



RBM™ Ribbon Blender Range User Manual



We don't just sell machines—
we provide service.

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Important Safety Information

READ THIS BEFORE OPERATING MACHINE

Intended Use

The intended use of this machine is to thoroughly blend dry or moist raw materials. Potential misuse of this machine includes:

- Completely filling the ribbon blender with material (over 70% full).
- Filling the ribbon blender with materials before conducting a test run.
- Using materials that are too hard or have long fibers.

Personal Protection

For personal protection while transporting the RBM™, abide by these actions:

- Use a forklift to lift the machine.
- Wear steel toe boots to prevent foot injury.
- Wear heavy duty grip gloves to ensure firm grasp on machine.
- Wear back support belt to prevent injury if needed.

For personal protection while operating the RBM™, abide by these actions:

- Avoid wearing loose jewelry to prevent machine entanglement.
- Contain long hair to prevent machine entanglement.
- Wear safety goggles.
- Wear disposable latex/rubber gloves.
- Wear a hairnet (food grade products only).
- Wear a beard net if needed (food grade products only).

General Hazards

- Be aware of risk of entanglement and pinch point due to moving parts.
- Do not operate in a wet environment or with wet hands due to risk of electrical shock or burn.
- Do not operate if any wires are damaged, pinched, or frayed due to risk of electrical shock or burn.
- Keep out of reach of children.
- Keep fingers and head away from all moving parts.
- Ensure that the machine is on either stable, level ground or a stand.
- Inspect machine before use.
- Check that nuts and bolts are suitably tightened.
- Use this machine only for its intended use as described in this manual.
- Turn off and unplug the machine before conducting cleaning and maintenance.
- Do not modify the machine in any way.

Important Safety Information

READ THIS BEFORE OPERATING MACHINE

Symbols



WARNING

This signals potential risk for personal injury.



WARNING

This signals potential risk for electrical shock.



CAUTION

This signals potential risk for damage to the machine or other parts.

Modes for Stopping

In the case of an emergency during operation, immediately push the red OFF button and unplug.



Prop. 65 Statement for CA Residents

Based on LFA's current level of knowledge of our machines, the RBM™ ribbon blenders do not require a Proposition 65 warning label.

Warning for Explosive Material

This machine is not explosion proof. LFA recommends that you test your materials' explosivity before running them through this machine. If your materials are indeed explosive, do not use them with this machine.

Important Safety Information

READ THIS BEFORE OPERATING MACHINE

Installation and Safety Assessment

Due to the nature and design of this machine and its intended use in an industrial environment, it is important that before use it is installed in a cage with a mode of stopping on the outside of the cage. LFA Machines has decided that we can not possibly foresee all of the environments or situations in which this machine could be used or installed and therefore have determined that the end user must install the machine in a way that is appropriate and safe for its use.

Once the machine has been installed, it is critical that you conduct a safety assessment to ensure that it complies with all local and industry accepted safety regulations.

