

Instruction Manual

Small Scale Brushing Machine – LA-H

Machine No. LAH-2205

VERY IMPORTANT INFORMATION



This manual rank as the
“ORIGINAL INSTRUCTION”
according to directive 2006/42/EC

Manual number: INSTRUCTION MANUAL LAH-2205-W-EN-V01

westrup

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2 EU Declaration of Conformity

We at
Westrup A/S
Sorøvej 21, DK-4200 Slagelse, Denmark
Phone: +45 5852 2564
Fax: +45 5852 5251

Declare, under our own responsibility, that the following product is covered by this declaration:

Machine **LA-H**

Serial Number **LAH-2205**

The machine complies with the following HARMONIZED STANDARDS:

EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 13857	- Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 13854	- Minimum gaps to avoid crushing of parts of the human body
EN 60204:1-2018	- Electrical equipment of machines

And is in conformity with the COUNCIL DIRECTIVES:

2006/42/EC	Machinery Directive
2014/30/EU	EMC Directive
2014/34/EU	ATEX Directive

Signed at Westrup on 14.07.2022



Flemming Dam
Technical Manager

The content of the EU Declaration of Conformity complies with Directive 2006/42/EC, Section 1.7.4.2. (c)

2.1 Nameplate and Nomenclature

The nomenclature characteristics shown on the nameplate fixed on your machine are shown below:

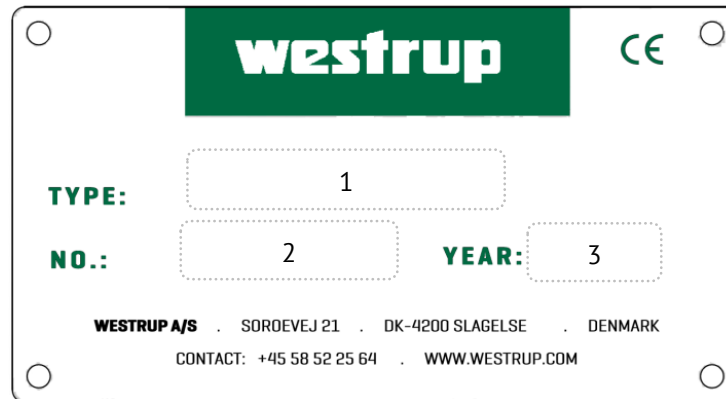


Figure 2-1: Nameplate

Label on the machine, punched or marked with:

1. Type of machine.
2. Production serial number.
3. Manufacturing year.

For any communication with us on your machine or for ordering spares parts, the production serial number must be used.

2.1.1 Type of machine

Example: LA-X/XX

LA-H- is the short name of the machine

3 General information

3.1 Introduction

This instruction manual applies to LA-H small-scale brushing machines. It explains all features, accessories, and options. Therefore, you may find explanations for equipment not part of your machine.

By reading the manual carefully, you learn about features, important safety information and operation under various conditions.



ALL OPTIONAL FEATURES ARE MARKED AS "OPTIONAL" THROUGHOUT THE MANUAL.

Operating the machine in compliance with these instructions is very important to help ensure reliability of the machine and avoid risks.



DAMAGE CAUSED BY INCORRECT HANDLING, INSTALLATION OR OPERATION WILL AFFECT THE WARRANTY ADVERSELY.



YOUR MACHINE MAY HAVE ANY OF THE OPTIONAL SUBASSEMBLIES BASED ON YOUR ORDER AND REQUIREMENT.

3.2 Safety symbols & markings

The below attention signs indicate very important messages. Non-observance will cause a hazard.

Table 3-1: Symbols

Symbol	Description	Explanation
	Electric hazard	Electrical safety instructions where non-compliance will involve a high risk to personal safety or loss of life.
	Warning / Take notice	Advice, tips or information helpful for safe operation of the machine.
	Caution	Caution notes for operators.
	Safety instructions	Safety instructions where non-compliance will involve some risk to safe operation and personal safety and could damage the equipment or property.
	Do not reach	Guards must not be removed when the machine is ON.

3.3 Warranty



IMPORTANT

The machine has been assembled and tested at the factory.

Handling and installation should be carried out by skilled personnel familiar with machines of this type.

If installation is carried out by unskilled personnel, we cannot give any warranty of function and durability.

The warranty will lapse if installation has not been done correctly as per this manual.

3.4 Disclaimer

We manufacture our equipment according to international quality standards as certified and audited by external quality assurance organizations.

Damage or failure caused by misuse is not covered by the warranty.

Note that any modification of the machine or removal of original components may impair the function and safety of the equipment.

All pipe connections - customer delivery - must be mounted according to local safety regulations.

3.5 Operating conditions

The machine must not be operated beyond the parameters specified for the application.

If there is any doubt as to the suitability of the machine for the application intended, contact us for advice, quoting the serial number.



IF THE OPERATING CONDITIONS FOR YOUR MACHINE ARE CHANGED, IT IS REQUESTED THAT YOU SEEK OUR WRITTEN AGREEMENT BEFORE START-UP.

3.6 CE marking & approvals

We conform to the legal requirement that machinery and equipment put into service within certain regions of the world shall conform to the applicable CE marking directives covering machinery and, where applicable, high voltage equipment and equipment for potentially explosive atmospheres (ATEX).

Where applicable, the manual incorporates information relevant to these directives and approvals.

To confirm the approvals applying, and whether the machine is CE marked, check the serial number plate markings and the certification.

3.7 Consignment receipt & unpacking



IMPORTANT

Immediately after receipt of the equipment, it must be checked against the delivery and shipping documents for its completeness and that there has been no damage in transportation. Later claims are not accepted..0

Check crates, boxes, and wrappings for accessories or spare parts that may be packed separately with the equipment or attached to sidewalls of the box or equipment.

Each machine has a unique production serial number. Check that this number corresponds with that printed on the invoice and always quote this number in correspondence and when ordering spare parts or further accessories.

3.8 Handling

Proper handling of the machine, done by skilled personnel familiar with this kind of equipment, is essential for safe and long service life of the machine.

The guidelines should be followed carefully. However, they do not relieve the purchaser from full responsibility or proper inspection and handling. Damage due to improper handling or installation is the sole responsibility of the purchaser.



THE MACHINE IS EXTREMELY HEAVY AND SHOULD BE HANDLED AND MOVED CAREFULLY, SO THAT NO EXTERNAL DAMAGE IS DONE TO THE MACHINE AND ITS PARTS.



A PALLET TRUCK/FORKLIFT SHOULD BE USED FOR UNLOADING AND LIFTING THE MACHINE AND ITS PARTS. MANUAL HANDLING OF THE MACHINE HAS A HIGH RISK FOR PARTS DAMAGE AND SAFETY HAZARDS.

Unloading the machine from the container:

Before using a forklift to handle the machine, pad the forks to lessen the chance of damaging the machine frame.

Using a suitable forklift, insert the forks below the pallet.

Lift the machine slightly above ground level and with a slow speed pull the machine from the container or a truck.

When pulling the machine out of the container, ensure there is sufficient space between the machine and the container wall so that the machine is not damaged or scratched as this can result in failure of the machine.

3.8.1 Unpacking the crates



IMPORTANT

When the crate with the machine and subassemblies has been moved to the final location, the machine and parts should be unloaded from the crate.

Balance the crate uniformly in equilibrium while unloading the parts from the crate.

Break the straps holding the parts together - one at a time.

This process needs to be carried out very carefully by cutting the metal straps with a sheet metal cutter.

When the top saddle is freed, proceed with freeing the side straps.

Please call our service department for advice, if in doubt.



PLEASE ALSO READ CHAPTERS 4 & 5 FOR INSTALLATION ADVICE AND MACHINE DESCRIPTION BEFORE YOU PLACE THE MACHINE IN ITS FINAL POSITION.

3.8.2 Lifting

To increase the safety and efficiency of the lifting device, all lifting elements must be as perpendicular as possible. If necessary, a wooden padding be placed between the pallet truck/forklift and the load. See Figure 3-1.

When heavy items are lifted up, never stay or work under the load or in the area, in case it should fall down.



NEVER LEAVE A LOAD IN LIFTED STATE ON A PALLET TRUCK. THE ACCELERATION OR THE DECELERATION OF LIFTING EQUIPMENT MUST STAY WITHIN THE SAFETY LIMITS FOR THE STAFF.



WHEN HANDLING, ALWAYS WEAR GLOVES, SAFETY BOOTS AND AN INDUSTRIAL SAFETY HELMET.

Lifting instructions:

Use handling means in accordance with the weight of the machine – for weight values see dimensional drawing

To avoid distortion, the unit should be lifted as shown in below figure.

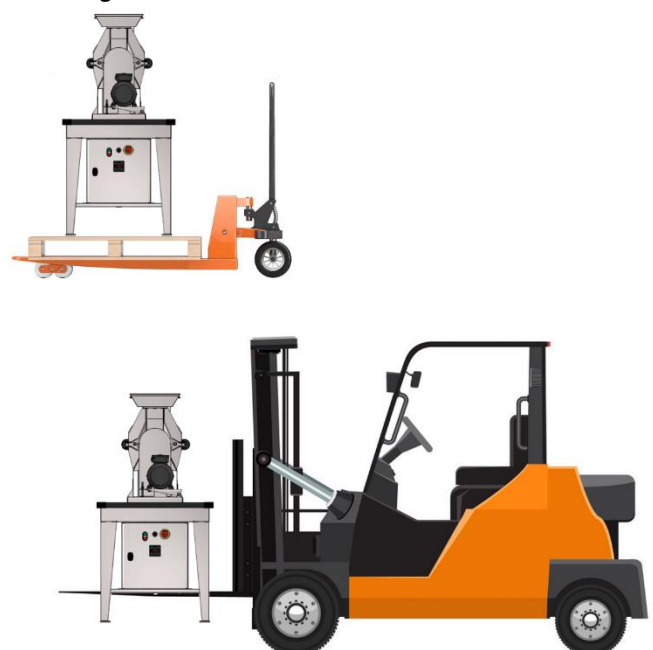


Figure 3-1: Lifting of machine

3.8.3 Noise level for machine

After installation, during the running in of the machine, a noise measurement should be made and, if necessary, further noise attenuation should be affected around the machine.

