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WS PRIME

Product Specification
Operating Instructions
Maintenance

The wrapping machine may only be operated by a specified person who is properly instructed and familiar with these instructions as well as safety rules, including Operating Instructions.

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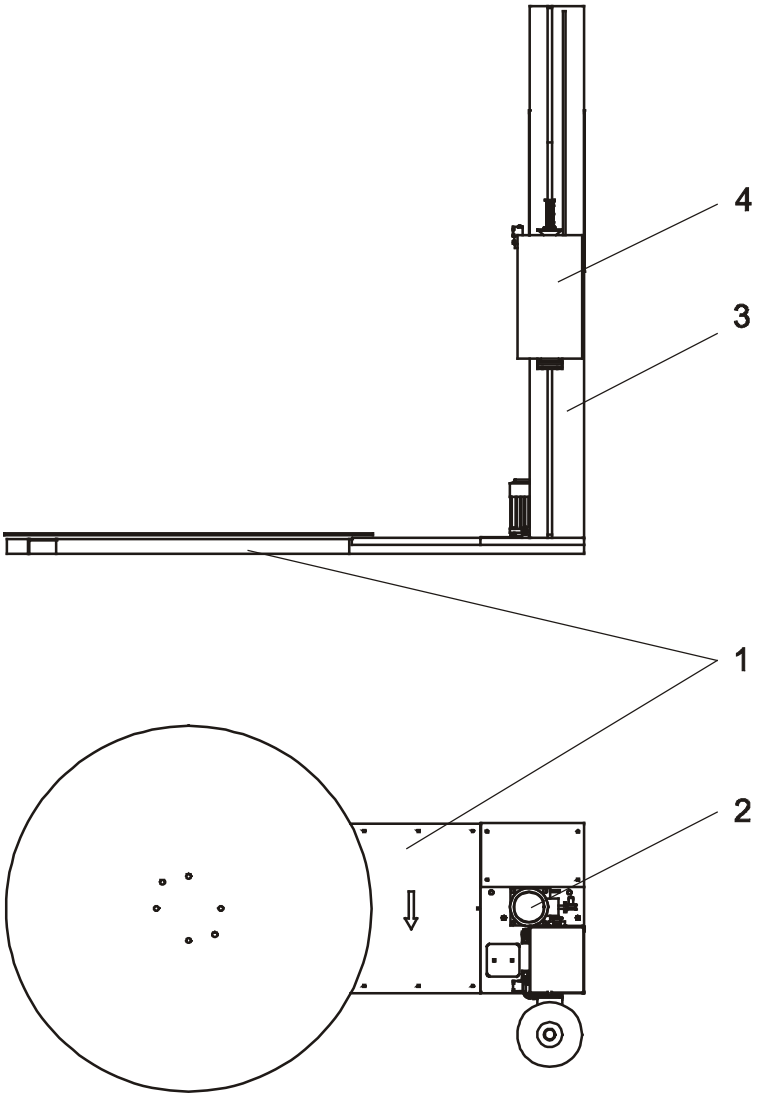
1. GENERAL

These instructions are the original instructions for use according to Directive EU no. 2006/42/ES and they are authorized by the manufacturer.

1.1. Usage

The wrapping machines of range **WS PRIME** enable a wide variability of equipment and accessories according to the requirements of wrapped goods as well as according to the economic efficiency of machine´s run. They are suitable for fixation of pallet units with a stretch film.

1.2. Description, Accessories



1 **Basic frame with circular turntable**. There are fixed a drive of turntable and a mast with further accessories on the frame. The turntable is rotating on a central bearing and auxiliary rolls. The goods are placed on a turntable available for easier manipulation in executions as follows:

- basic execution – standard turntable. The diameter is 1500 or 1800 mm
- forklift-shaped turntable – enables using of low-lift trucks for loading the goods on turntable without using a turntable bridge. The diameter is 1500, or 1800 mm

2 **Turntable drive** – an electric motor with an intergearing by a V-belt. By this inter-transmission a power transfer to the required turntable speed is done, it supports the soft start and stop of turntable.

3 **Mast** of the machine is fixed to the basic plate by bolts. Its construction is shaped by metal profiles. A switchboard and control panel are integrated in the mast. Inside space of the mast contents guiding and traversing slides of film carriage, electric drive of film carriage, switchboard and system of end switchers. Standard heights of masts is 2150 mm

4 **Film carriage with prestretch device.** Film carriage is constructed by a welded frame with rolls of a travel which is driven by an electric motor via a belt. Respective prestretch device is created by various optional units of film carriage which are used according to wrapped goods:

- manual film brake – a cheap solution for occasional wrapping with no special requirements for quality of wrapping and reduction of film consumption
- mechanic prestretch – with requirement for lower film consumption caused by its stretching through rolls of prestretch device
- elektromagnetic film brake – for lower and middle wrapping capacity

When the goods are loaded on a standard turntable (not forklift-shaped one) by a pallet truck or by other manipulation means the order can be completed by a turntable bridge which is firmly fixed to the machine base. Its orientation (a direction how to fix it) will be qualified by space and manipulation relations in the workshop. The turntable bridge may be ordered together with a machine or, when necessary, anytime later.

Further solution of this requirement would be to use the floor frame. The turntable surface gets on the same level as the floor level is, there is not necessary to pass any vertical interval. The prohibition to move the high-lift truck upon the turntable surface has to be respected especially strictly. The floor frame is supplied by the producer incl. documentation. Building activities (embeding the frame into the floor and its fixation via concreting) are necessary, the machine is consequently put into the fixed frame withou any further mounting or other labours. Floor frame can be installed within machine delivery or anytime later. With a WS machine placed in the built-in frame must be specially respected the prohibition to drive the fork lift on the turntable surface.

A detailled description of single parts of the wrapping machine incl. attendance and operation can be found in Chapter 5.

1.3. Expendable property

The machine is used for stretch film wrapping of the goods on pallets by LLDPE (low linear density polyethylene) stretch film of 20 ÷ 40 µm of the thickness. In the machines provided with mechanical prestretch device there must be used a stretch film of minimum stretching limit of 150%. The equipments as hand brake do not need any guaranteed stretching limit. The stretch film must be available in the form of rolls of 500±10 mm of the width and max. 250 mm of the diameter. The core on which is the film wrapped must be of inside diameter 76±3 mm and 510±5 mm of the length.

A cling stretch film as well as one-side-cling film can be used. The adhesive power of one side means the particular film layers wrapped on the goods cling each other perfectly and they do not have any habit to damage the goods on the pallet any way. The main purposes for using this film are the better goods fixation to the pallet, the higher packing rigidity and its better weather effects and mechanical strain resistance within transport. When wrapping the pallets with the goods the stretch film has to be orientated „inside cling“, i.e. the cling side to the goods. When handling the pallets afterwards or transporting them there is no pallets tendency to adhere to each other.

The film is standardly 6 months UV resistant, i.e. the wrapped goods may be outdoor stored and exposed to the sun radiation for 6 months without any damage while all the original wrapping characteristics are kept. In case of requirement for longer outdoor conditions storage are to be used the stretch films with increased UV resistance.

Following stretch film grades meet the above mentioned requirements:

Type	Stretch Grade	Application	Executions Available
POWERFLEX SQ	160%	Hand or electromagnetic stretch film brake. Wrapping of heavy goods with sharp edges.	Various thicknesses Non-cling and one-side-cling With increased UV resistance
POWERFLEX PQ	200%	Mechanical prestretch device. Wrapping of medium-heavy or light goods, or wrapping of fragile or deformable goods.	Various thicknesses Non-cling and one-side-cling With increased UV resistance
POWERFLEX HPQ	250%	Similar application as on PQ.	Various thicknesses Non-cling and one-side-cling With increased UV resistance
POWERFLEX SPQ	300%	Similar application as on PQ or HPQ	Various thicknesses Non-cling and one-side-cling With increased UV resistance

When putting the wrapping machine into operation it is recommended to contact the machine supplier or producer who is able based on experience to recommend an optimal stretch film grade for wrapping of the appropriate goods.