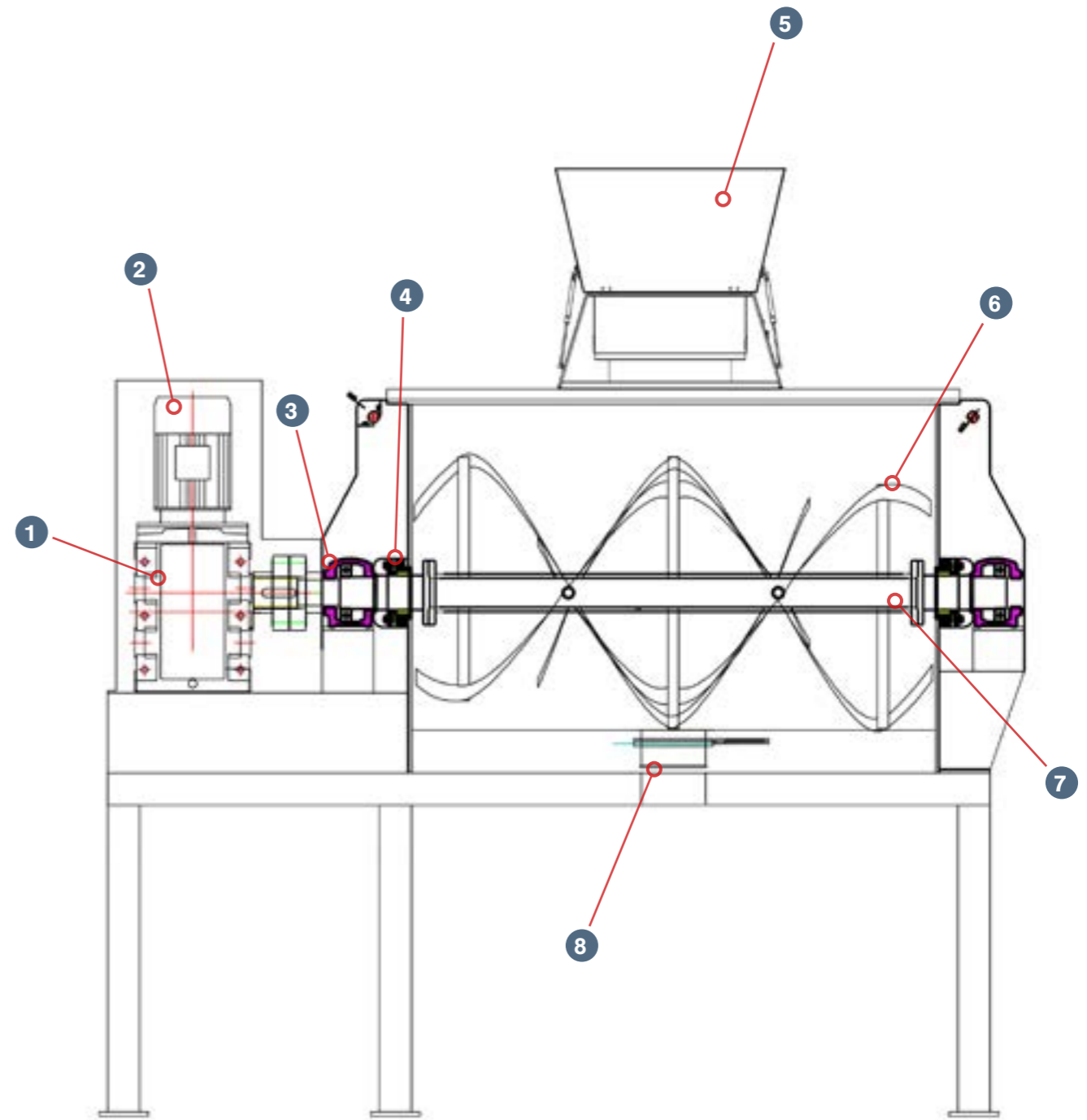
If you require guidance on the installation of the machine or conducting a safety assessment, please contact LFA Machines.

This machine is sold as an Unfinished Machine under the Machinery Directive (2006/42/EC) Article 13.

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RBM™ Ribbon Blender Parts List



- | | |
|------------------------|---------------------------|
| 1. Gearbox | 6. Ribbon Agitator |
| 2. Motor | 7. Rotating Shaft |
| 3. Bearings | 8. Discharge Chute |
| 4. Seal | |
| 5. Powder Inlet | |

Preface



The RBM™ Ribbon Blender range of machines consists of five highly efficient, trough-format mixers ranging from a capacity of 100 liters to 3000 liters. The machines' stainless steel mixing blades thoroughly combine dry or moist materials, including powders and pastes, and have a clearance between the interior wall of the mixing container and blades that allows a high degree of consistency and homogeneity. Ideal for the chemical, pharmaceutical, and food industries, these machines have been designed according to GMP principles so that they are easily cleaned and able to resist chemical damage. Equipped with simple controls and ruggedly built, the RBM™ Ribbon Blender range is straightforward in its operation and maintenance.

The purpose of this document is to support your understanding of the RBM™ Ribbon Blender range's components, features, functions, and design. With this manual, you will be able to successfully operate and maintain your RBM™ Ribbon Blender machine.

