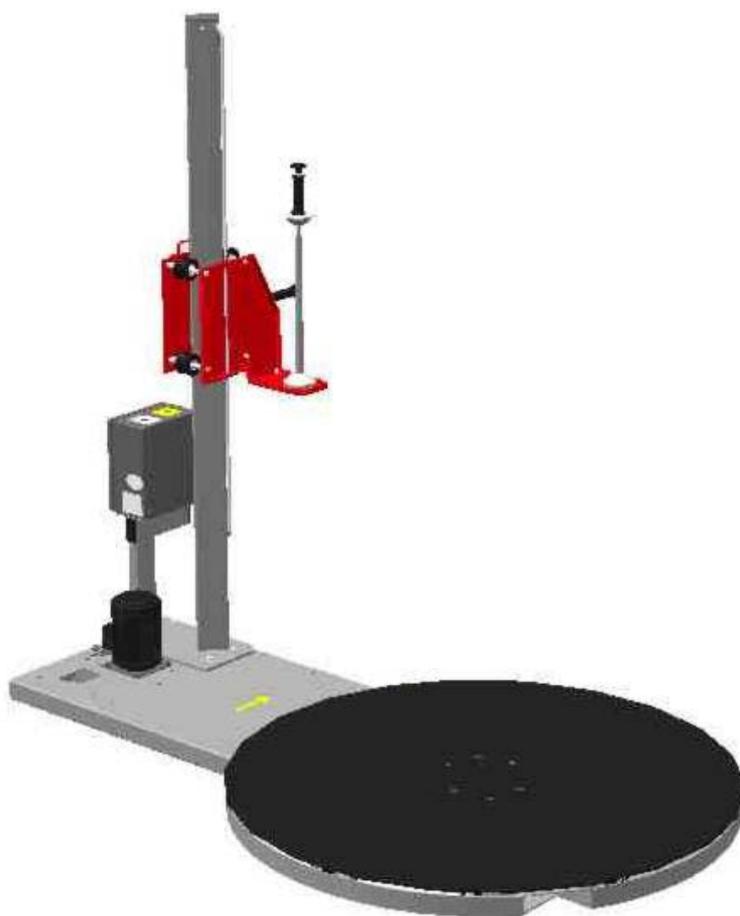




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WMS BASIC

WMS BASIC PLUS

**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.

Table of Contents

1. GENERAL	4
2. SAFETY INSTRUCTIONS.....	10
3. INSTALLATION.....	14
4. TECHNICAL PARAMETER.....	19
5. EQUIPMENT	20
6. OPERATION OF THE MACHINE.....	23
7. MAINTNANCE AND CLEANING OF THE MACHINE	26
8. GUARANTEE	31
9. SERVICE.....	32