The effective sound pressure level depends on mounting and the product to be handled.

The correct level can therefore not be stated here, however, our measurements without product have shown below values (when tested as per **DIRECTIVE 2006/42/EC 1.7.4.2. u**) on airborne noise emissions:

Without fan: approx. 78 dB (A)

With fan: approx. 83 dB (A)

3.9 Storage

In case the machine needs to be stored for later installation, we recommend storing the machine and its parts in the received packaging.

The guidelines for storage Table 3-2 should be followed as well as below information:

Place the machine on a level surface.

Do not place any objects on the machine.

Table 3-2: Storage guidelines

	Product	Storage		
		Unpacked equipment	Packed in wooden box	Packed in container
A	Machine with wooden parts	Inside dry room with low humidity and covered with tarpaulins	Inside dry room with low humidity	Inside dry room with low humidity
B	Equipment of steel construction	Inside dry room with normal humidity and covered with tarpaulins	Inside dry room with normal humidity	Outside under roof
C	Control panel and other electronic equipment	Inside dry room with temperature above 10°C (50°F) and covered with tarpaulins	Inside dry room with temperature above 10°C (50°F)	Inside dry room with temperature above 10°C (50°F)

3.10 Standard color specification

All standard machines will be in White color with Shade RAL 9010.

The international codes for our standard paint are:

The machine could be painted in a different color as per requirement.



YOUR MACHINE MIGHT BE WITH ANOTHER COLOR.

Table 3-3: Standard color

COLORS	RAL NUMBER	Sherwin Williams Paints for USA / CANADA
WHITE:	RAL 9010	Pure White B 54 W 101 (7907-99993) Yellow -1/128

3.11 Recycling & end of product life

At the end of the product life of the machine or its parts, the materials and parts should be recycled or disposed of using an environmentally acceptable method complying with local regulations.

If the machine contains substances, which are harmful to the environment, these should be removed and disposed of in accordance with current regulations.

Below is a list of how the single parts should be handled:

- Cables are recycled.
- Electronic parts are scrapped according to directive (96/2002 CEE) and sent to a collection place or recycling contractor.
- Glass fittings etc. are sent for separate recycling.
- Motors are sent for dismantling and final scrapping.
- V-belts are put up for incineration.
- Metal parts are considered as ordinary scrap.
- Wood, rubber, and fiberglass springs are put up for incineration.

The machine is dismantled, and the entire unit is taken to a place with forklift/pallet truck capacity and adequate space for sorting the different parts as they are being removed.

The single machine sections should be split so that the all-machine parts can be dismantled.

The machine frame is split so that it can be easily scrapped.

4 Installation Guide

4.1 Placement of the machine

The machine should be placed so that there is sufficient space for preventive maintenance and replacement or cleaning of screens.

This means that there should be a free distance from the screen removal end to the nearest wall or other obstacle; see information on the dimensional drawing.

4.2 Foundation

The correct foundation depends on the size of the machine and the actual static and dynamic loads.

Use anchor bolts of accepted standards and of sufficient size in accordance with the size of bolt holes to ensure safe fitting of the machine to the foundation.



NON-COMPLIANCE WITH THE PROVISION OF A SUITABLE AND CORRECT FOUNDATION MAY LEAD TO FAILURE OF THE MACHINE AND WILL AFFECT THE WARRANTY ADVERSELY.



**IN CASE YOU HAVE ANY QUESTIONS,
YOU MAY CONTACT US.**

4.3 Anchoring of the machine

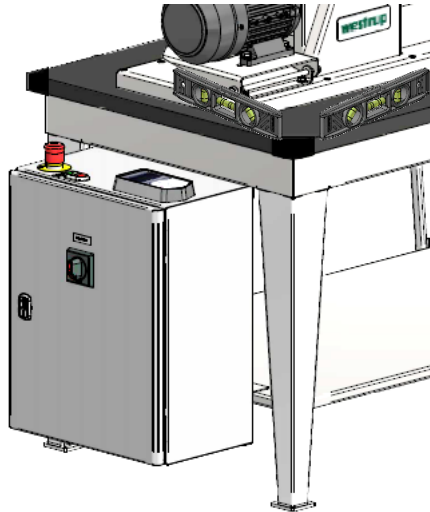


Figure 4-1: Levelling of machine

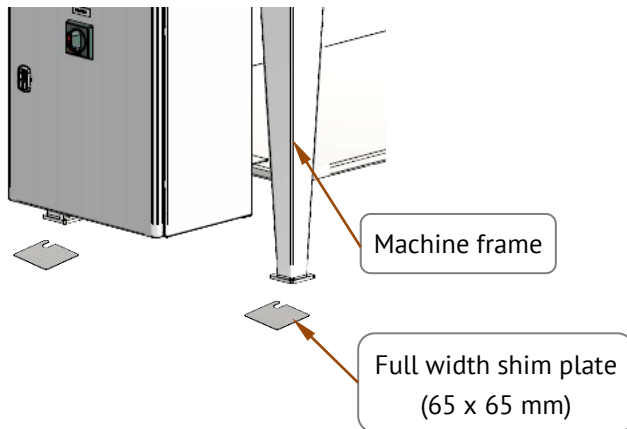


Figure 4-2: Shim plate

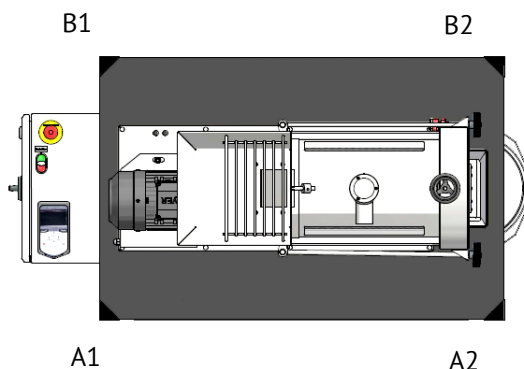


Figure 4-3: Anchoring

Step 1:

- Clean the foundation surface thoroughly before bringing the machine to the place selected for anchoring.
- Place the machine in its final position.
- Use spirit levels (See Fig. 4-1) to check whether the machine is level or needs to be aligned with shim plates.
- If alignment is needed, lift one end of the machine and place full width shim plates (Fig 4-2 customer delivery) on the foundation surface at the two anchoring points.
- Repeat the above for the other end.

Step 2:

- Use additional full width shim plates (See Fig: 4-2) to level the machine in both width and length direction with the use of a spirit level.

Step 3:

- Fit nuts on the anchoring bolts (customer delivery) at all four corners A1, A2, B1, and B2, and tighten the bolts (Fig 4-2).
- Loosen the anchor bolts in points A1 and B2.
- Start the machine and measure the gap between the bottom of the machine frame and the shim plates on the floor at points A1 and B2.
- Pack the gap at points A1 and B2 with suitable thickness shim plates.
- After ensuring that there are no gaps at points A1 and B2, tighten the anchoring bolts at these points.
- Follow the same steps for points A2 and B1.



THE MACHINE MUST NOT BE DISTORTED OR PULLED DOWN TO THE FOUNDATION DURING ANCHORING.

4.4 Electrical Connections



THE CUSTOMER IS RESPONSIBLE FOR ENSURING CORRECT ELECTRICAL WORKS ARE PROPERLY COMPLETED.

An authorized electrician should make the electrical connections to the electrical cabinet from the mains, as per the attached electrical circuit drawings (See Page 15).



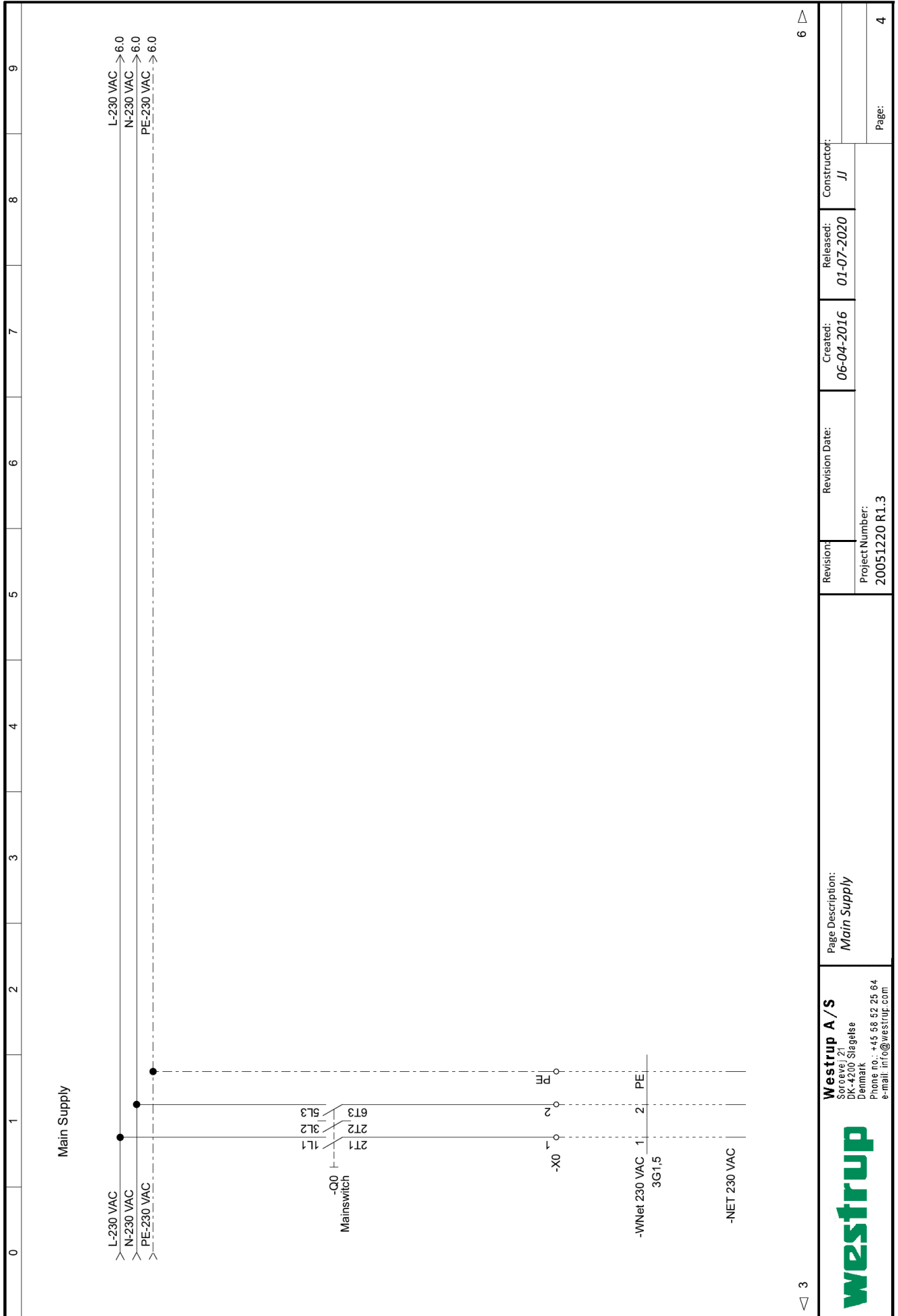
THE MACHINE IS PROVIDED WITH ALL REQUIRED CONNECTIONS FROM ELECTRICAL CABINET TO THE MOTORS, EMERGENCY STOP AND SWITCHES.



ELECTRICAL REGULATIONS EN 60204-1 ALONG WITH ALL LOCAL REGULATIONS FOR ELECTRICAL SECURITY SHOULD BE OBSERVED.



ALL ELECTRICAL WORKS ARE TO BE PERFORMED BY A QUALIFIED ELECTRICAL PRACTITIONER.



6 Δ

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Page: 6			Page: 4		

5 Machine description

5.1 Introduction

The LA-H small-scale brushing machine is designed for batch or continuous processing of small volumes of seeds or grain prior to cleaning and grading processes.

The LA-H brushing machine is in standard construction delivered with feeding tray, one mantle with two brushes, two collection bins/drawers/boxes, inspection window, drive system with control panel and frequency converter, 1 x 240 V, 50 Hz.

The LA-H is mainly used for separation of grass seeds sticking together as well as polishing, de-hulling or peeling of different seed and grain products.

The LA-H0 brushing machine is mainly used for brushing the surface on different seeds and grain products (e.g. bunt on wheat, saponin from quinoa, and oats for horse feed).

5.2 LA-H Machine

The LA-H brushing machine offers the below features:

- Feeding tray with open/close shutter.
- One-section exchangeable standard mantle.
- Rotating shaft with two internally adjustable brushes or steel beaters.
- Manually adjustable brushing degree.
- Collecting drawers for prime product and removed product.
- Dust suction unit for connection to aspiration spout on top of the machine.

The machine can also be delivered with:

- Inlet with vibrator feeder (instead of feeding tray)
- Outlet pipes for transport of product to floor level
- Vacuum cleaner with collecting bucket
- Extension for inlet hopper (25 l)
- Autotransformer and switch 110 V, 60 Hz

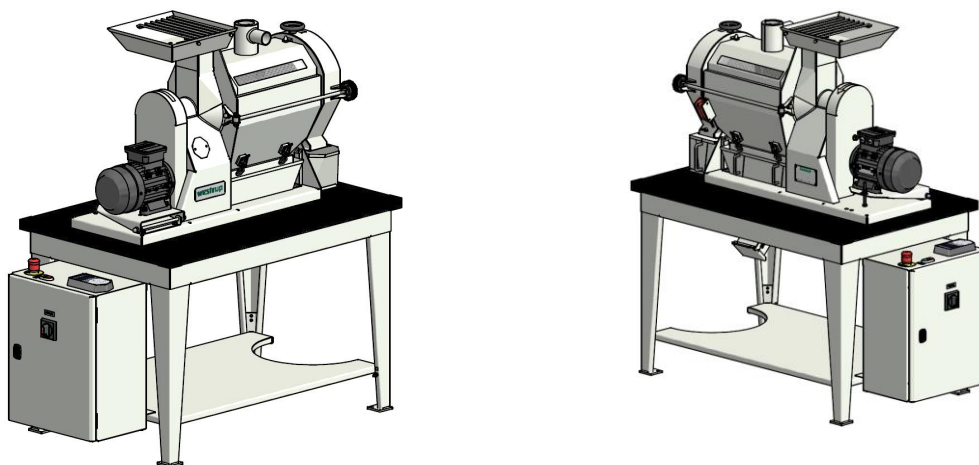


Figure 5-1: LA-H standard machine

5.3 LA-HO Machine

The LA-HO brushing machine offers the below features:

- Inlet with capacity shutter and vibrator feeder in place of feeding tray.
- Air intake for aspiration in full length of the mantle with filter.
- Outlet with rotary valve for prime product from the end of the mantle.
- Connection pipe for external aspiration system.

The machine can also be delivered with:

- Vacuum cleaner with collecting bucket
- Extension for inlet hopper (25 l)
- Autotransformer and switch 110 V, 60 Hz



Figure 5-2: LA-HO standard machine

5.4 Technical data

Table 5-1: LA-H Technical data

Description	LA-H
Motor, Mantle kW	0.75
Motor, vibrator feeder kW (Optional)	0.05
Dust suction unit/extractor kW (Optional)	1.20

Table 5-2 : LA-HO Technical data

Description	LA-HO
Motor, Mantle kW	0.75
Motor, vibrator feeder kW	0.05
Motor rotary valve W	6.0
Dust suction unit/extractor kW (Optional)	1.20

5.5 Configuration of the LA-H machine

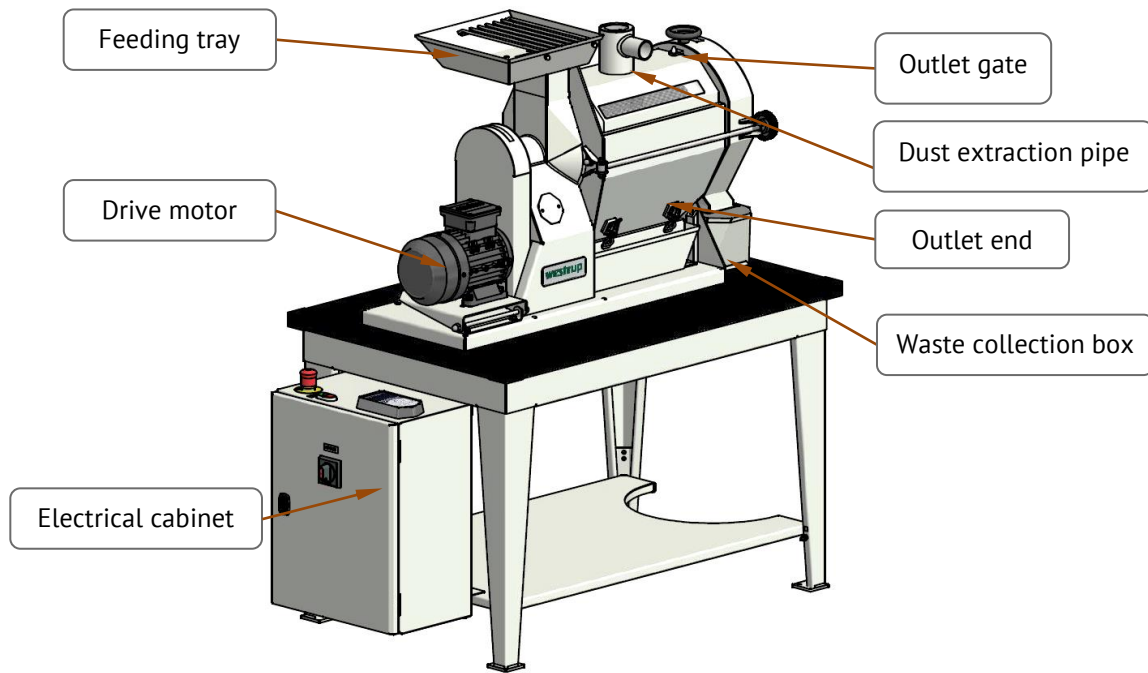


Figure 5-3: LA-H Standard machine configuration



ALSO SEE PROCESS DESCRIPTION.