Any other kind of packing materials (e.g. perforated films, net ones, sandwich films, printed ones, bubble films, etc.) as mentioned above cannot be recommended to be used without previous consultation with the machine producer and without his approval – a propper machine operation cannot be guaranteed otherwise. In case the wrapping machine does not wrap a correct way during warranty time or if it is damaged or the wrapped goods injured a claim can be refused by the producer in case some non-approved packing materials or films have been used on the machine.

1.3.1. Ecology

The films can be classified as the plastic material (more precisely in the PE polyethylene class) in the sorted waste. It is well-recyclable. It can be successfully combusted and there do not appear any harmful combustion gases under corresponding combustion conditions. The PE polyethylene is not biologically decomposable and its degradation in the dumping ground takes rather long time. No dangerous products escaping to the air or contaminating water or earth are known.

1.4. Machine Performance

The performance satisfies the technical standards and regulations provided under the Letter of Conformity which is a part of this accompanying technical documentation.

The relevant norms and regulations are included in production documentation. Measures taken from the part of producer are described in this accompanying technical documentation, in this Manual.

The estimated lifetime of a machine is 50 000 hours as long as it is used in compliance with this accompanying technical documentation, required maintainance is provided, and periodic checks are performed.

1.5. Operating Conditions

The wrapping machine is designed for operations meeting following conditions:

Normal environment as per IEC 364-3 by the terms set forth in this Chapter, and installation and operating guidelines based on this accompanying technical documentation.

The machine will be installed and operated in sheltered workshops protected against weather effects.

There must be a flat and reinforced floor, maximum allowed deviation from floor flatness is ±3 mm/2m. Before setting the machine on a place, rough impurities, small stones, etc. must be deprived.

The range of temperatures for operating the machine is +5 up to +40 ºC, the changes of temperture must not be more frequent as 10°C / 30 min.

Relative moisture 30 ÷ 95% without condensing moisture (dew).

The machine and primarily its electrical devices shall be installed and operated in compliance with the manufacturer instructions provided in the accompanying technical documentation.

The machine shall be operated in sufficiently lit working areas satisfying national regulations for working environment.

It is prohibited to place the machine the way which would minimize the width of access pathes to an electric installations under minimum values given in national regulations.

There must not be placed any retardation which maight cause an injury of operator closer to the machine (stairs, ramps, lowered ceilings, other machines, etc.)

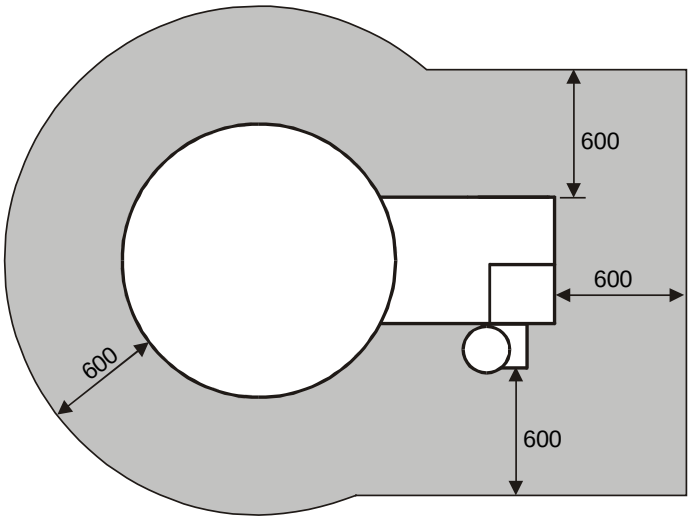
The operation of the product shall be prohibited in an explosive environment or in that one where conditions to explosion would appear even for a short while.

The machine and primarily its electrical devices shall be installed and operated in compliance with the manufacturer instructions provided in the accompanying technical documentation.

1.6. Safety space

A minimum space around the machine has to be reserved to keep the operating personnel save. It is prohibited to place any objects to this area, an other machine or the operating area of an other machine is not allowed to interfere in.

The minimum area diagram does not approve this area as considered even for bringing the goods in or carrying them away.



1.7. Operation

The machine shall be operated by a single person. The control board workstation will make sure the operator is out of the operating space of the machine.

1.8. Electric Outfit of the Machine

The electric outfit of the machine complies with provisions of EN 60204-1.

The machine is shielded in compliance with Group 1, class B. according to the standard EN 55011

From the point of view of jamming the machine conforms to the requirements of standards

IEC 1000-4-2, EN 61000-4-2,
IEC 1000-4-3, EN 61000-4-3,
IEC 1000-4-4, EN 61000-4-4,
IEC 1000-4-6, EN 61000-4-6

The electric outfit of the machine consists of a switchboard and the electric wiring in the machine. The switchboard includes a 5-pole line terminal block and a main switch of the whole machine.The power supply shall be protected using fuses or breakers. The grid in the place of connecting the machine has to be in conformity with international as well as national regulations and standards.

2. SAFETY INSTRUCTIONS

2.1. Revisions and tests of electric outfit

The machine is subject to periodic revisions and tests of electric outfit. Along that the conditions of EN 60204-1 have to be met.

Before putting the machine in operation the revision of electric equipment must be carried out – see Chapter 3.3.

2.2. Safety Recommendations

Whereas any unprofessional handling of the electrical devices within the machine might cause severe damages to the machine, or even injury of the operator, each operation may only be completed by a trained and authorized person as per the national guidelines for work on the electrical equipment.

The persons operating wrapping machine must be familiarized with this Manual by the way which is possible to demonstrate and this Manual has to be for stable disposal of operators..

The main switch on the switchboard may be locked in the OFF position. We recommend the user of the machine to address administration of the key to this lock within the operation where the wrapping machine is to be installed, thus preventing any unauthorized person, not familiar with the operation, to start up the machine.

2.3. Work Safety

2.3.1. Safety devices to ensure work safety

The wrapping machine has a simple frame without any occurence of hazardeous points which might jeopardize health of the operator within operation if the specified wrapping procedure is followed.

Hazardeous points in working space result from the principle of machine operation:

1) Turntable rotates together with a pallet placed on. The rotating section of the machine with a pallet is not protected using special covers since this would disable the actual process.
2) Film is led through the rolls of prestretch device.
3) Film is rolled on the wrapped goods and tighten on with certain power.
4) An electrostatic charge may arise on the film.
5) Prestretch device drives all over the height of the mast down to the floor.

To protect the opeator there are used on the machine:

1) Pushbutton **TOTAL STOP** for immediate outage of device. Pushbutton is blocked mechanicaly in off position and it is located on the control board within reach of the operator.
2) The machine is controlled via a control board which is located on the sidewall of the machine to be out of the operating space.
3) The machine is blocked by a sensor in case of pallet truck presence within loading or unloading the pallet in the cut-out area of a machine provided with forklift-shaped turntable.
4) Rotating parts of transmission devices are fixed inside the machine frame.

2.3.2. Operator and user obligations

For personal safety are the operators obliged to keep the directions as follows:

1) The machine may only be operated by a single person. Apart from the operator, no other people are allowed to stay nearby the machine under operation.
2) The machine may only be operated when the operator keeps permanently out of operating space of the machine (i.e. at control panel).
3) The wrapping machine may only be operated by a specified/determined person older than 18 years of age only, who is properly instructed and familiar with these instructions as well as safety rules.
4) No spirit consumation, use of addicting substances or medicines influencing the work safety is allowed by the staff.
5) The operators are obliged to operate and maintain the machine in accordance with this Manual. When using the machine a correct way material damages or injuries may be eliminated.
6) Prior to start working, the operator shall check on the overall condition of the machine and proper functionality of the individual parts. In particular, integrity of electrical cables. For the whole period of operation, he/she should keep the work place and its immediate surroundings clean.
7) To replace the coil with the foil or to handle the elongation device in any other way than expressly described in this manual is permitted only when the machine is stopped.
8) The operator will handle pallets on the turntable so that no of its parts overlap the turntable profile. The pallet shall not be positioned on the turntable eccentrically.
9) Covers may only be removed, dismounted, or lifted when the machine stops fully, and the shutdown condition is secured.
10) Rotating machine parts shall perform in a direction of the attached arrow.
11) Safety marks, symbols, and machine labels shall be legible. If they are damaged or unlegible, the user shall reinstate the original appearance.

It is restricted to:

1) **Use the machine an other way or for other purposes than mentioned in this Manual.**
2) **Start up and use the machine if the protection device (covers, keyboard foil cover) are removed or damaged.**
3) **Touch the moving machine parts, rotating pallet or rolled-on film.**
4) **Manipulate in the space of prestretch rolls within rotating turntable.**
5) **Pass through or manipulate any way in the space between the mast and the turntable.**
6) **Enter a rotating turntable.**
7) **Operate the machine if there is not enough light in the working space and at the workshop.**
8) **Maintain, clean, or repair the machine under operation, or unsecured against inadvertent actuation.**
9) **Check and repair the electric device with a person who is not fully skilled.**
10) **Inactivate safety, protective and protecting device or intervene any way construction and electric elements of the machine.**

2.4. Work Hygiene

The mass of the packaging foil is equal to about 17 kg. All women and youth are forbidden to handle loads over 15 kg.

The character of produced and packed goods influences the working environment, in which the machine is being used. Its manager is obliged to ensure safety at work and of workers' health in conformance with national regulations for the protection of health.

To reduce physical effort in handling packaged pallets the personnel has to use mechanical lifting aids that the employer has provided for this purpose.

If the character of the packed product is such that hands or other parts of operators bodies could be wounded while handling the product or if packaged goods do not fulfil hygienic limits (chemical or biological substances, dustiness, noise etc.), personnel must use personal preventative means that the user of the machine has provided for this purpose.

The equivalent level of acoustic pressure weighted by function A for the duration of the packaging cycle is, on the operator's position, equal to 63.9 dB; the machine as it conforms with hygienic limits. Measures protecting against noise are influenced by the situation on the working place and are governed by national regulations for the protection of health.

2.5. Fire Protection

The user shall provide appropriate fire protection devices to ensure fire safety at the workstation when the wrapping machine is under operation. Their specification and location shall be consulted and approved by the supervisor and fire protection experts, primarily in respect to the nature of processed materials as well as to the classification of wrapping machine as an electric device.

The location and types of extinguishers shall be determined by a fire protection engineer, employed by the user, based on local conditions.

2.5.1. Instructions for operators

In case of fire, the operator shall first disconnect the power by unplugging the machine, or releasing the main switch.

The operator shall only use the specified extinguishers to put down the fire.

Fire extinguishing either with water or foam extinguisher is prohibited!

3. INSTALLATION, HANDLING

This Chapter concerns storing, installation and putting the machine WS into operation. It also contains information about possible later handling of the already operating packaging machine.

3.1. Storage

If the machine is not put in operation immediately after delivery, it has to be stored in its original packing on a protected location, protected from atmospheric influences (rain, snow). Storing temperature range from 0 °C to +55 °C at a humidity from 5 % to 95 % without condensation (dew). No corrosive substances or substances producing vapours detrimental to insulation of electric conductors or substances that may produce a combustible or explosive environment may be present at the location, where the machine is stored.

3.2. Mounting, handling

The machine may be handled with the help of a high-lift truck, necessary runner dimensions and the carrying capacity of the truck is always given in the respective article. It is forbidden to convey the machines by a hand pallet cart and a crane. The machine also must not be conveyed loaded with a palette.

If the machine has been exposed to a sudden large change of temperature during transport, an adequate interval is required for the equalization of temperatures of the machine and the environment before the machine is connected to the mains – danger of moisture condensation (dew).

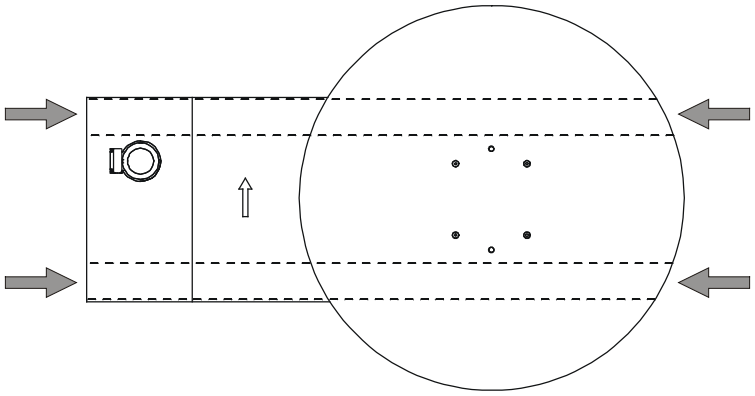
The machines are delivered with column folded down, that has to be erected for putting into operation.

!	**The machine must not be lifted by the turntable for any handling!**

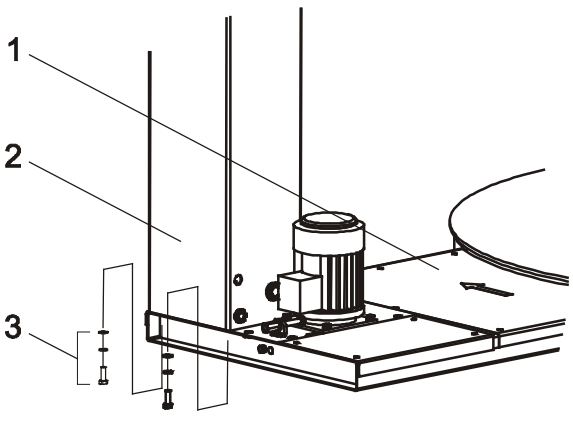
3.2.1. Model with standard turntable

This concerns the standard execution of the machine with standard turntable (not forklift-shaped turntable)

The machine is delivered with column folded down. For handling, load-bearing profiles are provided with holes for runners of a high-lift truck dimensioned 130×50 mm max., conforming to ISO 2328 – on the picture these holes are indicated by arrows. The high-lift truck must have a carrying capacity of 1500 kg at least.



Place the machine on the place, where it will be operated and put it in operation there. It is not recommended to handle a machine put into operation. – see below in this Chapter. The machine's working location must fulfil conditions given in Chapter 1.5. When **putting the machine in operation,** follow these points:



- Remove the protecting packaging and the foil fastening the prestretch device to the column.
- The column is folded down in the handling fixture; this fixture consists of a hinge around which the column rotates when it is erected.
- Screw stock pos. 3 (2 screws M10×30 each, washers 10.5 lock washers 10) are mounted on proper places of the machine in production. Remove them and erect column pos. 2 (carefully to prevent damaging of cables; the mass of the column is equal to 85 kg to 95 kg, according to the outfit) and screw it to the turntable pos. 1 by screw stock pos. 3 – it is screwed to the column from below. When the column is erected, the handling fixture has to remain in its place.
- Remove the supporting wooden prism inserted between the lowered column and the turntable.
- Finally check the supply and connect the machine to the mains net according to Chapter 3.3.

- All components and screw stock removed for putting the machine in operation should be kept for the case of a later transport.

For short distances (about units of metres, only corrections of the location on the working place are permitted) on a solid, even surface without rises it may be carefully moved erected; dispositions given in the introduction of this chapter relate to the high-lift truck. In standard cases, the machine has to be moved folded down in the state, in which it has been delivered.

To **prepare it to be moved** proceed as follows (positions and marking according to figures given in the part concerning putting in operation):

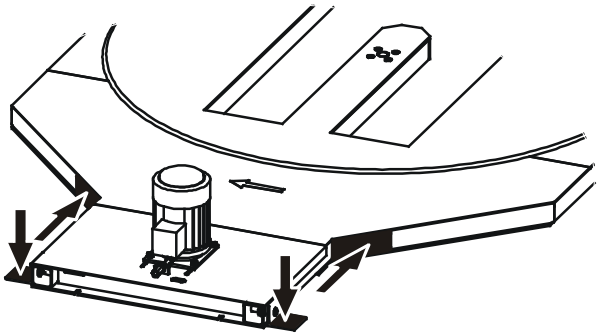
- If a coil with foil is located in the prestretch device, remove it before preparing for the transport. Move the prestretch device into the extreme bottom position (if it is not in this position already). Switch the machine off and disconnect it from the mains by pulling out the plug out of the socket.
- Fasten the prestretch device to the column by winding 5 to 10 layers of tensile foil used for packing around it and the column. During packing the foil must be stretched!
- Put the supporting prism on the turntable so that the folded down column can lie on it.
- Loosen the column from the turntable – take away 2 screws M10×30, washers 10.5 and lock washers 10 from locations pos. 3. Keep the screw stock for reassembling.
- Fold down the column.

After the equipment has been moved, the assembly is similar to putting a new machine in operation as described in the introduction to this chapter, including a check of the supply source according to Chapter 3.3, especially if the machine should be connected to another socket than before.

3.2.2. Model with forklift-shaped turntable

This concerns the execution with forklift-shaped turntable.

Manipulation with the machine is facilitated by:

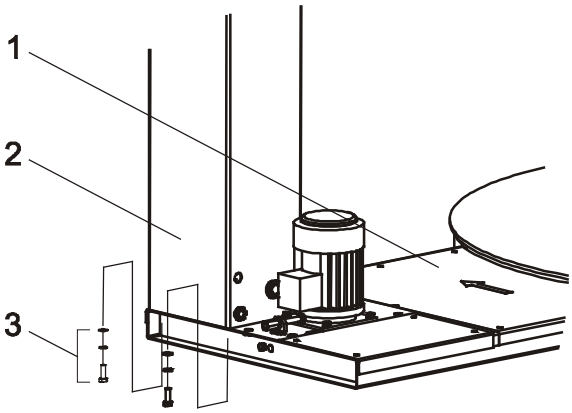


- Holes for skids of a high-lift truck in load-bearing profiles under the turntable; their depth is 170 mm (the shortest side of the profile). For transportation the skids of the high-lift truck are slid into these holes.
- Footings fastened to the turntable. During manipulation they lean from the bottom against the skids of the high-lift truck.

The skids should have the dimensions max. 100 × 50 mm and length min. 1000 mm, and they should comply with ISO 2328. The pitch of inner surfaces of the skids is 720 mm. The load-bearing capacity of the high-lift truck should be min. 1500 kg.

After installing the machine on site, the manipulation footings must be removed (by pulling split pins on the inner side of the profile and sliding out the footings from the hole).

To **put the machine in operation** proceed according to following points:



- Remove the protecting packaging and the foil fastening the prestretch device to the column.
- The column is folded down in the handling fixture; this fixture consists of a hinge around which the column rotates when it is erected.
- Screw stock pos. 3 (2 screws M10×30 each, washers 10.5 lock washers 10) are mounted on proper places of the machine in production. Remove them and erect column pos. 2 (carefully not to damage cables; the mass of the column is equal to 85 kg to 95 kg, according to the outfit) and screw it to the turntable pos. 1 by connecting material pos. 3 – it is screwed into the column from below. When the column is erected, the handling fixture has to be left in its place.
- Remove the supporting wooden prism that is inserted between the lowered column and the turntable.
- Remove the manipulation footings (by pulling split pins on the inner side of the profile and sliding out the footings from the hole).
- Finally check the supply and connect the machine to the mains net according to Chapter 3.3.
- All parts and screw stock removed during putting the machine in operation should be kept for the case of a later transport.

For short distances (about several metres, correction of position on working site) on a consolidated surface free of unevennesses or projections, the machine can be carefully moved in a vertical position provided that it is placed on two pallets and the skids of the high-lift truck support the machine from sides. **It is forbidden to transport the machine in a vertical position using footings and manipulation holes in the turntable!** The provisions from the beginning of this chapter apply to the high-lift truck. Generally, the machine should be transported in a horizontal position in which it has been delivered.

To **prepare it for transport** proceed as follows (positions and marking according to figures given in the part concerning putting in operation):

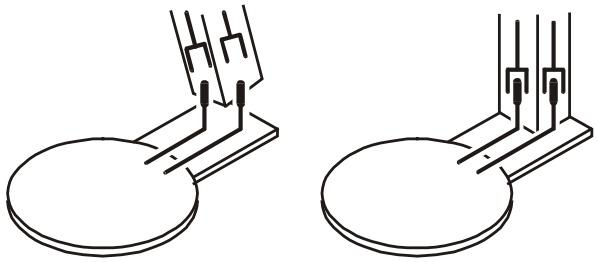
- Before preparing for the transport, the machine is in working condition and connected to the mains. If a coil with foil is in the prestretch device, remove it.
- Bring the prestretch device into the extreme bottom position (if it is not there already). Switch off the machine and separate it from the mains by pulling the plug out of the socket.
- Fasten the prestretch device to the column by winding 5 to 10 layers of tensile foil used for packing around it and the column. During packing the foil must be stretched!
- Put the supporting prism on the turntable so that the folded down column can lie on it. Put the manipulation footings.
- Unfasten the column from the turntable – take away 2 screws M10×30, washers 10.5 and lock washers 10 from locations pos. 3. Keep the screw stock for reassembling.
- Tilt the column down. Take care not to damage the goods height sensor on the palette!

After the equipment has been moved, the assembly is similar to putting a new machine in operation as described in the introduction to this chapter, including a check of the supply according to Chapter 3.3, especially if the machine is to be connected to another socket than before.

3.3. Network Connection

First check the operating voltage and frequency of the machine given on the shield of the electric equipment, to be sure that it corresponds to the voltage and frequency of the mains network, to which the machine should be connected. The electric distribution network and the socket circuit must comply with valid standards. A voltage variation ±5 % of its nominal value at most ensures the correct function of the machine.

The machine is connected to the mains through a cable with a plug CVG 1643 that is connected to terminals U,V,W,N,Pe. The connecting cable must be led so that no handling or transport equipment crosses it and so that it cannot be a cause of injuries.

!	Check the cable connectors connecting the turntable and the mast – they are located in the lower mast part. On standard machines supplied with the mast mounted on the turntable and tilted, there are the connectors connected properly already from the production. On the machines supplied either with a separated mast or when the mast is delivered as a separate part there are the connectors for easier handling and transport disconnected 

After a careful check of the connection the plug may be inserted in the socket and the machine may be connected to the mains by the main switch.

Check the connection of phases to the machine. Repeat this check always, when the machine is to be connected to another socket then until now. The turntable of the machine and the foil and pressure carriages have to move in the correct direction given by arrows on the control panel. **Attention** – check the drive where no frequency revolution changer is connected. When changing the phase connection to the machine **you must disconnect the electric line** from the machine by putting the main switch into position OFF and by extracting the plug from the socket. Only a person qualified in the sense of Chapter 2.2 may change the connection of phases to the machine.

The user must connect the external protecting terminals on the machine and on the contactor distributor to his protecting system and take proper measures to preserve them

Before the machine is put into operation, the correct function of protection against dangerous contact voltage according to IEC 60364-4-41 and be carry out a revision of the supplying equipment (cable connection) according to IEC 60364-6. by a person competent to carry out revisions conformable with requirements of national regulations for revisions.

3.4. Dismantling of the machine

Before liquidation of the machine after the end of its technical life put all mechanisms in such positions, that there is no danger that dismantled machine parts will fall from elevated positions and to enable dismantled parts to be taken away safely. Disconnect the supply of electric energy by disconnecting the plug

from the socket. Before starting dismantling, a person qualified according to the chapter 2.2 shall check the electric circuit for presence of a residual voltage; in a positive case the voltage should be discharged or it is necessary to wait until the circuit has discharged spontaneously.

Dismantle motors with gear-boxes, remove lubricants (oil, lubricating grease) and place the lubricants into a firm, unbreakable and leak-proof vessel.

Dismantle all parts of the machine.

Sort all parts according to classes of scrap (steel, non-ferrous materials, plastic materials, cables, electric elements etc.). Hand the so sorted material and lubricants to companies specialized for expert liquidation.

4. TECHNICAL PARAMETER

		WS PRIME			
Execu-tions	turntable	1500 mm, basic	1800 mm, basic	1500 forklift-shaped	1500 forklift-shaped
Weight (as per equipment, min.)		350 kg	465 kg	370 kg	455 kg
		(see production plate)			
Dimen-sions	height	2366 mm (3366 mm)			
	width	1500 mm	1800 mm	1500 mm	1800 mm
	length	2350 mm	2650 mm	2350 mm	2650 mm
Turntable	diameter	1500 mm	1800 mm	1500 mm	1800 mm
	loading limit	1200 kg			
	drive	el. motor 370W / 50Hz 400 V			
	revolutions	10 rpm + 20%			
	sense of rotation	right			
Film carriage drive		el. motor 250W / 50Hz 400 V			
Weight of film roll		ca. 17 kg			
Electric instal-lation para-meters	Operation voltage	3 × 400 V / 50Hz			
	Machine input	1.5 kVA (see production plate)			
	Mains protection	16 A (see production plate)			
	Control circuit voltage	24 V			
	Electric device protection class	IP 54			

4.1. Production Plate

The production plate is placed in the mast bottom part, its identical copy is protected against damage inside the switchboard. Contents following data:

- supplier´s name and address
- type description of product
- serial number of machine
- vintage of machine
- wiring diagram No.
- weigt (kg)
- supply voltage (V)
- frequency of supply voltage (Hz)
- protection (A)
- input of machine (kVA)
- voltage of control circuit (V)

The data given on production plate are to be prefered prior to those ones given in charts of technical parameters or other ones given in this accompanying documentation.

5. EQUIPMENT

5.1. Prestretch Devices

On the machines **WS PRIME** there is used one of the types of prestretch devices – according to the order – described in Chapters 5.1.1 and 5.1.2. These systems are highly favourable when reduction of wrapping material (stretch film) consumption is required.

The prestretch devices for which are the films intended are specified in the Chapter 1.3.

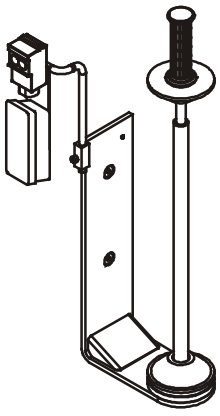
Primary prestretch occurs between rolls of the prestretch device as an incidence of difference of their revolutions, and products on the pallet will be wrapped into prestretched film; the major effect being film savings. Secondary prestretch occurs between the prestretch system and the pallet via direct pallet draw against braking rolls of the prestretch system, and it determines on the wrapping tightness (how film tightens up the wrapped products).

The whole equipment is installed on a carriage which moves over the whole height of mast using a chain gear in the mast of the wrapping machine.

The equipment is controlled from the control panel of the wrapping machine.

!	**!! WARNING !!** The machine turntable **must not** move while handling the prestretch device rolls.

5.1.1. Hand brake

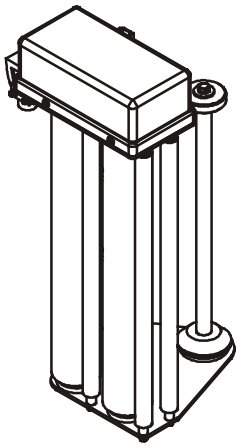


The simplest equipment, where the tension of film at wrapping is reached by hand rotation of the grip; the brake is tightened or loosen this way. Setting of the brake is ensured by a safety rosette. No primary prestretch is possible on this equipment, the only prestretch is the secondary one the value of which is set on handgrip experimentally. The systems is used for wrapping without any special demand to wrapping quality and reduction of film consumption. It is mostly used when pallet wrapping is occassional.

The brake device consist of a supporting frame and a film holder

Inserting of foil: release the rosette, and unscrew and take down the handle (including the rosette and cone). Insert new roll of the foil on a pin and screw-on the handle. When adjusting the braking force release the rosette above the handle. By turning the handle the brake is tightened or loosened and the braking force is thus adjusted. After adjusting tightness of the foil retighten the rosette; the set foil tightness is thus ensured.

5.1.2. Mechanic prestretch system



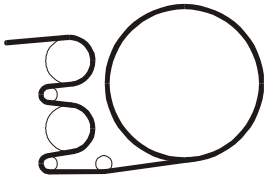
The film is unrolled by tension power of rotating pallet. Between two main rolls, which mesh together using a chain transmission, rise the primary film prestretch and thus reduction of film consumption. The gear ratio may be set up by replacing the gear wheels on the rolls and the chain, and you may add sets of gear wheels for different prestretch values (80%, 130%, 180%) based on the type of stretch film. The secondary prestretch is derived from the pallet draw against main roll, it is set by construction of prestretch device without possibility to regulate it. Mechanic prestretch system means an economic solution for middle demand on wrapping capacity with no requirement for regulation of prestretched film.

The mechanic prestretch device consists of a supporting frame, film holder, a set of main rolls and auxiliary guiding ones.

If not specially ordered the factory setting of primary prestretch is 130% what suits qualities of common stretch film and wrapping proceedings. Should the primary prestretch be changed, sets of gear wheel and chain of toothed wheels for various value of prestretch (80%, 180%) are to be supplied. There have to be changed a gear wheel and a chain, the pinion remains the same for all the values of primary prestretch. Remove the upper cover, remove the bolts in axis of gear wheels spindles and draw both wheels incl. chain off. Proceeding the opposite way install a new chain and new gear wheel together with original pinion (it has to be always installed on the main roll which is closer to the mast). A correct chain tensioning and the adjustment procedure are described in Chapter 7.1.6.

prestretch	number of teeth	chain
80%	22	length 400
130%	27	length 419 + half link
180%	34	length 457 + half link

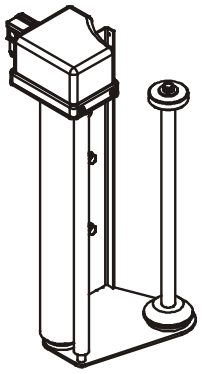
Maintenance of the device consists in an occassional check of chain tensioning and its lubrication – see Chapter 7.1.6.



To load the film, sit a roll on the pin and span the film around the roll as shown in the figure attached to the drive cover. For an easier handling it is to be recommended to draw up the film in a rope in the length sufficient for manual handling. The film will form to the correct shape on the rolls during operation again.Proceed analogically when inserting the film after its break.

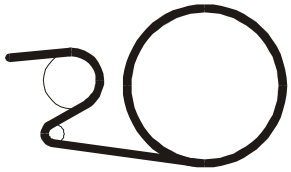
5.1.3. Electromagnetic brake

Film spans over one operation roll. No primary prestretch is possible on this equipment, the only prestretch is the secondary one the value which is being set by tension power of a pallet against operation roll braked by electromagnetic



brake. The stretching force given by braking force of electromagnetic brake is regulated by the machine control system. Usage of electromagnetic brake enables fixing of the film end to the pallet as well as the utilization of higher secondary prestretch (i.e. higher film tightness around the goods on a pallet).

The braking device consists of a supporting frame, film holder, and a main roll effected by an electromagnetic brake.



To load the film, sit a roll on the pin and span the film around the roll as shown in the figure attached to the drive cover. For an easier handling it is to be recommended to draw up the film in a rope in the length sufficient for manual handling. The film will form to the correct shape on the rolls during operation again.

This type of a brake requires periodic checks, in particular its relining. For further instructions see Chapter 7.1.7.

5.2. Turntable

The machines **WS PRIME** may be provided with turntables as follows::

- **Standard**. Pallets are handled using high-lifts; if you install a turntable bridge, you may use low-lifts as well. The turntable with a small metal sheet to lock the film before wrapping start is available when required; an additional installation of this catcher possible. The diameter of turntable is 1500 or 1800 mm.

- **Forklift-shaped** turntable. Simple loading of pallets using low-lifts without turntable bridge. Any other machine abilities, its control and possibility to apply a film catcher remain standard. The diameter is 1500 or 1800 mm.

Turntable drive is electromotor with intergearing. There is a V-belt as the first stage of intergearing. Usage of V-belt results in relatively soft start and stop, the turntable may also be rotated manually against counterpower of gearing.

5.2.1. Orientated stop

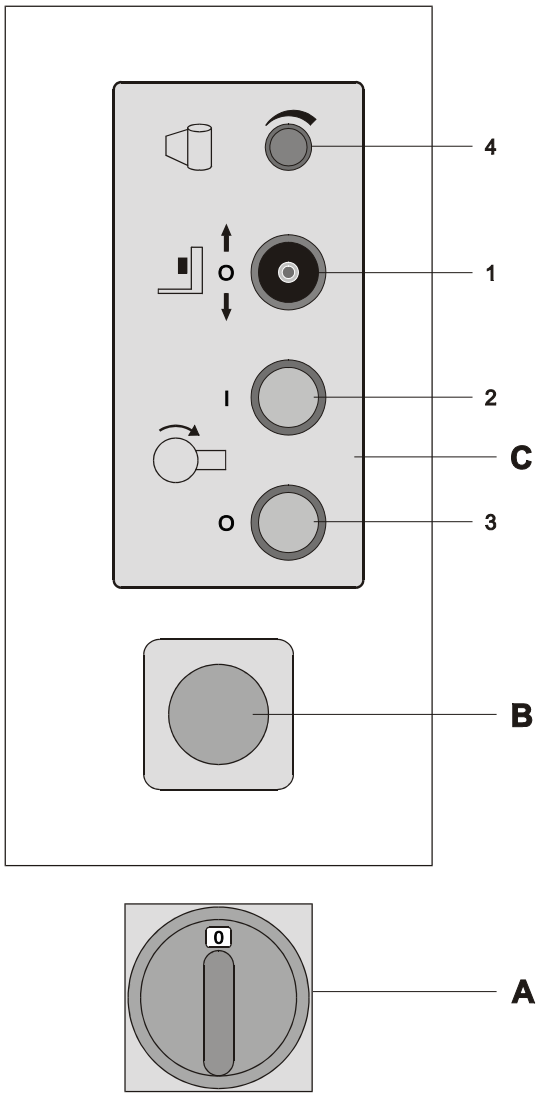
The function Orientated Stop means ability of turntable to stop always in the same position what simplifies handling with pallets when loading or removing them.

The exactness of stop will be influenced by persistence of rotating pallet. It is to be proceeded as follows: the first pallet of certain weight will be wrapped without the applied film. After the cycle is terminated the pallet stops in a direction in which all following pallets of the same or similar weight or those ones the weight of which does not differ more than by 100 kg will stop. The position of turntable with respect to the frame should be marked. The pallet will be removed from

turntable and the turntable bridge (if used) will be positioned at turntable in the corresponding direction for loading of next pallets.

If, in case of turntables with a cut-out, the turntable stops in such a way that the pallet cannot be easily taken away (the turntable does not stop with exact orientation) rotate the turntable manually against the gearing resistance.

5.3. Control Panel



A) Main switch

It is located on the column. It can be locked to prevent an unauthorized person to manipulate with the machine.

B) Emergency Stop

When this button is pushed, all moving parts of the machine are stopped immediately and the supply of the control system is switched off. This button

serves to stop the machine in emergencies – if goods fall off the palette, if the machine collides with goods, if the machine is damaged, personnel injured etc.

Instructions given in Chapter 5.4.1 relate to renewed starting of the machine after the button **EMERGENCY STOP** has been actuated.

C) Push-buttons controlling machine operation

1) A stick **Prestretch device motion**. The prestretch device moves along the mast in time in which is the stick deflected.

2) **Turntable Start** push-button (green). After it is pressed the turntable starts to move.

3) **Turntable Stop** push-button (red). After it is pressed the turntable stops.

4) Potentiometer **Brake of the foil**. his potentiometer is active just in case the machine is provided with an electromagnetic brake of the film

5.4. Safety devices

The machine has several safety elements to protect the health of the operator or to minimize damage after emergencies.

5.4.1. Button Emergency Stop

The button **EMERGENCY STOP** is located near the control panel and serves to stop the machine immediately in case of an emergency (fault of the machine, drop of goods from the palette, collision, injury). After having been pushed the button is automatically locked in the “actuated” position; before the machine is started again, it has to be unlocked.

To put the machine in operation again, proceed as follows:

- Remove the reason of the emergency stop
- Check the state of the machine
- Unblock the **EMERGENCY STOP** by turning it clockwise (shown by the arrow on the button), until the button returns into its initial position

6. MACHINE OPERATION

6.1. Switching the machine on and off

The machine is switched on by a main switcher placed on the switch-board side by its switching over in the position "**I**". It should be checked whether push-button Emergency Stop is not pushed down; in the positive case proceed as per Chapter 5.4.1.

The machine is switched off by putting the main switch into position "**0**".

6.2. Inserting a new foil

The procedure for the replacing and inserting a foil differs according to the applied prestretch device – complete procedures see Chapter 5.

The prestretch devices for which are the films intended are specified in the Chapter 1.3.

6.3. Types of packing

With the machine **WS PRIME** you can pack goods on a palette in several types of packing that correspond to different grades of fixing of the goods on the palette and of its protection.

A) **Simple packing**. Packed in one direction, down to top. This type saves most of the foil.

B) **Cross packing**. The prestretch device moves down to top, the top edge of the foil moves about 10 to 15 cm past the palette, several windings are wound around the top of the palette and then the prestretch device returns back to the bottom. The palette is protected and fixed better by a double layer of foil. When the machine is switched on, it is automatically set to this type of packing

C) **Simple packing with covering.** When simple packing of the palette is completed, the prestretch device travels about 30 cm downwards, the turntable stops; after f the covering foil has been laid, the turntable begins to move again and the prestretch device travels about 20 cm above the palette, where it fixes the covering foil to the palette by several revolutions. The top of the palette is protected against dust, moisture and unfavourable influences of the atmosphere.

D) **Cross packing with covering**. After having wrapped the top of the palette for the second time to fix the covering foil, the prestretch device returns downwards. This way combines good fixing and protection of the goods by a double foil layer with the protection of the top of the palette from dust, moisture and unfavourable influences of the atmosphere.

6.4. Wrapping run

In the following chapter containing a list of wrapping practices, there is a patch in the column Wrapping Type blackened in case that the respective operation will in the given wrapping type be done; for wrapping types summary see Chapter 6.3. For instance the row 12, operation „Place the top sheet film after complete stop“, it will be done only in C wrapping type – simple wrapping with top sheet application, and in D one – cross wrapping with top sheet application.