1. GENERAL

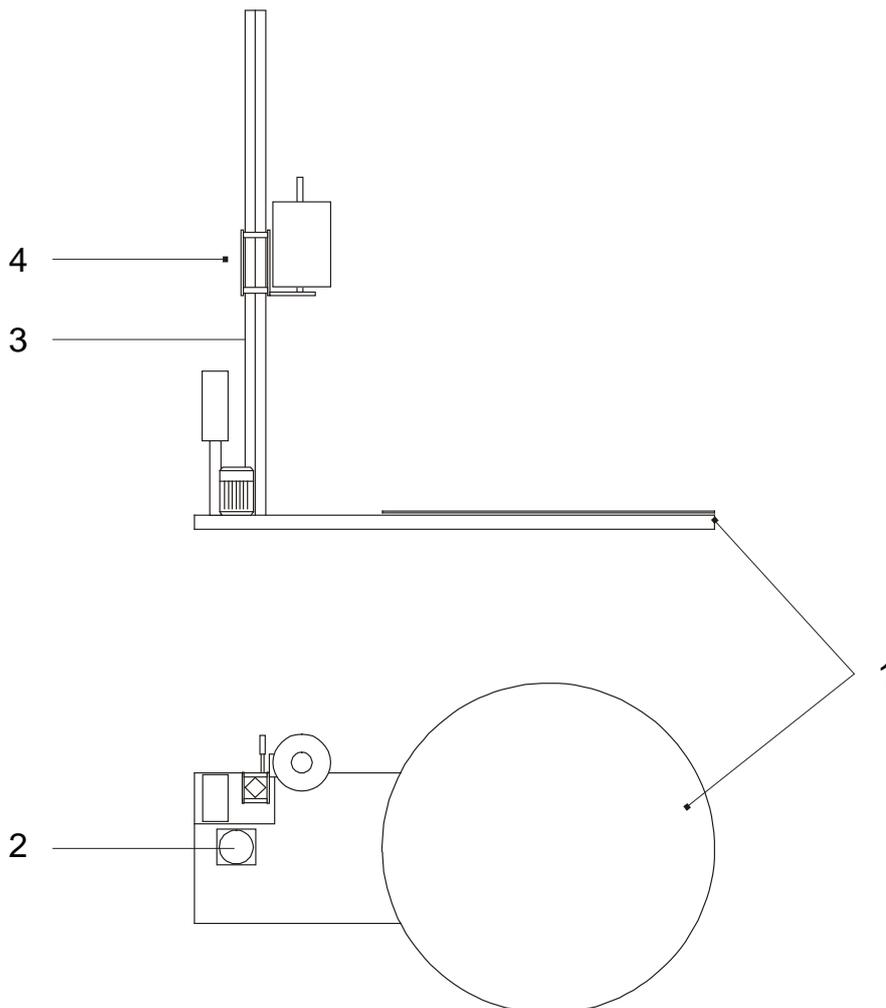
These instructions are the original instructions for use according to Directive EU no. 2006/42/ES and they are authorized by the manufacturer.

1.1. Usage

Wrapping machine **WMS BASIC** is determined for fixing of pallets with a pull-through foil. It is suitable for simple packing in shops with a low packaging capacity. The operator holds the foil in manual holder.

Wrapping machine **WMS BASIC PLUS** is based on machine WMS-BASIC and is complemented with a foil carriage column. It is suitable for simple packing in shops with a relatively low packaging capacity. The operator manually controls the foil tension and travel of the carriage along the column.

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** – available types:
 - an electric motor with mechanic gearbox. Transmission of torque is done by a chain strained through a roller.
 - 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 structure consists of a square profile steel frame. The foil carriage travels outside the frame and is guided by plastic rollers, while counterweight travels inside the frame and enables easy manoeuvrability of the foil carriage. The foil carriage is connected with the counterweight by means of chain.
- 4 **Film carriage with foil holder.** The front plate of the carriage holds the foil holder itself into which the foil roll is clamped between two mandrels.

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 floor frame is supplied by the producer incl. documentation. Building activities (embedding the frame into the floor and its fixation via concreting) are necessary, the machine is consequently put into the fixed frame without any further mounting or other labours. Floor frame can be installed within machine delivery or anytime later. With a WMS machine placed in the built-in frame must be specially respected the prohibition to drive the fork lift on the turntable surface.

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 ÷ 40µm of the thickness. In the machines provided with hand brakes or manual stretch film holder 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 stretch film holder, manual stretch film brake. Wrapping of heavy goods with sharp edges.	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 of EU and Czech Republic. 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 °C, 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.)

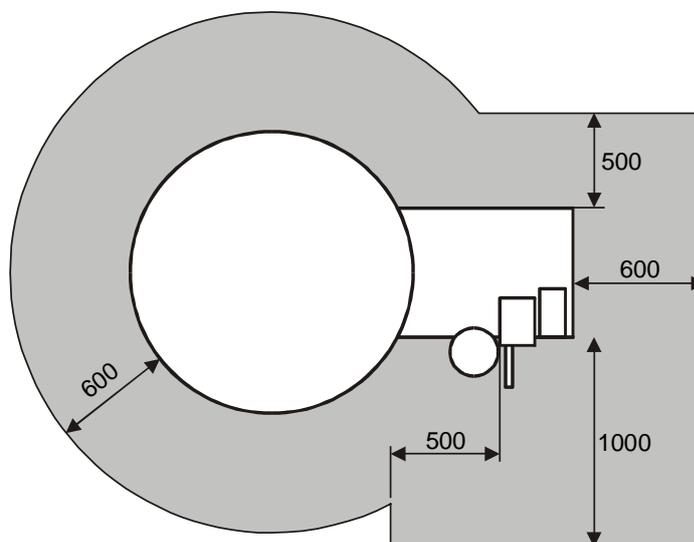
The operation of the product shall be prohibited in an explosive environment or in that one where conditions to explosion would appear even for a short while.