5.6 Configuration of the LA-HO machine

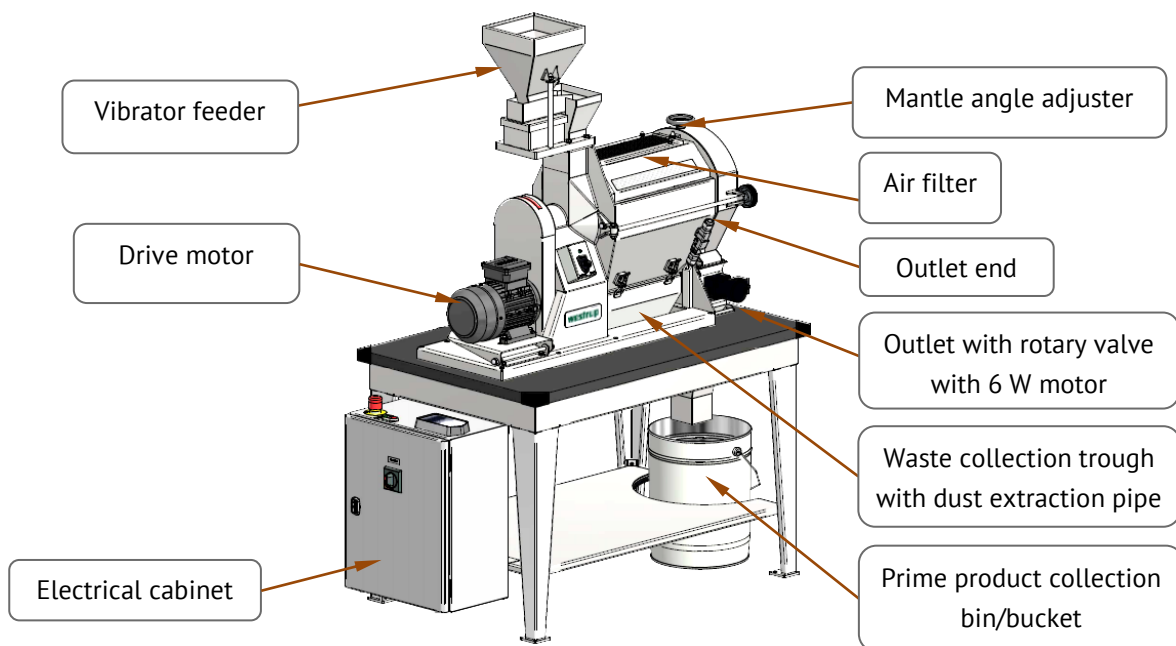


Figure 5-4: LA-HO Standard machine configuration with Optional bucket.



ALSO SEE PROCESS DESCRIPTION.

5.6.1 LA-H/LA-HO Extended Inlet Hopper (25 l) (Optional)

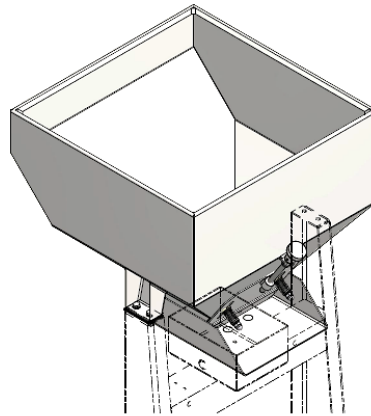


Figure 5-5: LA-H/LA-HO extended inlet hopper (Optional)

5.6.2 LA-H/LA-HO 20L Bucket (Optional)



Figure 5-6 : LA-H/LA-HO 20L Bucket (Optional)

5.6.3 LA-H with dust suction unit/extractor (Optional)



Figure 5-6: LA-H with dust suction unit/extractor (Optional)

5.6.4 Observation windows

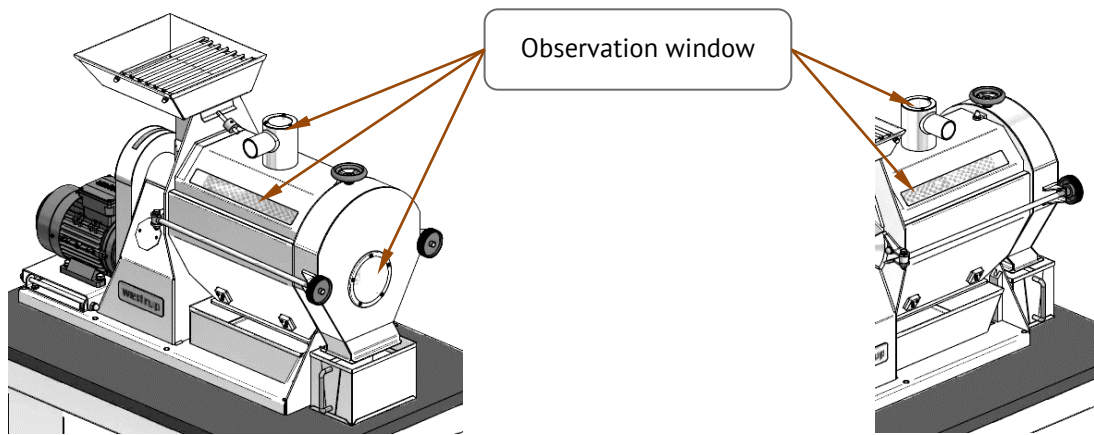


Figure 5-7: Observation window

5.7 Mantle

5.7.1 LA-H/LA-HO mantle-Standard

Mantle mesh according to order requirement

- Available in various wire mesh/clipper wire mesh options.
- Proper mantle selection is important for the most efficient operation of the machine.

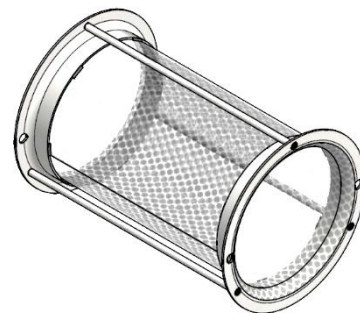


Figure 5-8: Mantle assembly

5.7.2 Mantle access doors

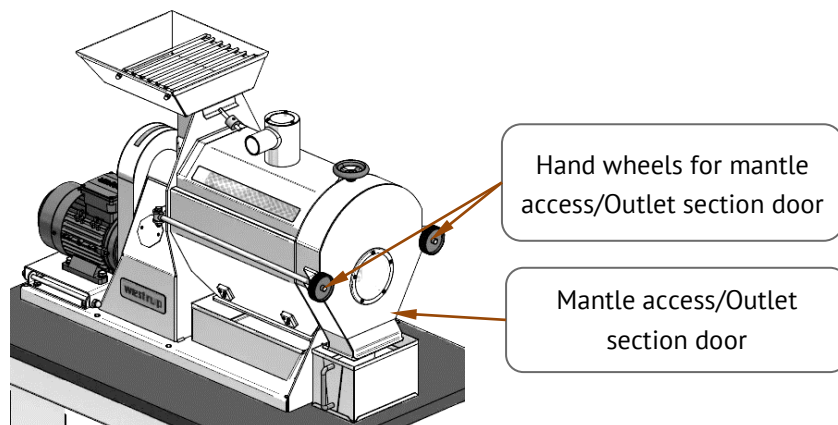


Figure 5-9: Mantle door clamps

5.7.3 Brush assembly (Standard)

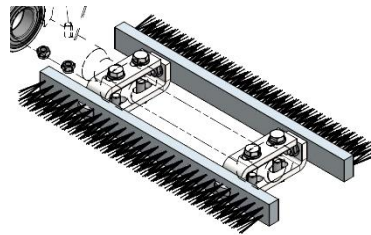


Figure 5-10: Brush assembly (Standard)

5.7.4 Rubber and Steel beater assembly (Optional)

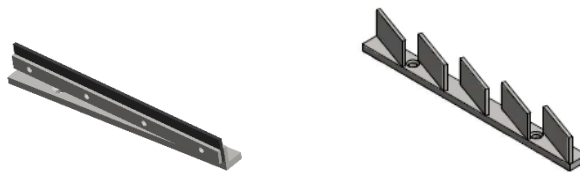


Figure 5-11: Rubber and Steel beater assembly (Optional)

5.7.5 LA-H/LA-HO Electrical

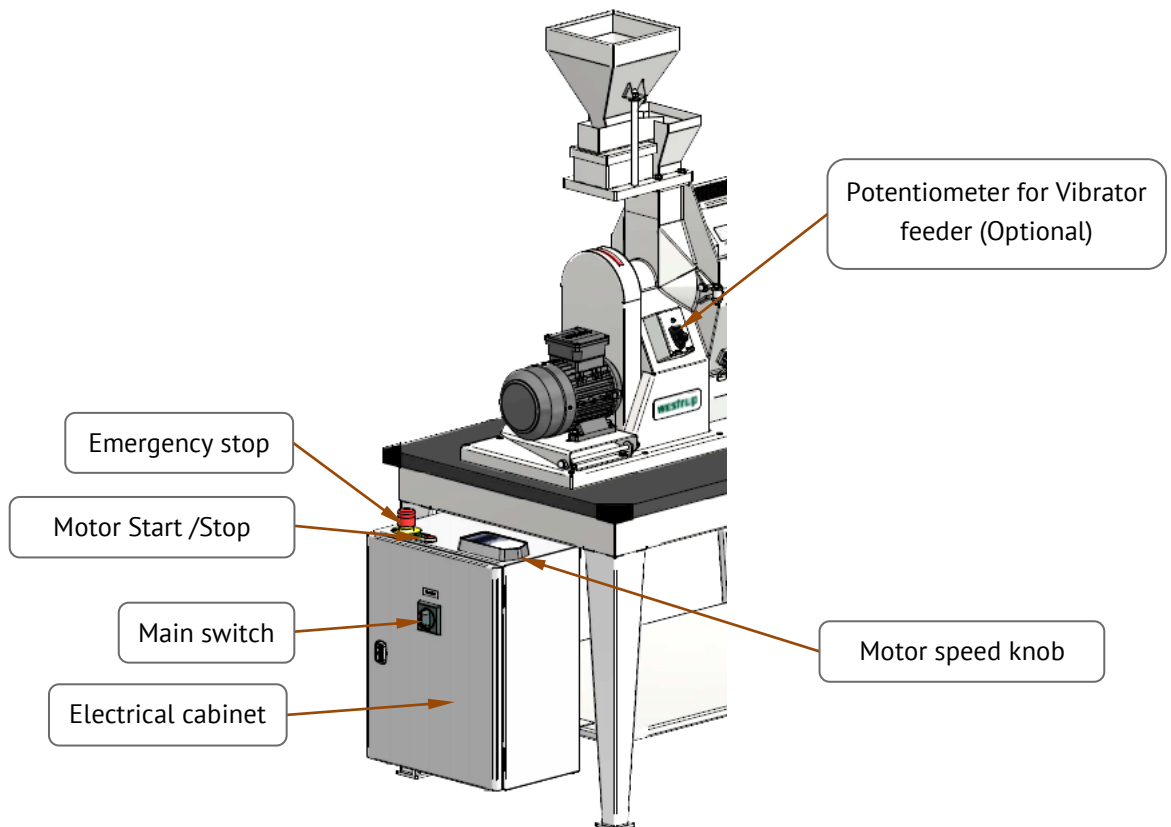


Figure 5-12: LA-H/LA-HO Electrical control panel

6 Operation Guide

6.1 Machine start-up & running-in

6.1.1 Checklist to start the machine

When the machine has been correctly installed and connected, the following points should be checked.

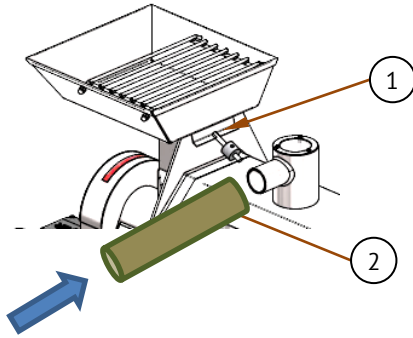


Figure 6-1: Dust collection pipe installation

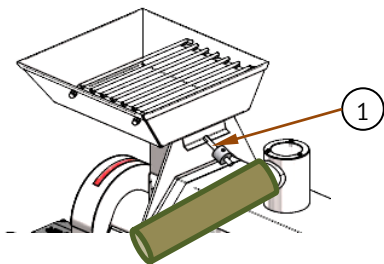


Figure 6-2: Feed inlet capacity shutter

Checklist before starting the machine: See (Fig 5-3, Fig 5-4, Fig 5-16, 6-1, 6-2, 6-3 and 6-4).

- Close the capacity shutter (1) or in case of machine with vibratory feeder place the potentiometer for the vibrator feeder at “0” See (Fig 5-16).
- Make sure that all waste collection box and collection bins are correctly placed, and dust collection pipe (2) is connected.
- Outlet door (3) is properly closed by tightening the knurled handwheels (4). See (Fig 6-3).
- Use the hand wheel (5) on top of the machine to close the outlet gate.
- If the brushes or beaters to be adjusted follow the procedure explained in section 7.3.1 & 7.3.2.

6.1.2 Checklist after starting the machine

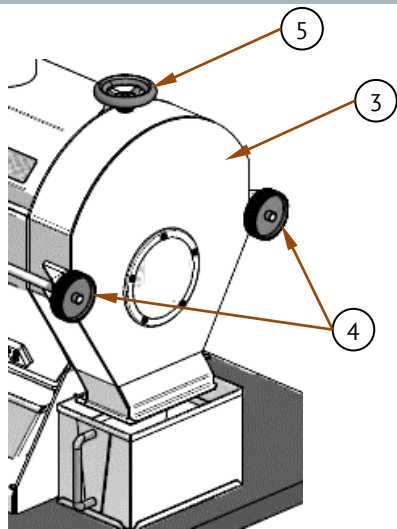


Figure 6-3: Outlet cover

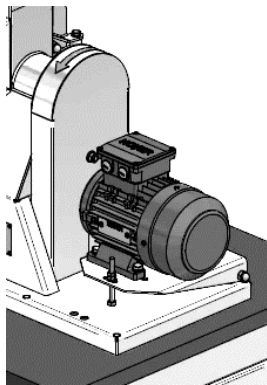


Figure 6-4: Motor direction

Checklist after having started the machine

- The direction of rotation of motor is correct. All emergency stops are functioning correctly See (Fig. 6-4).
- Pour the product into the feeding tray or hopper and adjust the capacity shutter (1) if necessary. See (Fig 6-2).
- Open the capacity shutter or start the vibrator with potentiometer See (Fig 5-16). and make sure that the product is fed in a steady flow.
- Open the outlet gate (5) gradually to the required level.
- Adjust the intensity of the brushing by opening or closing down the outlet gate (5).

6.2 LA-H Process description

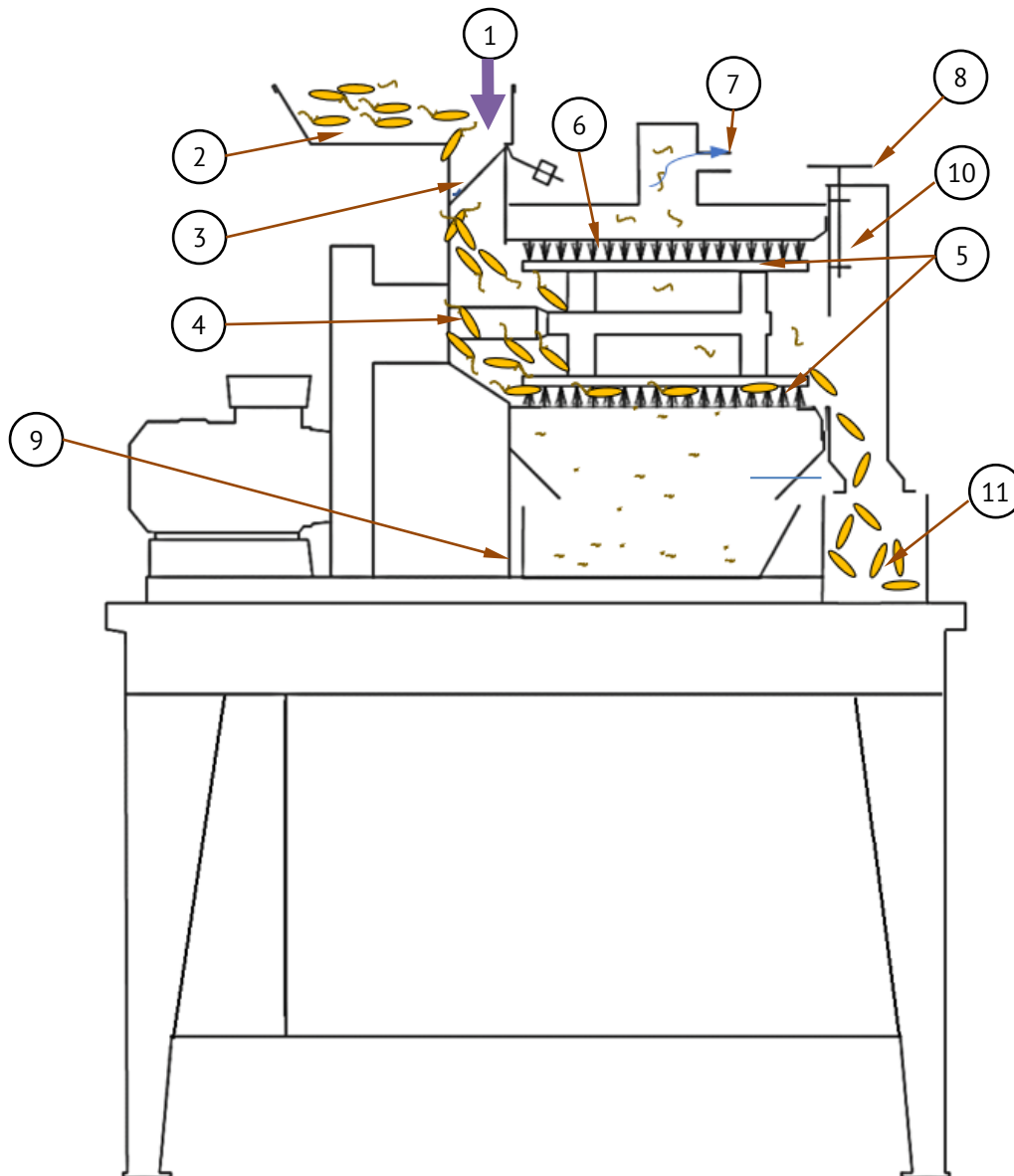


Figure 6-5: LA-H machine cleaning process

- The product to be processed is poured into the hopper/tray (2)
- The product enters through the inlet (1)
- The Inlet is fitted with a feed control system with weight loaded capacity shutter gate (3) adjusted so that product feeding takes place uniformly.
- The product is pushed into the mantle by the flow plate (4)
- The product is rubbed by the brushes or beater (5) against the inner surface of the mantle (6) and light dust generated /impurities are removed by the duct (7).
- Cleaned good product is collected at the end of the mantle (11).
- The impurities are collected at the bottom of the mantle into a collection box (9).
- Adjust the intensity of the brushing or beating by opening or closing down the outlet gate (10) with the hand wheel (8).

6.3 LA-HO Process description

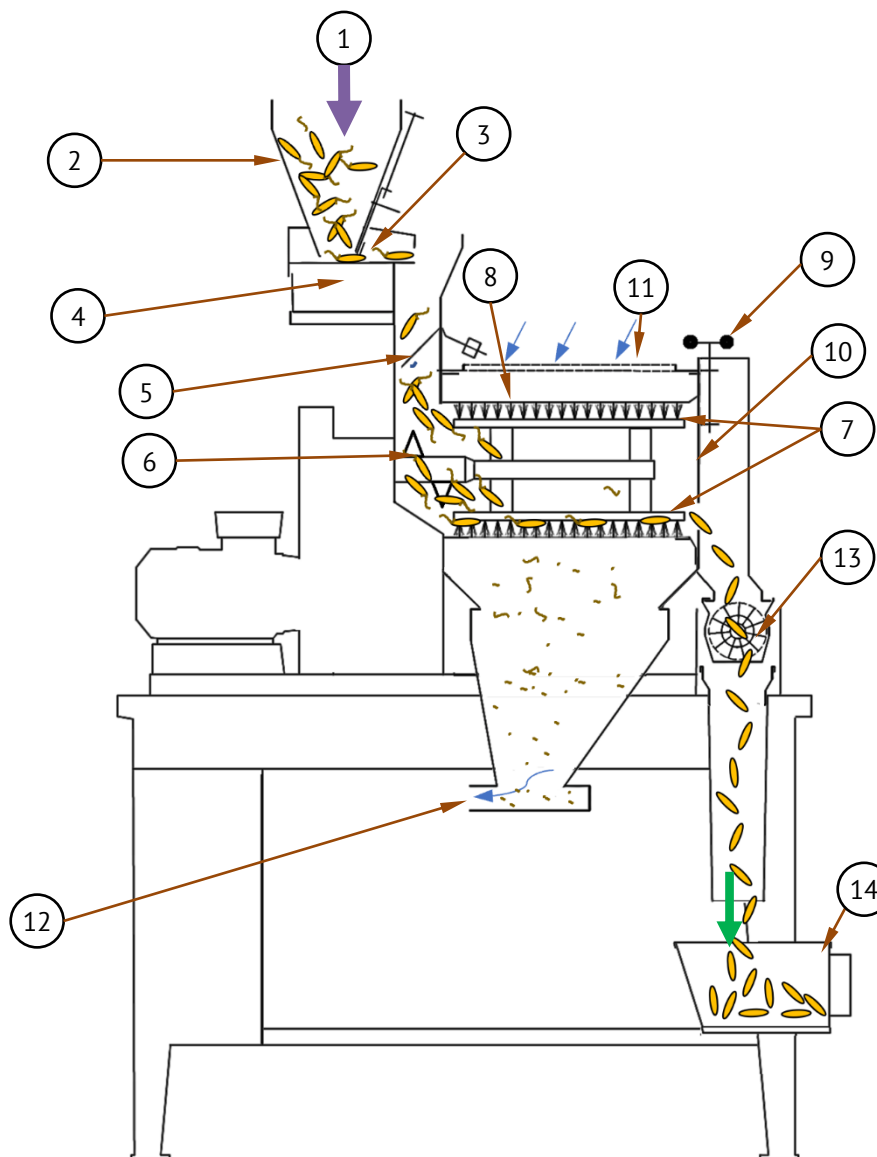


Figure 6-6: LA-HO machine cleaning process

- The product to be processed is poured into the hopper (2)
- The product enters through the inlet (1)
- The Inlet is fitted with a feed control system (3) on the vibratory feeder (4) with weight loaded capacity shutter gate (5) adjusted so that product feeding takes place uniformly.
- The product is rubbed by the brushes (7) against the inner surface of the mantle (8) and light dust generated /impurities are removed by the duct (12).
- Adjust the intensity of the brushing or beating by opening or closing down the outlet gate (10) with the hand wheel (9).
- Air enters from top of the mantle through the air filter (11).
- Cleaned good product passes through the rotary valve (13) at the end of the mantle.
- The impurities are collected at the bottom of the mantle by the dust extraction (12).
- The cleaned product is collected in the collection box (14)

6.4 Adjustment of the vibrator (Optional)

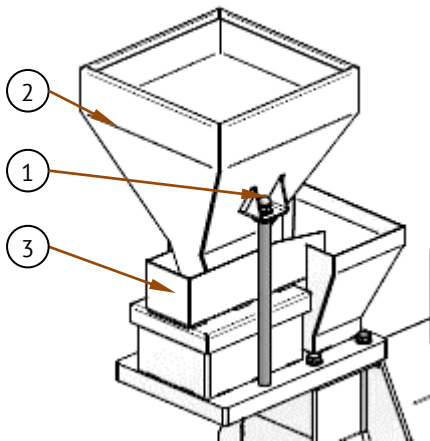


Figure 6-7: Inlet hopper

To access the vibrator: See Figure. 6-7

- Loosen and remove the fixing fasteners (1) on both sides.
- Remove the inlet hopper (2) to free the inlet tray (3).
- Lift out the inlet tray (3) to access the vibrator.

If the vibrator does not work:

- Switch the two wires (brown + blue) from the vibrator to the control.
- If this does not help, switch back and check the control instead

If the vibrator yields too little or too much: See Figure. 6-8

- Loosen the two bolts (1) holding the electromagnet (black + grey).
- Adjust the distance (A) between the electromagnet and the top plate;
- for the standard 50Hz machine set to approx. 0.75 mm.
- for 60Hz machine set to 0.5 mm

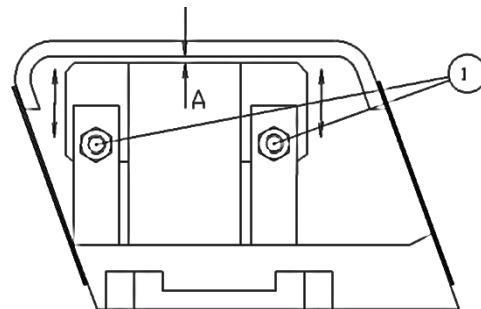


Figure 6-8: Vibrator adjustment



AS THE ADJUSTMENT OF THE VIBRATOR SHOULD BE MADE WITH THE MACHINE RUNNING, EXTREME CARE SHOULD BE SHOWN, AND THE WORK SHOULD PREFERABLY BE DONE BY AN ELECTRICIAN.



ALL ELECTRICAL WORKS ARE TO BE PERFORMED BY A QUALIFIED ELECTRICAL PRACTITIONER.

To reassemble the vibrator:

Follow the disassembly procedure in reverse order and ensure the fasteners are fixed with Loctite before installing the hopper (2).



IN CASE YOU HAVE ANY QUESTIONS, YOU MAY CONTACT US.

6.5 Trouble shooting list

Table 6-1: Trouble shooting list

Sl. No.	Problem	Solution
1	No output	Check feed hopper for product. Check direction of the motor Check vibrator feeder Check and change mantle Check dust extraction air pressure.
2	No product in the mantle	Check feed gate is open Check if the feed controller is jammed or needs adjustment.
3	Too much product in the mantle	Check and adjust feed gate or vibratory feeder
4	Too much uncleaned product in prime product	Check and change mantle for perforation size based on product. Check for correct placement of the brushes to avoid gaps between the brush and the mantle. Check for chocking of the mantle.
5	Too much good product in the waste	Check and change mantle for perforation size based on product.

7 Maintenance Guide

7.1 General maintenance

- Check the bearings periodically for wear and lubricate, if necessary; see lubrication chart later in the manual.
- Check mantle perforations and brushes periodically for wear and replace any worn components.
- The motors have ball bearings placed in closed housings and are greased for several years of operation; the manufacturer's suggestions provided with each of the motors and gear boxes should be carefully followed. Occasional re-greasing is not possible if the bearing housings are not fitted with grease nipples.
- Use only genuine spare parts supplied by us when replacement is necessary. We cannot warranty the operation and safety, if parts from other manufacturers are used.
- Before attempting service or internal inspection of the machine, lock off the isolators or disconnect the electrical power.



REMEMBER TO LOCK OUT THE POWER BEFORE WORKING ON THE MACHINE.



GUARDS AND COVERS OVER BELTS, AND OTHER MOVING PARTS SHOULD BE REMOVED ONLY WHEN THE MACHINE IS TURNED OFF (AND POWER LOCKED OUT) AND MUST ALWAYS BE SECURED IN POSITION BEFORE THE MACHINE IS RESTARTED.



IT IS IMPORTANT TO DO PERIODIC MAINTENANCE ON THE MACHINE TO HAVE CONTINUOUS TROUBLE-FREE OPERATION.



ALWAYS REACT IMMEDIATELY IF YOU HEAR AN UNUSUAL SOUND OR REGISTER ABNORMAL VIBRATIONS IN THE MACHINE.

7.2 Maintenance schedule

Table 7-1: Maintenance schedule

	Maintenance schedule	Daily maintenance	Weekly maintenance	Quarterly maintenance	Half-yearly maintenance
1	Check all emergency stops.		X		
2	Check bearings for temperature, seals etc.		X		
3	Check belt drives for wear and correct tension.			X	
4	Check feed gates and all moving parts for wear.				X
5	Check mantle, brushes, collection bin and collection box for wear.			X	
6	Grease according to the instructions later in the manual.			X	X
7	Mantle perforations are blocked.	X			
8	Brushes are free of abnormal vibrations and all bolted connections are tight.	X			
9	The motors have ball bearings placed in closed housings and are greased for several years of operation; the manufacturer's suggestions provided should be followed.				X
10	The type of grease specified in the chart or an equivalent grease should be used; please note that over-greasing is damaging and can lead to pre-mature failure of bearings.				X
11	There are no unusual sounds from rotating or vibrating components.	X			
12	Tighten all bolts on the machine.				X

7.3 Mantle and Brushes

7.3.1 Removal of mantle



THE MACHINE MUST BE DISCONNECTED BEFORE THIS WORK IS STARTED!

The machine must be disconnected before this work is started.

Step 1: Loosen the two handwheels (1) at the outlet end (2) and swing them to the side

Step 2: Remove the outlet section (2) and remove the top cover (3)

Step 3: Now the mantle (4) can be pulled out

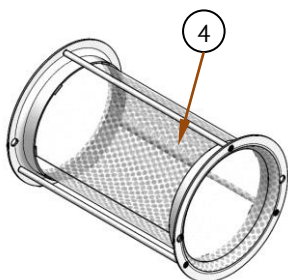
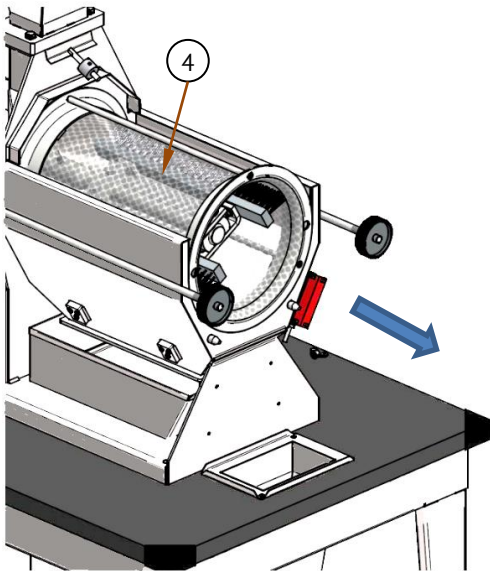
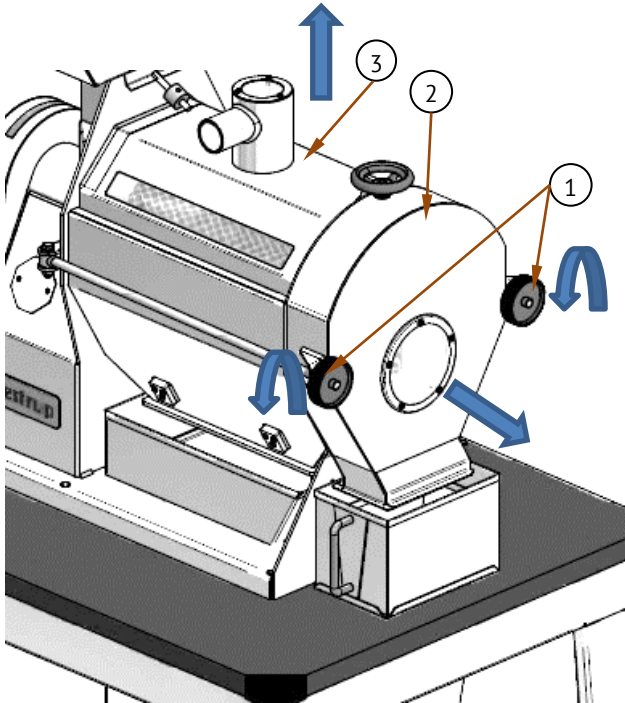


Figure 7-1: Mantle replacement

7.3.2 Removal or adjustment of brushes / beaters



THE MACHINE MUST BE DISCONNECTED BEFORE THIS WORK IS STARTED!

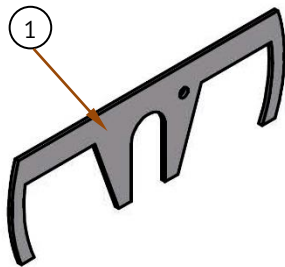


Figure 7-2: Brush or Beater adjustment tool

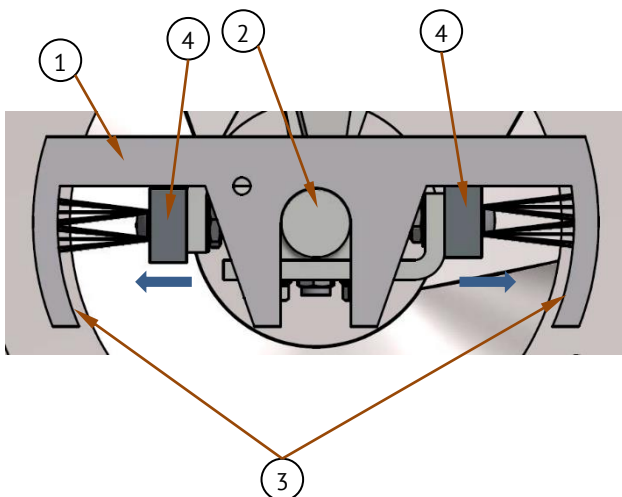


Figure 7-3: Brush or beater adjustment

Step 1: Follow procedure to remove the mantle explained in Section 7.3.1)

Step 2: Now the brushes or beaters can be accessed for removal or adjustment.

Step 3: For adjustment place the tool (1) at the inlet end on the main shaft (2) as shown in the fig. (7-3)

Step 3: Move and adjust each brush/beater (4) to touch the mantle reference surface (3) on the tool (1).

Step 4: Repeat this on the outlet end of the main shaft (2).

Step 5: Remove the tool and place it on the Board frame.

Step 6: Remount the mantle, by following procedure explained in Section 7.3.1 in reverse.

7.4 Cleaning the machine for change of product

The LA-H must be kept clean and must not be exposed to humidity, which can create rust. The following procedure is suggested for cleaning the machine between products or lots.

- Stop the flow of raw material.
- Completely open the product inlet and all air regulation valves while the machine continues to run.
- Let the machine empty itself completely before stopping the motors.
- Inspect the product inlet and the feeding section for any remaining material; clean if required with a brush - or better with an industrial vacuum cleaner.



**WITH THE MACHINE SHUT OFF,
REMEMBER TO LOCK OFF THE ISOLATOR.**

- Remove the outlet at the prime product outlet by means of the knurled handwheels and clean inside the machine.
- Remove the brushes and mantle from the machine. Clean the parts with a brush - or better with an industrial vacuum cleaner.
- Replace any worn brushes.
- Clean the bins.
- Clean with an industrial vacuum cleaner, a brush and/or compressed air to completely clean out any remaining material.
- When the cleanout is completed, reassemble all the parts in reverse and insert the proper mantle and brush for the next product cleaning operation.
- Remove the lock on the isolator and restart the machine.

7.5 Cleaning of the entire plant



THE ENTIRE PLANT MUST BE KEPT CLEAN.

Any leaks in transport pipes, at transitions to and from belt conveyors and discharge pans, hoppers etc. should be as tight as possible.

Dust, which might anyway escape in some places, must be removed with a vacuum cleaner.

Cleaning should be made when needed.

A plant, which has not been properly cleaned, will be more exposed to dust explosions.

In order to keep the machines outside explosion dangerous areas according to the

It is of utmost importance that the plant is kept clean.



NOTE THAT 5 MM DUST CAN BE SELF-IGNITING.



ACCORDING TO THE NATURE OF THE DUST, 30–100 G/M³ AIR IS AN EXPLOSION DANGEROUS QUANTITY.



THE USER OF THE PLANT MUST COMPLY WITH THE SAFETY REGULATIONS FOR PROTECTION OF PEOPLE WORKING IN DUSTY ATMOSPHERES.

ATEX DIRECTIVES 94/9 AND 99/92

THE COMMISSION FOR THE EUROPEAN COMMUNITY

Brussels, 25.8.2003

KOM (2003) 515 final

INFORMATION FROM THE COMMISSION

about the non-binding instruction for good practice regarding the implementation of the European Community directive 1999/92/EF about minimum stipulations for improvement of safety and health protection of workers, who can be exposed to danger from an explosive atmosphere.

7.6 Lubrication instructions

Table 7-2: Lubrication instruction

TYPE	LUBRICANT	INTERVAL
(A) Main shaft bearings	Q8 Rubens LT 2 (*)	Greased for life
(B) Motor bearings	Not required	Greased for life
(C) Threaded spindles	Q8 Rubens LT 2 (*)	When needed

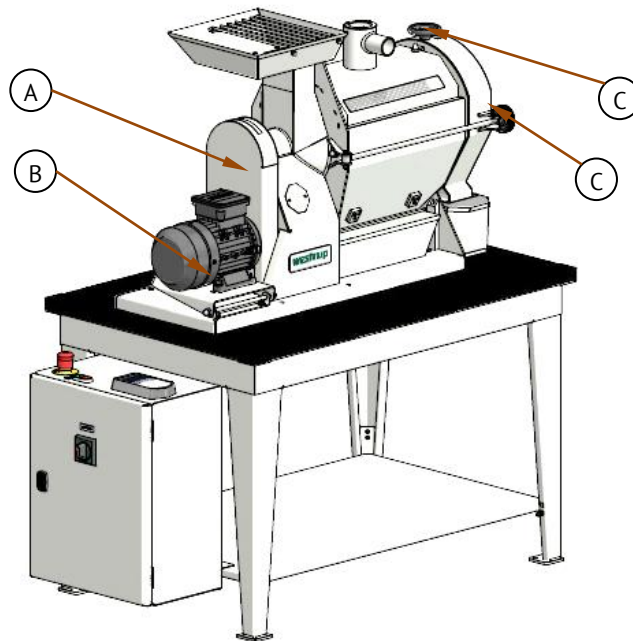


Figure 7-4: Lubrication points

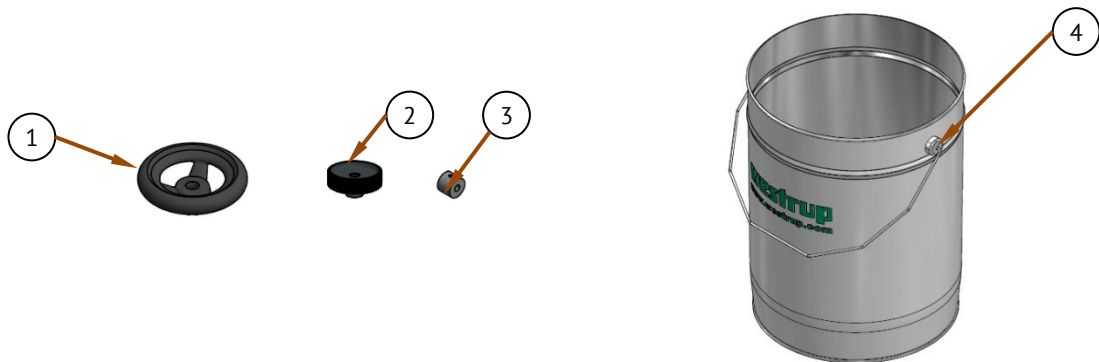
8 Spare parts



“*” MARKED SPARES ARE WEAR PARTS.