The user manual's content includes:

- Important safety information
- RBM™ Ribbon Blender installation instructions
- Description of the RBM™ Ribbon Blender's operation
- RBM™ Ribbon Blender maintenance information
- Appendix with supplemental information

Training

RBM™ Ribbon Blender training is essential for the machine's successful operation and your personal safety. There are several methods to prepare you for working with the RBM™ Ribbon Blender.

Off-Site Training

LFA offers free training at our UK, USA, and Taiwan facilities for all our customers and their teams. For more information, go to <https://www.lfatabletpresses.com/services>

Training via Video Chat/Phone

Using an online video chat system, an LFA technician can interact face-to-face with you and assist with your understanding of the machine. Or, if you prefer, LFA can provide training via phone for all customers who call the office. To set up a training, call or email your local LFA office:

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LFA Articles

LFA writes informative articles about powder mixers, which includes instructions, procedures, and guides. To access the articles, go to <https://www.lfatabletpresses.com/articles>

LFA Videos

LFA has created several videos involving powder mixers. To access the videos, go to <https://www.lfatabletpresses.com/videos> or <https://www.youtube.com/user/TabletPilPress>

Installation

Tools and Materials Needed

Before you install and operate the RBM™ Ribbon Blender, it is best to have the following tools and materials on hand for general operation and maintenance:

- Forklift rated to lift at least 5,000 kg (two forklifts for larger machine range with extended forks)
- Lifting straps rated to lift at least 5,000 kg
- Spirit level
- Metric wrench set
- Set of metric Allen keys with ball ends
- Lubricant (NSF approved for food grade products)
- Grease gun
- Bagless vacuum or shop vacuum (larger machine range)
- Pressure washer (larger machine range)
- Ladder (larger machine range)
- Cleaner (e.g. Member's Mark Commercial Lemon Disinfectant)
- Sanitizer (e.g. Member's Mark Commercial Sanitizer)
- Cleaning brush set
- Plastic sheet or something similar to cover machine
- Safety goggles
- Disposable latex/rubber gloves
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

The Appropriate Workstation for the Machine

Find a stable workspace that supports the RBM™ Ribbon Blender's weight.

Machine Weight and Floor Loading (Static)		
RBM 300™	350 kg (771 lbs)	1.048 kN/m ²
RBM 500™	890 kg (1962 lbs)	7.026 kN/m ²
RBM 1000™	1290 kg (2844 lbs)	15.882 kN/m ²
RBM 3000™	2640 kg (5820 lbs)	63.844 kN/m ²

The machine's motor requires a power supply range of 1.5 kW-7.5 kW. Ensure to position the machine near an appropriate electrical plug.

Environmental Conditions

It is important that the environment in which you operate and store the RBM™ Ribbon Blender has the appropriate temperature and relative humidity levels. These two environmental factors can potentially cause the machine to rust and/or cause the blended materials to have a lower quality. The table below shows the acceptable temperature and relative humidity levels:

Machine	Temperature		Humidity
	°C	°F	
RBM™ Ribbon Blender	18-24	64-75	45-65% RH

READ BEFORE INSTALLATION:

Depending on local health and safety laws, the RBM™ Ribbon Blender may be required to be installed in a cage. A risk assessment is required to be conducted before installation and operation of the machine.

LFA Machines is able to advise on this. Please contact us for more information:

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Positioning the RBM™ Ribbon Blender

WARNING: To prevent personal injury, wear steel toe boots and heavy duty grip gloves while transporting the RBM™ Ribbon Blender.



LFA recommends carrying the machine with a forklift (or two). At least two people (four people for larger range) should be involved (one/two operating the forklift and one/two stabilizing the machine) in removing the machine from the shipping container and placing it in the workspace.

Moving the RBM™ Ribbon Blender (smaller machine range) with a Forklift

Tools and Materials Needed

- Forklift that is rated to lift at least 5,000 kg
- Lifting straps that are rated for at least 5,000 kg
- Spirit level
- Heavy duty grip gloves
- Steel toe boots

Instructions

1. Position the forks of a forklift truck above the machine and securely attach the lifting straps.
2. Feed and secure the lifting straps underneath the Mixing Tank.
3. Carefully lift the machine off the pallet so that it is suspended in the air by the lifting straps.
4. