-1200VAC 80A 3-32VDC RLei	1	EA
15	DTHE2280E2-00	ThermoCouple-Side Tx 2800L	1	EA
16	AHAN13VVV-00	Manual Drive for Tunnel[Ver:4]	1	SET

Pos	Part No	Description	Qty	UN

7 Human Machine Interface

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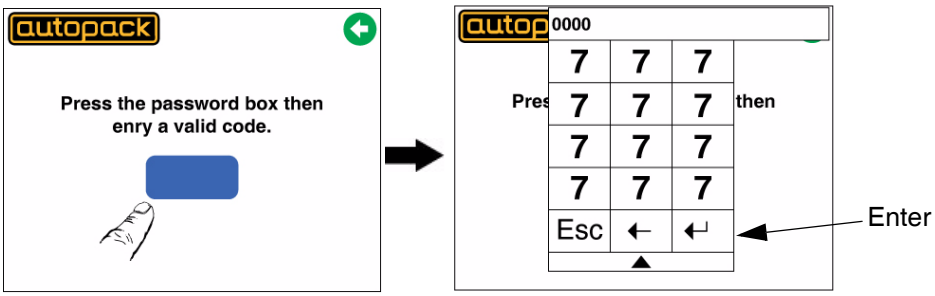
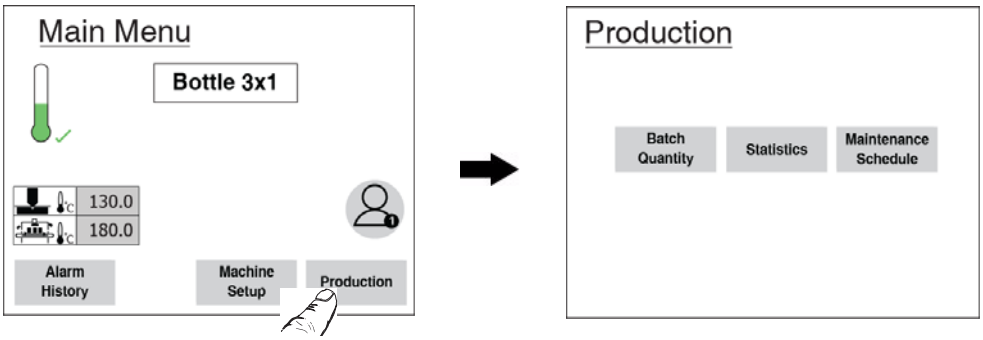
7.1 Main Menu Screen

Enter level 1 password to log into level 1 screen. Level 1 password is the last four digits of machine serial no.

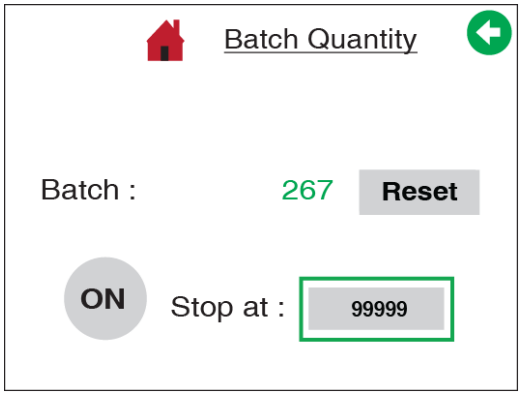


Three functions on Main Menu screen
- Production
- Alarm History
- Machine Setup

7.2 Production



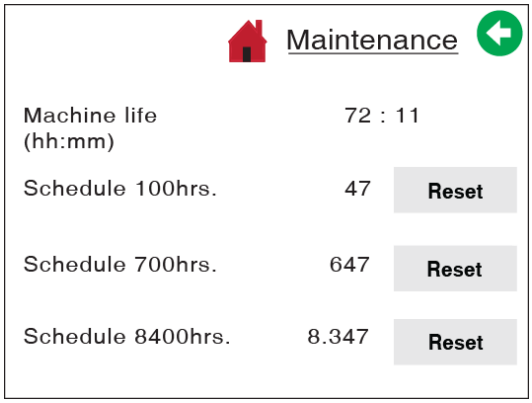
Batch Quantity



Batch quantity screen displays how many batches machine has finished since its first operation.
"Stop at" function: tap to activate the function. Tap input box to set new value. When the number of batch count reaches the set value, machine stops running. Machine continuously runs if not using the function.