	Wrapping Type				Operation
	A	B	C	D	
1					Switch on the machine – see Chapter 6.1
2					If it is not so bring the machine in the initial position: • prestretch device is in the lower position (deflect the stick **Prestretch device motion** in direction downwards and wait until the prestretch device stops in the bottom position)
3					Place the pallet to be wrapped on the turntable. The pallet has to be placed a symmetric way to the turntable center and its edges must not overlap the turntable perimeter.
					WS PRIME with standard turntable: use the fork lift.
					WS PRIME with turntable bridge, **with cut-out turntable,** **with the built-in frame:** it is possible to use a fork lift and a pallet truck. In case the pallet truck will be used for a cut-out turntable the system feeding has to be refreshed by pressing **CONTROL VOLTAGE** – push-button is on, on the display there is indicated **H**.
					It is forbidden to drive the fork lift over turntable area!
4					Wind off the sufficiently long film piece from prestretch device and fix its end to the wrapped pallet (e.g. to the pallet block), or if the machine is provided with fastening metal plate on turntable, fasten the film there. In introducing the film, take also care that the film cannot come under the rotating part of the turntable any time later during the packing; there is a danger of winding up of the film on the turntable chain and the central bearing, and, possibly, of falling down of the chain from the sprocket and pinion.
5					Bring the machine turntable in rotation by pressing **Turntable Start** push-button.
6					After the first revolution adjust the necessary pre-stress (elongation) of the foil
					Manual foil brake: By turning the handle of the brake (see Chapter 5.1.1).
					Electromagnetic brake: with control on the panel (see Chapters 5.1.3 and 5.3). During elongating the foil (the elongating device is braking) the pilot light is blinking.
					mechanic prestretch: regulation impossible
7					Wrap the pallet in more film layers in its bottom part. Layers (wrappings) number will be chosen as per goods kind and requirements for wrapping fixity.
8					Bring the prestretch device in motion in direction upwards via the stick **Prestretch device motion.**

	Wrapping Type				Operation
	A	B	C	D	
9	■	■	■	■	Prestretch device will stop in the upper position after the pallet top has been driven over by approx. 10÷15 cm. Wrap the pallet head part in more film layers.
10			■	■	Run the prestretch device down by approx. 30 till 40 cm via the stick **Prestretch device motion.**
11			■	■	Stop the turntable by pressing the **Turntable Stop** push-button.
12			■	■	Place the top sheet film after complete stop.
13			■	■	Bring the machine turntable in rotation by pushing the **Turntable Start** push-button.
14			■	■	Bring the prestretch device in motion in direction upwards – via the stick **Prestretch device motion.**
15			■	■	Prestretch device will stop in the upper position again. Wrap the pallet in more film layers in its head part.
16		■		■	Run the prestretch device to the lower position – via the stick **Prestretch device motion.** Wrap the pallet in more film layers in its bottom part.
17	■	■	■	■	Stop the turntable by pressing the **Turntable Stop** push-button.
18	■	■	■	■	Cut off the film after the turntable has stopped and fix its end to the wrapped goods.
19	■		■		Prestretch device is in the upper position. Run it in the lower position.
20	■	■	■	■	Drive the wrapped pallet out.
21	■	■	■	■	Proceed with point 3 or if no further pallet has to be wrapped switch the machine off by main switcher – by switching over the controller in position "**0**".

6.5. Remarks

The actual adjustment of the machine, the number of layers at the beginning and end of packing etc., depends on the packed goods and their properties, on requirements on the packing quality and protection of goods, as well as on requirement on the economy of the whole process.

6.6. Failures and their elimination

The table below shows some most frequent errors and failures, their causes, and remedies. These defects can be repaired by the operator or maintenance staff of the user.

Failure	Cause	Elimination
Impossible to switch on the machine	Energy supply, circuit breaker	
Machine switched on and non-functional	Emergency Stop push-button pressed	see Chapter 5.4.1
Opposite sense of turntable rotation and prestrech device motion	changed supply phases	see Chapter 3.3

Failure	Cause	Elimination
Turntable rotation sense is correct, prestretch device motion is opposite	belt on the winding drum wound an opposite way on; the cylinder is placed at the drive of prestrech device motion along the mast	The run of prestretch device upwards is to be chosen, prestretch device runs downwards, in fact. Until it arrives in the bottom position the belt starts to wind-up a correct sense.
Film breaks	unsuitable film	see Chapter 1.3
	sharp goods edges on the pallet	Change the way of goods wrapping or reduce the secondary prestretch (see the following point)
	too high secondary prestretch	see Chapter 5.1
Unexpected machine run	uneven floor	Replace the machine on an even floor (disturbed sensors position)
Machine heavy run	machine overloaded	machine loading limit has to be kept (see Chapter 4 or Commercial Documentation)
	wound up film on the turntable chain	remove the film from the turntable chain (see chap. 7.1.4)

7. MAINTNANCE AND CLEANING OF THE MACHINE

The wrapping machine requires regular maintenance. Respecting this requirement guarantees a much longer lifetime of the whole machine. For correct checking, no pallet may be placed on turntable and the prestretch device must be free of film.

7.1. Machine maintenance

Recommended cycles	Procedure of maintenance
Every day	checking of: power supply cables for damages motion of the film carriage overall condition of the machine function of the machine protection components cleaning of the machine and its surroundings
Every 500 hours of operation or 1× in 3 months	Inspection of the prestretch device movement belt (Chapter 7.1.5)
Every 1000 hours of operation or 1× in 6 months	check turntable bearings (Chapter 7.1.1) check the turntable rollers (Chapter 7.1.2) check tension and lubrication of turntable gear with intergearing (Chapter 7.1.3) inspection of the prestretch device movement belt (Chapter 7.1.5) maintenance of mechanic prestretch (Chapter 7.1.6)

Recommended maintenance cycles – according to the situation, what happens earlier.

Recommended lubrication fett for chains and turntable bearings: Mogul G3, Mogul LV2-3 or other lubrication fett of similar characteristic.

7.1.1. Inspection of turntable bearing

Remove the turntable fixing bolts and lift the turntable. Loosen the chain tightening device and remove the large chain wheel whose axis seats on turntable bearing. Check and lubricate the bearing, if necessary. Use the reverse procedure to assemble.

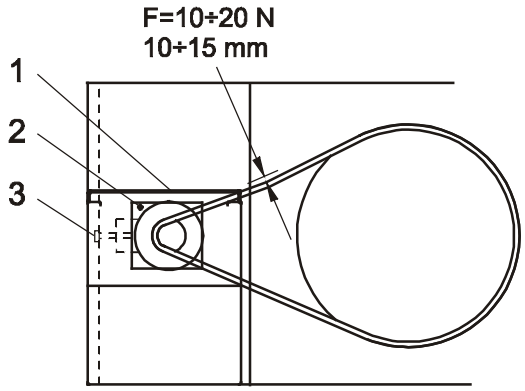
7.1.2. Inspection of the state of turntable rolls

Inspection must be done with removed turntable together when inspected turntable bearing. Rolls must not show any deformations (flats or ruptures) and bearings of rolls must rotate fluently without any sign of unregular run, rub or inadequate difficulties of turning. In case of need new rolls may be ordered (turntable diameter, loading limit of machine – artifficial or metal rolls – must be stated), on turntables of big diameters an information whether inside (at turntable

perimeter) or outside rolls are required. The roll´s bearing does not required any other maintenance or lubrication.

7.1.3. Inspection of turntable with intergearing

It concerns the turntable with intergearing – electromotor is situated inside the mast. Turntable drive is two-stage gear with first stage over V-belt and second one with chain..



Inspection of the belt and chain should be done together with inspection of central bearing (Chapter 7.1.1) and rolls (Chapter 7.1.2). Remove the turntable and the cover between mast and turntable (6× bolt M5) (proceed according to Chapter 7.1.1).