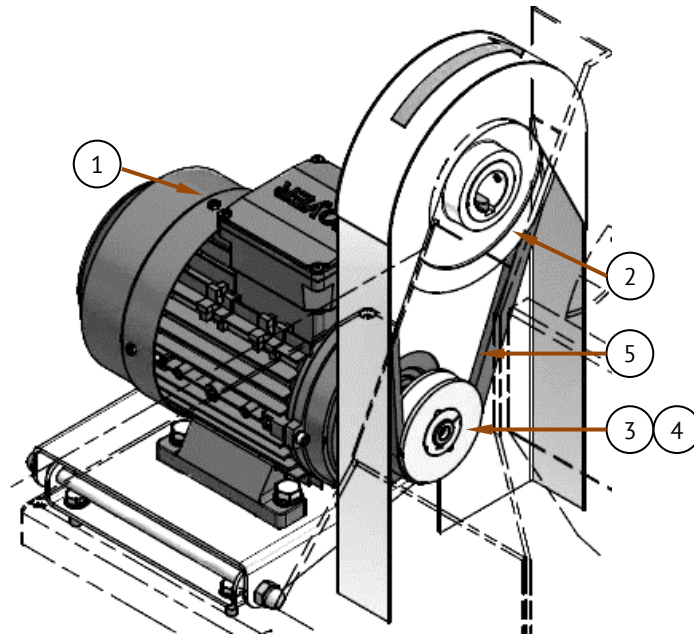
Always indicate machine no. when ordering spare parts

8.1 Various parts



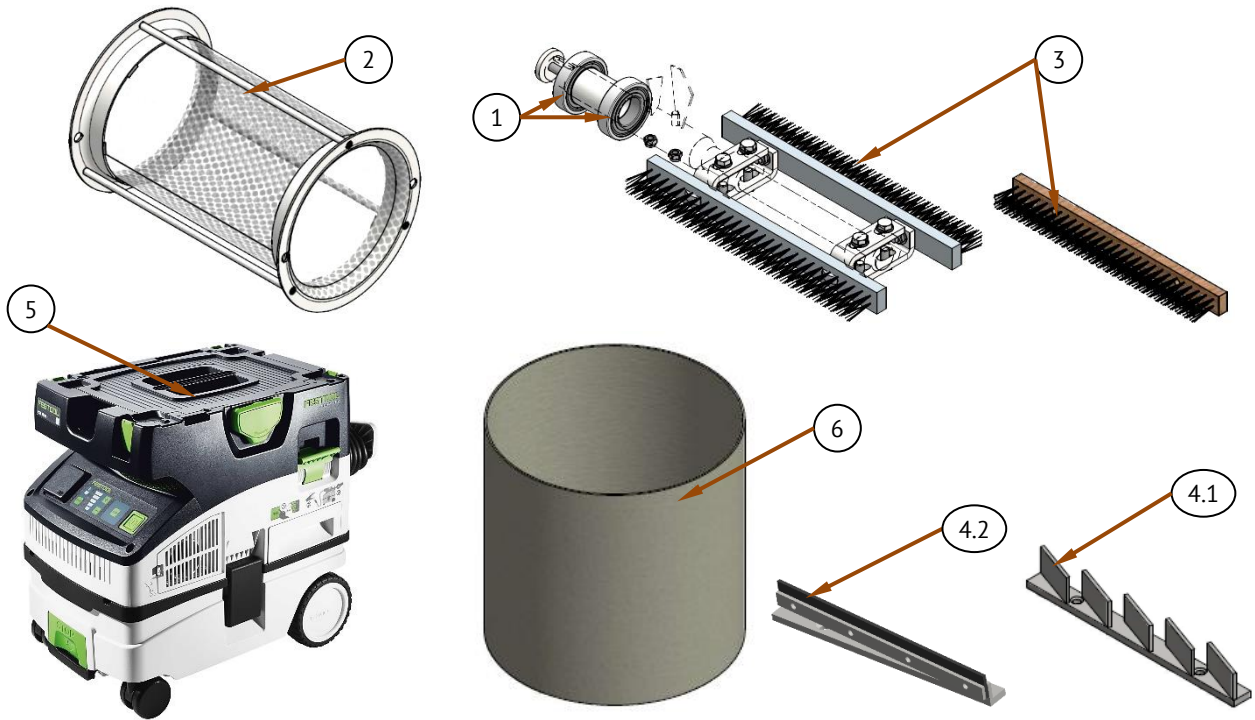
Recommended for LA-H various parts		Total Qty.	Part Number
Pos.	Description		
1	Hand wheel	1	5042570
2	Knurled handwheel	2	5029442
3	Counterweight	1	5041758
4	Collection bucket 20L (optional)	1	2632964

8.2 Drive assembly



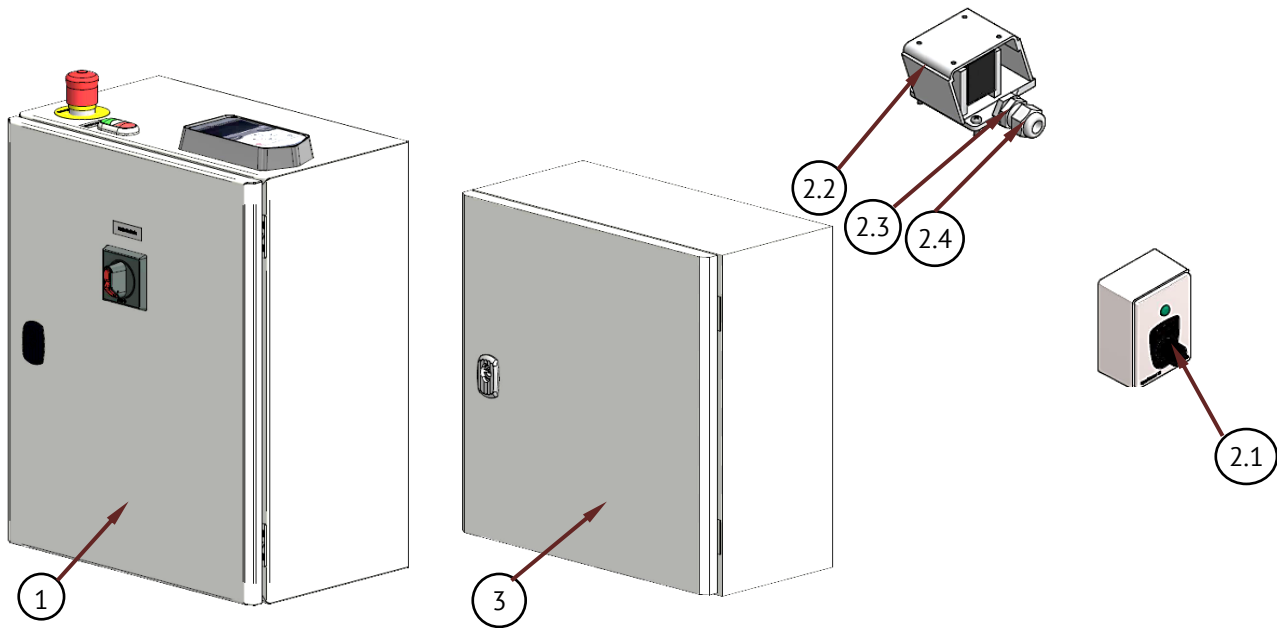
Recommended for Drive assembly, 50Hz/60Hz, 220V		Total Qty.	Part Numbers
Pos.	Description		
1	Foot Mounted Motor (HMA3 80 0.75kw-4 B3 3x230V-50hz)	1	2636444
2	V-Belt Pulley (SPA-160x1x30-[DIN 2211-1]-Keyway)	1	5043005
3	V-Belt Pulley-SPA-71x1	1	510215/2636447
4	Taper lock bushing 1108-Dia 19	1*	511528/2636449
4	V-Belt (Classical) (A 797 [DIN 2215])	1*	5043015

8.3 LA-H machine parts



Recommended for LAH/HO machine various parts		Total Qty.	Part Numbers
Pos.	Description		
1	Deep Groove Ball Bearing, Single Row (6207-2RS1)	2*	5003034
2	Mantle (Mantle mesh according to order requirement)	1	-
3	Brush (anyone)	2	-
	Brush, nylon 0.9 mm	-	55321
	Brush, nylon 0.5 mm - Optional	-	55320
	Brush, rustproof, 0.4 mm - Optional	-	553222
	Brush, rustproof, 0.2 mm - Optional	-	553220
	Brush, hair, 0.1 mm - Optional	-	55323
4	Beater Set – Optional (anyone)	1	-
	Metal beater set	-	2121011
	Beaters with rubber, set	-	4295011
5	Dust suction unit 1.2kW – Optional	1	540635
6	Dust suction bags - Optional	1	540638

8.4 Electrical system



Recommended for LA-H/HO Electrical system		Total Qty.		Part Number
Pos.	Description	LA-H	LA-HO	
1	Electrical cabinet	1	1	5055745
2	Vibratory feeder (Optional)	-	-	-
2.1	Potentiometer	1	1	5057101
2.2	Inline Vibrator	1	1	5026239
2.3	Hex Locknut	1	1	5008016
2.4	Cable gland	1	1	5008015
3	Autotransformer 110V, 60Hz - Optional	-	-	-
3.1	Autotransformer cabinet	1	1	5055748
3.2	Häwa skab SN3030/20MP RAL9010	1	1	546045
3.3	Autotransformer IP20 2500VA	1	1	546008



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