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 safe. 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 the EN 60204-1 standard.

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 occurrence of hazardous points which might jeopardize health of the operator within operation if the specified wrapping procedure is followed.

Hazardous 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 rolled on the wrapped goods and tighten on with certain power.
- 3) An electrostatic charge may arise on the film.
- 4) Film carriage drives all over the height of the mast down to the floor.

To protect the operator there are used on the machine:

- 1) Pushbutton **TOTAL STOP** for immediate outage of device. Pushbutton is blocked mechanically in off position and it is located on the control board within reach of the operator.
- 2) 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 mast).
- 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) 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.
- 5) 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.
- 6) Changing of film roll or any other manipulation with prestretch equipment an other way than mentioned in this Manual may only be done when the machine is disabled.
- 7) 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.
- 8) Covers may only be removed, dismantled, or lifted when the machine stops fully, and the shutdown condition is secured.
- 9) Rotating machine parts shall perform in a direction of the attached arrow.
- 10) 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) are removed or damaged.
 - 3) Touch the moving machine parts, rotating pallet or rolled-on film.
 - 4) Pass through or manipulate any way in the space between the mast and the turntable.
 - 5) Enter a rotating turntable.
 - 6) Operate the machine if there is not enough light in the working space and at the workshop.
 - 7) Maintain, clean, or repair the machine under operation, or unsecured against inadvertent actuation.
 - 8) Check and repair the electric device with a person who is not fully skilled.
 - 9) Inactivate safety, protective and protecting device or intervene any way construction and electric elements of the machine.

2.4. Work Hygiene

The weight of a wrapping film role is approximately 17 kg. Pregnant women and juvenile are restricted to handle loads exceeding 15 kg.

For handling of wrapped pallets, the operator shall use mechanical lifting devices, provided by the employer, to reduce physical efforts.

If the nature of wrapped products is such that the operator's hands or other body parts might get injured while manually handled, or that the wrapped goods do not meet hygienic limits (chemical materials, dustiness, noise, etc.) the operator shall wear protective clothing to be provided by the machine owner.

There is in the place of operator 63.9 dB of equivalent level of acoustic pressure measured by function A within the time of wrapping cycle. The machine itself meets sanitary limits. Noise precautions are dependent on a specific workstation, and they follow the national health protection regulations.

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

This chapter concerns the storage, installation and putting the WMS wrapping machine in operation. The information concerning any further handling with already operated machine is also included.

3.1. Storage

If the machine is not put in operation immediately following its delivery it is necessary to store it in the original protective packing on a sheltered place protected against atmospheric effects. The storage temperature range moves between 0°C and +55°C, allowed humidity from 5% till 95% without condensation (dew). In the storage place there must not be stored any corrosive matters, or the matters releasing evaporations able to damage the electric wiring insulation, or substances creating fire-hazarding or explosive environment.

3.2. Project

The project would be worked out for the machines built-in to the embedded floor frame. The reason for that will be found in the subsequent difficult replacing the machine and the frame embedded in concrete. The project in question can be worked out in a simplified form showing a solution of wrapping machine location with respect to:

- the operating personnel safety as well as the safety of other persons present closely to the working area;
- the access of handling facilities to the wrapping machine enabling an easy supply of the goods to be wrapped on turntable and the transport of the goods already wrapped out of the machine wrapping area.

3.3. Assembly, handling

The machine handling is allowed via a lift truck, necessary fork dimensions and load capacity are always mentioned in the appropriate article. Any handling via pallet truck or a crane is prohibited on all of the machine models. It is also prohibited to handle the machine with a pallet loaded with goods.

When an extreme temperature difference appears during the transport to the destination it is necessary to wait an adequate long time until the machine and exterior temperatures are not equalized – condensation (dew) danger.

The machine is allowed to be installed and operated just in the setting which conforms to the requirements mentioned in the Chapter 1.5 only.

The machine shall never be lifted at the turntable.

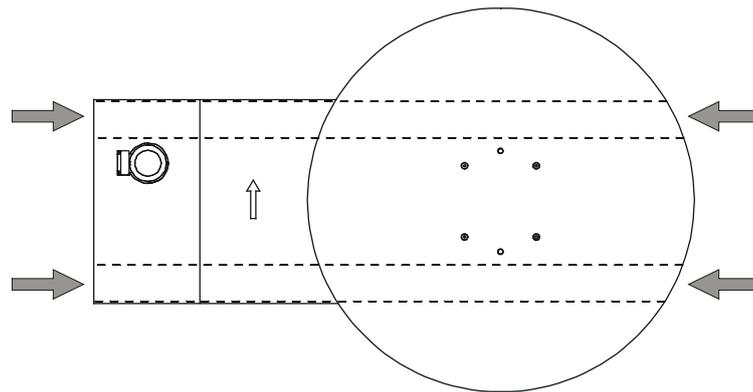
3.3.1. BASIC, BASIC PLUS models

This concerns their standard execution: machine with standard turntable

The **BASIC** model will be delivered in the assembled state.

The **BASIC PLUS** model: The machine will be delivered in the state with disassembled mast. Fix the mast to the base - 4 screws with internal hexagon M10×20, washers 10.5 and spring washers 10 are available with the machine. The mast orientation adheres the orientation of prestretch device, i.e. in direction to the turntable rotating part (the switchboard is parallel to the back edge of the machine base). The connecting material will already be pre-mounted on the spots of its fixation by the producer.

These executions of wrappers are allowed to be replaced after they are installed. For machine handling there are handling holes in supporting profiles for application of lift truck forks, max. dimensions of them are 130×50 mm, meeting standards ISO 2328 – these holes are marked with arrows. The lift truck load capacity must be 1500 kg as minimum.



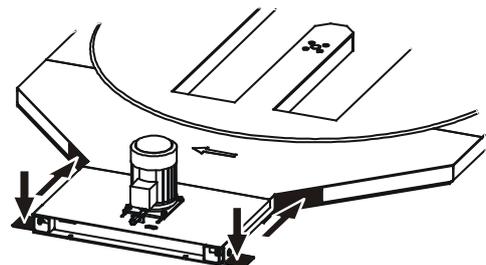
The **BASIC** model: The machine is allowed to be transported in standing position.

The **BASIC PLUS** model: The machine is allowed to be transported in standing position on short distances and over plain and reinforced surface, otherwise it is recommended to transport it in dipped position as delivered. Labour proceeding is reverse compared with assembly.

3.3.2. Type BASIC, BASIC PLUS with forklift-shaped turntable

For handling a machine are utilized:

- the openings for forklift forks situated in supporting profiles under the turntable of the drop of 170 mm (the shortest profile side). Within relocation are the forklift forks inserted in these openings.



- the foosts fixed to the turntable. They go upon from below to the forklift forks within handling.

The forks have to be dimensioned 100×50 mm through as maximum and their length have to be 1000 mm as minimum. They have to conform to the standards ISO 2328. Inside forks surface is of 720 mm of the pitch. The forklift loading limit has to be 1500 kg as minimum.

If not otherwise in further text stated, are the particular articles reagarding putting the machine into operation and transport adjustment useful for both **BASIC** and **BASIC PLUS** models.

When **putting the machine into operation** it is to be proceeded according to further articles as follows:

- Remove the protective covers.
- The **BASIC PLUS** model: Erect the mast and fix it to the turntable via screws – there are 4 screws M10×20, washers 10.5 and spring washers 10 available. The mast orientation adheres the orientation of prestretch device, i.e. in direction to the turntable rotating part (the switchboard is parallel to the back edge of machine base). The connecting material will already be pre-mounted on the spots of its fixation by the producer.
- After the machine has been positioned the handling foosts may be removed (by pulling the safety-pins inside the profile and by putting the foosts out of the opening). Keep the handling foosts carefully back for the case of further transport!

Handling with an operation ready machine: For handling with forklift the regulations mentioned above in this Chapter are active.

The **BASIC** model: The machine can be carefully relocated on a reinforced floor surface when using the foosts and handling openings.

The **BASIC PLUS** model: The machine can be carefully relocated in the erected position in short distances only (meter units as maximum, placing corrections at the workplace only) on a reinforced floor surface without any unevenness or a degree of incline. **Even when using the foosts and handling openings in turntable any relocation of the machine with erected mast is prohibited!**

When **adjusting the machine for a transport** it has to be proceeded as follows:

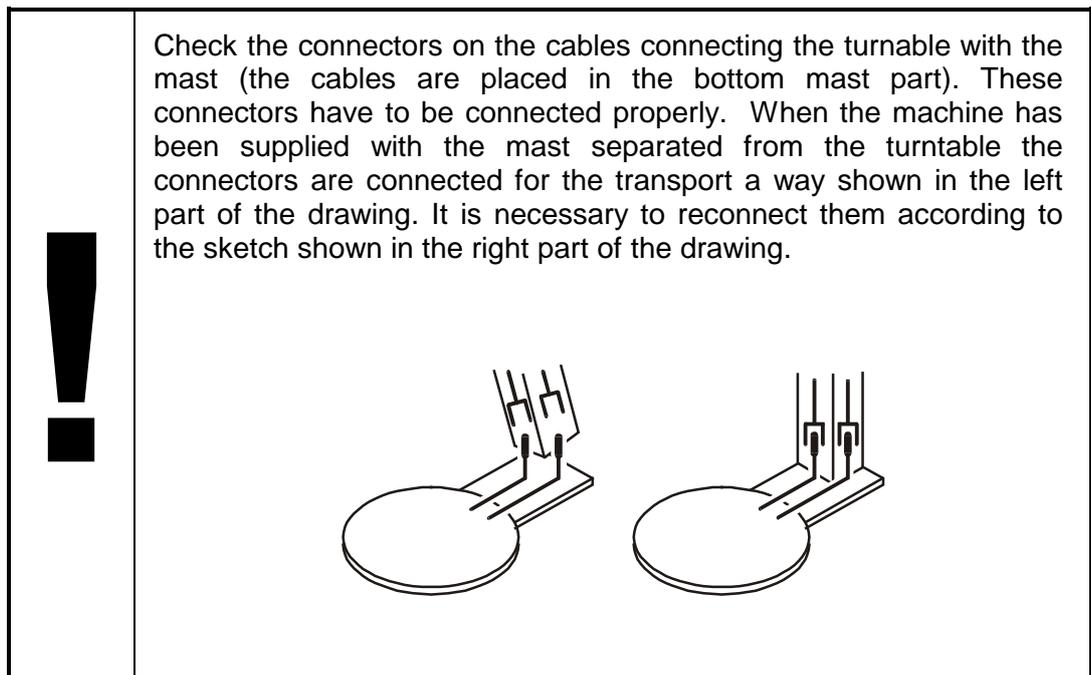
- Switch the machine off and disconnect it from the mains by pulling the fork out of socket.
- The **BASIC PLUS** model: Drive the prestretch device to the lower position.
- The **BASIC PLUS** model: Use the stretch film available for wrapping and fix the prestretch device to the mast.
- The **BASIC PLUS** model: Remove the mast from the turntable – remove 4 screws M10×20, washers 10.5 and spring washers 10. Keep the connecting material back for further assembly.
- When the handling foosts have been dismantled within putting the machine into operation, install them back.

After the machine has been relocated the assembly process is identical to that one mentioned when putting a new machine into operation incl. supply checking according to the Chapter 3.3, especially when connecting the machine in an other socket as before.

3.4. Network Connection

First of all, check on the operating voltage and frequency of the machine specified on the electrical equipment label for compliance to the voltage and frequency of the network where the machine is to be connected. Electric power distribution and socket connection must correspond to the valid international and national regulations and standards. Voltage fluctuation of $\pm 5\%$ nominal value will yet ensure proper functionality of the machine.

The actual connection of the machine will be provided using a CVG 1643 fork terminated cable connected to U,V,W,N,Pe terminals on the switchboard. Supply cable has to be led the way disallowing driving over of handling and transport means as well as eliminating it as a source of accidents.



After the service lines and connectors have been carefully checked, open the switchboard, remove protective adhesive label from the circuit breaker and switch it on. Close and lock the switchboard afterwards. After these steps are done the fork is allowed to be plugged in the socket and the machine connected to the mains via the main switcher.

Check correct phasing of the machine. The checking should be done everytime when plugging the machine in an other socket as originally. The turntable or the film carriage have to move right direction according to the arrows on control panel. **Caution** – check the drive, there is no frequency changer of revolution. When changing the machine's phasing **the electric supply of the machine must be disconnected** by switching off the main switch and drawing

the fork out of socket. Rephasing of the machine may only be done by a person professionally qualified in terms of Chapter 2.2.

The protection terminals outside the machine as well as the contactor switchboard shall be connected to the user protection system, and properly preserved.

Prior to commissioning of the machine, a check for proper functionality of protection against hazardous contact voltage as per IEC 60364-4-41, Protection against electric shock as well as inspection of the machine using a feeder (cable connection) as per IEC 60364-6 shall be completed by a person authorized for inspection who follows the terms of national inspection guidelines.

3.5. 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. A person qualified according to Chapter 2.2 will check the electric circuit for the presence of residual voltage; if such a voltage is present, it has to be discharged.

Dismantle motors with gearboxes, drain off oil from them and store it in safe, unbreakable and tight vessels.

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

		BASIC	BASIC PLUS BASIC PLUS V
Machine capacity		15 pallets/hour (with packing height 1200 mm including the pallet)	
Weight		300 kg	430 kg
Total	height	715 mm	2076 mm
	width	1500 mm	1500 mm
	length	2350 mm	2350 mm
Turntable	diameter	1500 mm	
	loading capacity	1000 kg	
	drive	electric motor 370W / 50Hz 400 V	
	speed	10 rev/min +20%	
	direction of rotation	Right	
Maximum pallet dimensions		1200 x 800 (ground plan)	
Weight of wrapping foil roll		approximately 17 kg	
Electric installation parameters	Operating voltage	3 x 400 V / 50Hz	
	Machine input power	0,7 kVA	
	Mains protection	16 A	
	Control circuit voltage	230 V	

4.1. Production Plate

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

- supplier's name and address
- type description of product
- serial number of machine
- vintage of machine
- wiring diagram No.
- weight (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 preferred prior to those ones given in charts of technical parameters or other ones given in this accompanying documentation.

5. EQUIPMENT

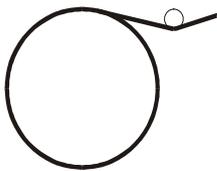
5.1. Foil holder

Model **BASIC PLUS** is complemented with a foil carriage column. The column is fixed to the base plate with screws.

The foil carriage consists of two metal sheet plates joined by means of four journals that hold the plastic rollers. The carriage design enables adjustment of clearance between the column and the carriage rollers to achieve optimum conditions of travel of the carriage along the column.

The front plate of the carriage holds the foil holder itself into which the foil roll is clamped between two mandrels. Handle on the top mandrel of the holder is used to adjust the necessary tension of the foil.

A brake is located on the inner side of the carriage that holds the carriage in the required height. The brake is controlled by means of a handle. Setting of the brake is ensured by a safety rosette.



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.

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

5.2. Turntable

The machines **BASIC** and **BASIC PLUS** 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.

Two options of turntable drive are available:

- **Electromotor with gearbox**, the turntable is driven over the chain. This is used when higher demands for exact turntable stop in the point of orientated stop (see Chapter 5.2.1) or for higher loading limit (2000 kg) are required.
- **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 – this possibility should be utilized just exceptionally only.

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.

In machines fitted with the frequency converter, position of the oriented stop depends on speed of the turntable rotation. Position of the oriented stop is then maintained for this speed. If the machine is fitted with regulation of the turntable speed and the operator changes rotation speed, position of the oriented stop will be shifted.

The exactness of stop on machines not provided with frequency inverter will be influenced by persistence of rotating pallet. It will be proceeded as follows: the first pallet of certain weight will be wrapped. After the cycle is terminated the pallet stops in a direction in which all following pallets of the same or similar weight will stop. The position of turntable with respect to the frame should be marked.

The tolerance of turntable position makes $\pm 10^\circ$ at a machine without frequency inverter when identical secondary prestretch was used and the weight of pallets does not differ more than by 100 kg.

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.

Should the pallet stop that way making impossible bring it away the turntable will be manually rotated into a position enabling its removal. Subsequently will the turntable be brought back in the position of orientated stop and next pallet may be loaded.

5.3. Control panel

MAIN SWITCH It is lockable to eliminate an intervention of unauthorized person.

START (if it is a subject of the order, the controller is completed with a foot pedal). By switching the controller in the position **I** (or by actuating the foot pedal) is turntable activated, it is stopped by switching the controller in the position **0** (or releasing the foot pedal).

TOTAL STOP. When pushing this pushbutton the machine abilities are completely stopped. It is intended for immediate stop of the machine in emergency

situations - machine failure, goods falling from the pallet, collision, injury of operator etc.

Regulation of turntable speed – only for machines fitted with the frequency converter. Potentiometer that can be used for regulating the turntable rotation speed.

6. OPERATION OF THE MACHINE

6.1. BASIC

- 1) Load the pallet with goods onto the turntable. The pallet must be placed symmetrically on the turntable.
- 2) Unwind strip of foil from the manual foil holder Profi and tie its end to the nearest leg of the pallet.
- 3) At this moment, switch on the main circuit breaker (on the side of the switchboard cabinet). 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.
- 4) *Control by change-over switch*: Start movement of the machine turntable by turning the change-over switch to position I.
Control by foot switch (in case it is fitted to the machine): Start movement of the machine turntable by stepping on the foot switch; the change-over switch must not be in position I for the whole period of wrapping..
- 5) After the first turn of the turntable, rotate the handle of the holder and adjust the required foil tension.
- 6) Make several turns of the wrapping foil at the bottom position of the carriage (number of turns depends on the type of goods and on requirements on strength of wrapping).
- 7) Then move the foil holder upward and gradually wrap up the whole pallet.
- 8) Stop the carriage in the upper position so that the upper edge of the foil overlaps the upper edge of pallet about 20 cm. Make several turns at the upper position.
- 9) At this phase, wrapping can be stopped or the foil holder can be moved downwards and wrapping can be continued during the downward motion.
- 10) Wrapping is finished by switching the controller in the position 0 (or by releasing the pedal).
- 11) After the turntable stops, cut off the foil and smooth it onto the pallet.
- 12) If the machine is fitted with a safety optical barrier and it does not stop exactly at oriented position of the turntable it is possible to manually turn the pallet with goods to correct position enabling the pallet to be removed from the machine.

6.2. BASIC PLUS, BASIC PLUS V

- 1) Load the pallet with goods onto the turntable. The pallet must be placed symmetrically on the turntable.
- 2) The foil carriage is in its bottom position.
- 3) Unwind strip of foil from the manual foil holder Profi and tie its end to the nearest leg of the pallet. 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.
- 4) *Control by change-over switch*: Start movement of the machine turntable by turning the change-over switch to position I.
Control by foot switch (in case it is fitted to the machine): Start movement of the machine turntable by stepping on the foot switch; the change-over switch must not be in position I for the whole period of wrapping..
- 5) After the first turn of the turntable, rotate the handle of the holder and adjust the required foil tension.
- 6) Make several turns with the wrapping foil at the bottom position of the carriage (number of turns depends on the type of goods and on requirements on strength of wrapping).
- 7) Then move the foil carriage along the column upwards and gradually wrap up the whole pallet (hold the carriage brake handle).
- 8) The foil carriage can be locked at any height.
- 9) Stop the carriage in the upper position so that the upper edge of the foil overlaps the upper edge of pallet about 20 cm. Make several turns at the upper position.
- 10) At this phase, wrapping can be stopped or the foil holder can be moved downwards and wrapping can be continued during the downward motion.
- 11) Wrapping is finished by switching the controller in the position 0 (or by releasing the pedal).
- 12) After the turntable stops, cut off the foil and press it onto the pallet.
- 13) If the machine is fitted with a safety optical barrier and it does not stop exactly at oriented position of the turntable it is possible to manually turn the pallet with goods to correct position enabling the pallet to be removed from the machine.

6.3. 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	
The machine is switched on but is not functional or stops during wrapping.	Emergency Stop push-button pressed	see chap.5.3
	on cut-out turntable: sensor in cut-out part shielded	Remove the subject causing shielding. Clean both sensor and mirror. Check sensor functionality.
		Control by change-over switch: turn the change-over switch to position 0 and back to position I . Control by foot switch: release the foot switch, turn the change-over switch to position I and back to position 0 , and then step on the foot switch again.
The machine goes on working after the foot switch has been released.	During wrapping, the change-over switch was set to position I .	Turn the change-over switch set to position 0 .
Opposite sense of turntable rotation	changed supply phases	see Chapter 3.4
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)
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. 7.1.6)

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.