Inspection and tensioning of V-belt: check its state, when coating is frazzled or the belt half-broken or with missing pieces of rubber, it must be replaced by a new one of the same size and labelling. The V-belt must be tensioned a correct way: when pushing it with power of 10 up to 20 N (1 up to 2 kg) in the middle between pulleys it should be bended by 10 till 15 mm; too high tension of the belt mean higher abrasion of gearbox, bearings and the belt, as well, a shorter life time of the machine. When is the bending higher the belt must be tensioned: remove the cover of the lower part of mast Pos. 1 (it is fixed by four velcros and is to be removed by countinuous tension in its corners). Release bolts M8 of motor base Pos. 2 (4×) and by turning of strain nut M10 Pos. 3 shift the motor base in oval holes, this way will be the belt released or tensioned according to the situation as long as the prescribed value of belt tensioning is achieved. Tighten the bolts Pos. 2 finally and cover the interspace.

The chain is tensioned by two stretchers, which are hauled by spring. In the case of falling of chain from chain-wheel, the chain is used-up and it must be replaced.

V-belt should be inspected even in cases when after turntable start or stop an unfavourable whistling or screaping will appear; subsequently check all the possibilities how to eliminate it; spread the sides of the belt with soap, defat inside (functional) sides of pulleys as well as the belt; tension the belt correctly.

7.1.4. Repair of turntable chain

If the turntable suddenly does not rotate or if it rotates with difficulty and irregularly, the cause is mostly the film remainder reeled on the chain gearing of the turntable. In the extreme it may cause even the fall of chain from the cog-wheel or pinion.

Turntable except for forklift-shaped turntable: loosen the screws on the turntable and lift the turntable.

All turntable models: take off the cover between the mast and turntable; now the whole chain gearing is transparent.

Remove the film remainders and impurities from the chain, chain-wheel and pinion. Refill the lubricant grease if necessary. Clean also the whole area under the turntable and under the cover between the mast and turntable.

If the chain has fallen down the procedure of repair depends on the turntable version:

Turntable except for forklift-shaped turntable: loosen the stretchers spring. If it is not possible to put the chain on the chain-wheel in such condition, it is necessary to unlink it and link it together again after it is put on the chain-wheel (the chain is always linked with chain coupler).

Turntable with gearbox: Release the turnbuckle spring. If, under these conditions, the chain cannot be put on the sprocket it should be disconnected and, after putting on, connected again (there is always a swivel in the chain).

After any work with the turntable chain, put the guard and the sheet of the turntable back and test functionality of the turntable by packing several pallets taking increased caution.

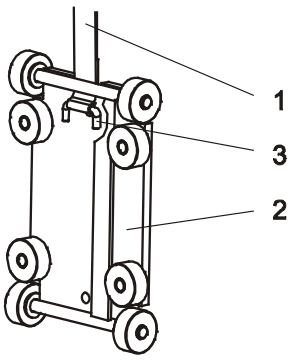
7.1.5. Inspection and replacement of the prestretch device movement belt

Remove the lid of the column – remove 4× screw M5×12 with washers – and take the lid off. It is advantageous, if one operator controls the machine in manual mode – travels with the prestretch device along the whole length of the column, so that the state of the belt can be inspected along its complete length – and another operator carries out this inspection.

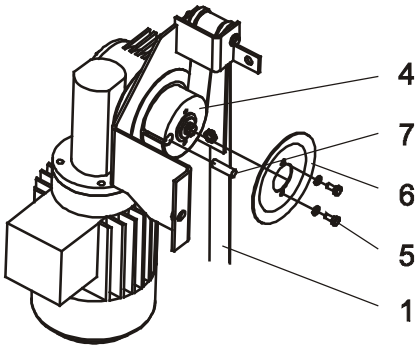
!	**The belt or any moving component may be touched by hand when the machine is moving – danger: The hand could be pulled into the travel mechanism of the prestretch device!**

The belt must have no frayed edges along its whole length and must not be ripped. If it is damaged, it has to be replaced.

On the carriage of the prestretch device the belt, pos. 1 is pulled through the gap in weldment pos 2 between the axle of the wheels and the body of the carriage. It is secured against being ragged out by putting on safety piece pos. 3

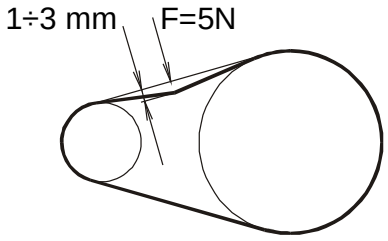


On the carriage drive the belt is wound on drum pos. 5. Remove 2× screw M5×10 with washer – pos. 6, take off the face of the drum pos. 7 and push the belt pos. 1 together with the safety pin pos. 8 out of the drum slot pos. 5. The assembly procedure in opposite order.



After having checked and possibly replaced the belt, put back the column lid.

7.1.6. Maintenance of mechanic prestretch



For intervals of inspection and lubrication of the chain see Chapter 7.1. When checking the prestretch there must not be any film inserted.

The chain of mechanic prestretch device must not be tensioned by power, otherwise abrasion of chain wheels and prolongation of the chain will appear. Slightly pressed (by power of ca. 5 N) should the chain bend by 1, max. by 3 mm. If necessary to adjust the distance of axis proceed as follows: upper bearing of main roll is inserted in a box with enlarged holes. When removing the bolts the box may be shifted and thus adjusted a correct chain tension. Do not handle lower bearing of main roll any way, a slight abberance does not inluence neither the functionality not the reliability of device. Tighten the bolts finally.

7.1.7. Maintenance of electromagnetic brake

It concerns the machines equipped with the electromagnetic brake.

In case of reduced effectivity it is to recommend to inspect and clean working flats of the brake. If the bronze inlay between fix and moving parts of brake is abbrased, it must be replaced.

Dismantling the brake: Remove the cover of prestretch device and loosen the bolt M 10 on upper (moving) part of brake. Remove the upper part of brake, pressing disc and friction inlay. The mounting is done vice versa.

7.1.8. Maintenance of electric wiring

Provisions stated in the Chapter 2.2 as for authorization of a technician who is engaged in maintenance must be kept.

Before manipulation with contactor switchboard and any other labour with electric devices the **MAIN SWITCH** must be disconnected and locked, the key must be removed from the lock.

When repairs are of bigger volume disconnect **supply of electric current** feeding the machine by pulling out the feeding cable from the socket!

Electric device must be maintained regularly and according to the schedule. Thus the lifetime of the electric wiring will be significantly prolonged. There must be removed the powder and dirt from the space of electric device as well as from all the parts in short periods. Maintenace in longer periods means inspection and tightenning of all bolt connections and contacts of contactors, especially after heavy short circuits. The function of thermal protection, insulating resistors, zeroing, eventually earthing. Before any activity with electric motors is started, the main switch must be off !

In case of longer idle state of a motor its state must be checked as follows:

1) if there is not a visible defect on the motor or on any of its part
2) insulating resistance of winding
3) state of motor bearings (a fat filling must be refilled after longer time)

7.2. Notices

Periods of inspections and repairs mentioned in this documentation may be precized based on operation experiences and tests of the machine at the producer and the user.

7.3. Cleaning

1) remove powder and dirt in short intervals
2) machine surface may be washed with water provided with common detergents (the machine must be disconnected from the supply).

8. WARRANTY

The warranty general conditions are defined in the Certificate of Warranty which forms an integral part of the documentation supplied together with the machine. The Certificate of Warranty has to be properly and completely fulfilled from the part of the producer.

One of the warranty conditions is the regular machine checking and maintenance, Operational Instructions observation and using just the original spare parts only.

The warranty is not applicable to the defects caused by improper handling, by non-performance the product Operational Instructions, in case of a product failure action performed by an unauthorized person (an unauthorized company) and in case of the product overloading. The warranty is also inapplicable to the parts which are subject to the ordinary wear and tear.

8.1. Obligations of the User

The user shall only provide such personnel to operate the machine who have appropriate physical skills and are properly instructed to use the machine in compliance with the Operating and Maintenance Instructions and safety rules.

9. SERVICE

All repairs within the guarantee and post-guarantee period will be provided by the manufacturer. He will also deliver individual spare parts based on customer purchase orders.

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