Note! Password level 2 is needed to reset batch limit.

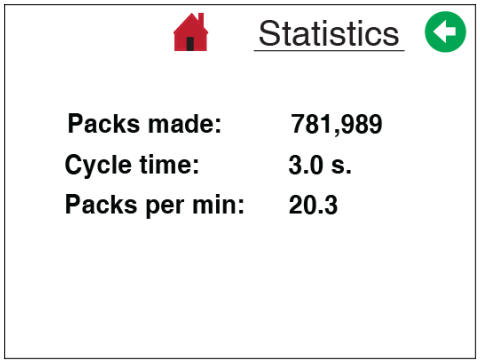
Maintenance



Maintenance schedule
Run time meter: Duration of which machine has operated since its first operation.
100 maintenance after: Perform necessary maintenance when machine reaches 100 operating hours.
700 maintenance after: Perform necessary maintenance when machine reaches 700 operating hours.
8400 maintenance after: Repalce welding knife when machine reaches 8400 operating hours.

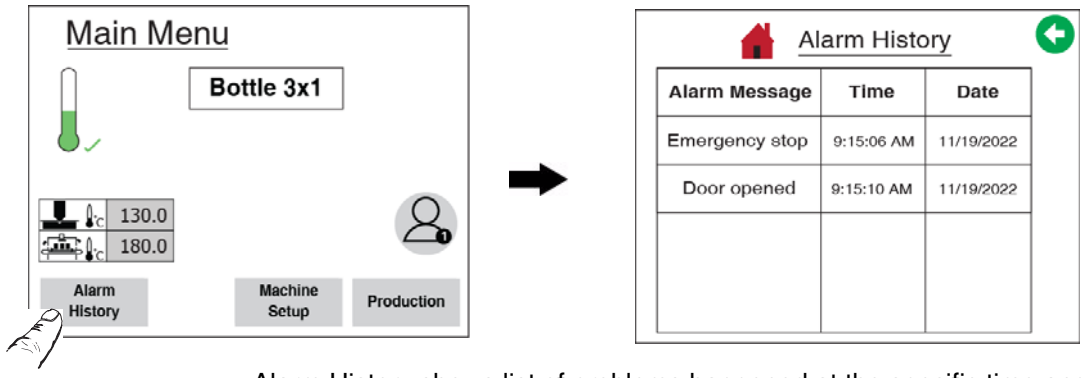
Note! Password level 2 is needed to reset maintenance schedule.

Statistics



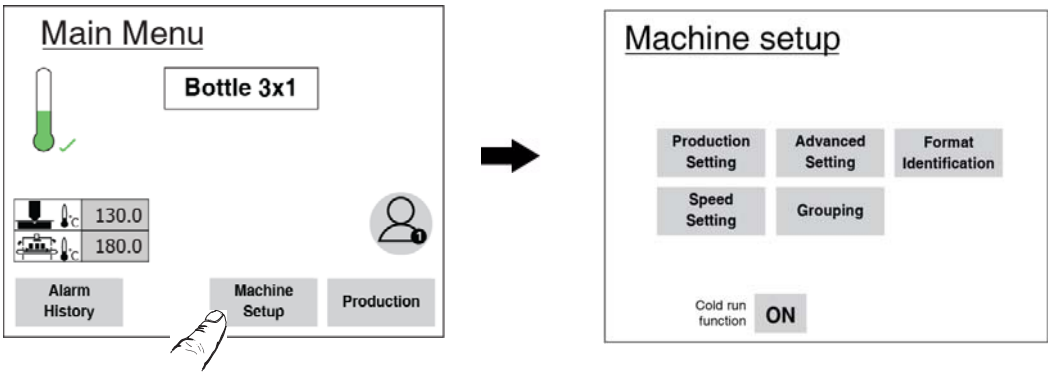
Statistics
Packs made: The number of packs made since machine's first operation.
Cycle time: The amount of time (sec) the machine completes a package.
Packs per min: The number of packs per minute machine completes.

7.3 Alarm History

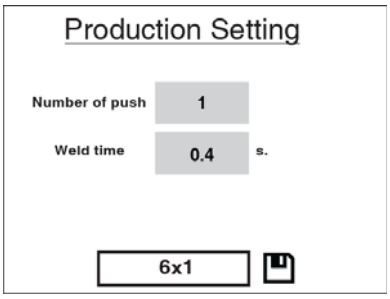


Alarm History shows list of problems happened at the specific time and date.

7.4 Machine Setup



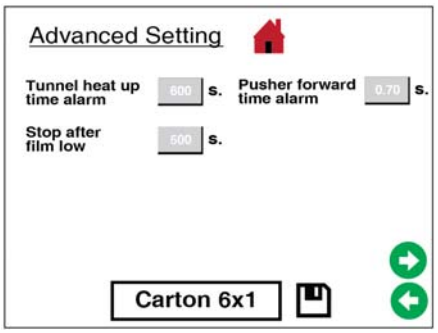
Production Setting (Level 1&2)



Number of push: Pushes taken to push one collation.

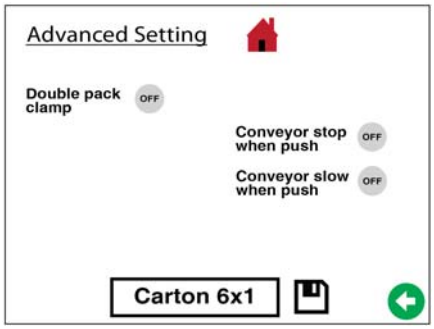
Weld time: Duration (sec) of the knife staying on the film.

Advanced Setting (Level 2) - Screen 1



Tunnel heat up time: Maximum duration (sec) allowing the temperature to rise to the set value (sec). Spending more time than the set value (sec) triggers alarm.
Pusher forward alarm: Maximum duration (sec) allowing the pusher to push a stroke forward. Spending more time than the set value (sec) triggers alarm.
Stop after film low: Once “Low film” alarm is triggered, machine starts counting down the set time. Machine stops running when this set time is over.

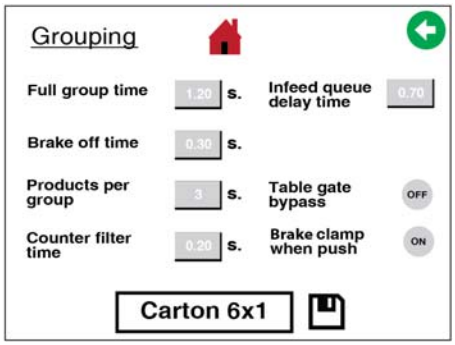
Advanced Setting (Level 2) - Screen 2



Double pack clamp: ON/OFF double pack clamp function.
Stop conv. when push: Toggle On/Off. If on, conveyor will stop during forward and backward pushing and run again after pusher reaches home position. If off, conveyor moves continuously.
Slow conv. when push: Toggle On/Off. If on, conveyor will slow down during forward and backward pushing and run with normal speed again after pusher reaches home position. If off, conveyor moves continuously.

Note: If “Stop conv. when push” and “Slow conv. when push” are both selected as “ON”, the “Stop conv. when push” will be considered selected.

Grouping (Level 2)

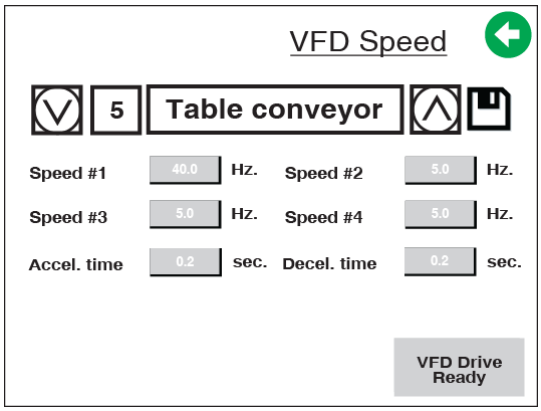


Full group time: When the sensor(B424) detects the product longer than set time, infeed brake will stop the product, then pusher will push the first group of the product.
Brake off time: Delay time for the next group of product after pusher returns to home position.
Product per group: After pusher pushes the products, the sensor (B424) will release the next group of products and will count the number of products according to the pack format.
Counter filter: Remove noise from product sensor signal. Eg. If the given time for sensor (B424) is 0.7 sec, the sensor will not count the signal which is shorter than 0.7 sec.
Infeed queue: If queue sensor (B310) detects products for more than the set amount of time, alarm will flash and the conveyor will stop.
Table gate bypass (optional): ON this function when table gate is not required.
Brake clamp when push (optional): ON this function for the brake to stop product after pusher pushes.

Format Identification (Level 2)

Add or edit format ID or Name in this function.

Speed Setting (Level 2)



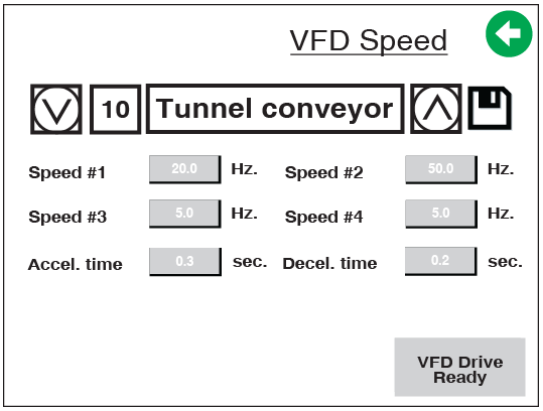
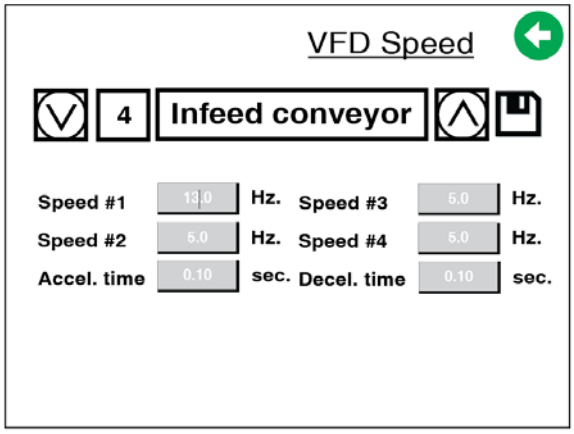
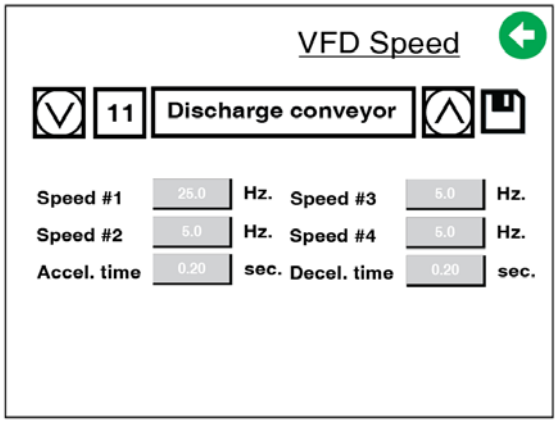


Table Conveyor
Speed #1: Table conveyor's normal speed.
Speed #2: Table conveyor's slow speed.
Accel. time: Seconds taken for the conveyor to reach maximum speed.
Decel. time: Seconds taken for the conveyor to stop.

Tunnel Conveyor
Speed #1: Tunnel conveyor's normal speed.
Speed #2: Tunnel conveyor's fast speed.
Accel. time: Seconds taken for the conveyor to reach maximum speed.





Infeed Conveyor
Speed #1: Infeed conveyor's normal speed.
Accel. time: Seconds taken for the conveyor to reach maximum speed.
Decel. time: Seconds taken for the conveyor to stop.

Discharge Conveyor
Speed #1: Infeed conveyor's normal speed.
Accel. time: Seconds taken for the conveyor to reach maximum speed.
Decel. time: Seconds taken for the conveyor to stop.

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8 Diagrams & Drawings

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