7.1. Machine maintenance

Recommended cycles	Procedure of maintenance
Every day	checking of: power supply cables for damages overall condition of the machine function of the machine protection components cleaning of the machine and its surroundings
Every 500 hours of operation or 1x in 3 months	lubricate the film carriage
Every 1000 hours of operation or 1x in 6 months	check turntable bearings (Chapter 7.1.1) check the turntable rollers (Chapter 7.1.3) check tension and lubrication of turntable gear with gearbox (Chapter.7.1.4) check tension and lubrication of turntable gear with intergearing (Chapter 7.1.5)

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. Lubrication of film carriage chain

The chain is placed inside the mast behind the cover. Drive the film carriage in the lower half of the mast to enable the screws to be accessible. Screw out 4 screws fixing the cover behind the top platen to the mast and move the cover in upwards direction. After the chain is lubricated mount the cover back on the spot proceeding an opposite way.

7.1.2. 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

7.1.3. 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 – artificial 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.

7.1.4. Inspection of turntable with gearbox

It concerns the turntable with gearbox – electromotor with gearbox is situated outside the mast, turntable is driven by chain.

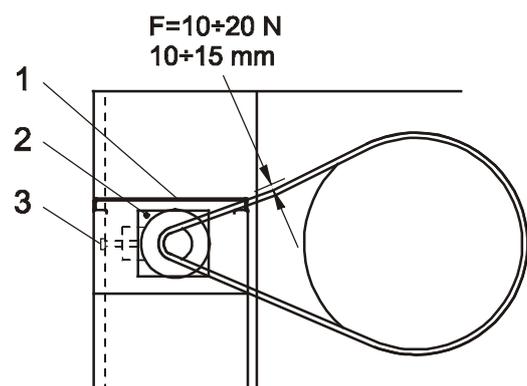
Take off the turntable. The chain is tensioned by two stretchers, which are hauled by spring, the main stretcher lift is limited by stop screw M10. When the machine is in an idle state without a pallet (goods) on the turntable, release the safety nut and turn the screw until it slightly touches the stretcher. In case of turntable till the diameter of 1800 mm incl. tighten the screw by 2 more rotations afterwards, or by 3 more rotations with the turntable of the diameter of 1800 mm and more. The safety nut will be tightened again. If there is no chance to adjust the chain tension this proper way it means the chain is wear and has to be changed.

7.1.5. 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 7.1.3). Remove the turntable and the cover between mast and turntable (6x bolt M5) (proceed according to Chapter 7.1.3).

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 (4x) 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.

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.

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.

7.1.6. Repair of turntable chain

If, suddenly, the turntable does not rotate or its rotation is hard and irregular the cause is usually in a film residue wound up on the chain gearing of the turntable. In extreme case, this can even cause falling down of the chain from the sprocket or pinion.

Turntable, except for frklift-shaped turntable: Loosen the screws on the turntable and lift the turntable.

All versions of turntable: Take down the guard between the pole and the turntable; whole chain gearing is now visible.

Remove film residues and impurities from the chain, sprocket and pinion. If necessary, refill the lubricant. Clean the whole space under the turntable and the guard between the turntable and the pole.

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

Turntable except for frklift-shaped turntable: 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).

frklift-shaped turntable: Release the spring of the swinging turnbuckle. Mark the position of the fixed turnbuckle (it is fixed with a screw in the bend nick) and loosen the screw; in this way the turnbuckle is released. Put the chain on the pinion and on a maximum possible number of teeth of the sprocket; put the chain on the sprocket by hand rotating the V-belt wheel. Return the fixed turnbuckle to its original position and retighten the screw. Put the spring on the swinging turnbuckle.

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.

7.1.7. 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. Maintenance in longer periods means inspection and tightening 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)

7.1.8. 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.

7.2. Spare parts order

Whenever you order spare parts or equipment, you have to provide the operating voltage and frequency as well as the wiring diagram number and equipment identification on the diagram.

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. GUARANTEE

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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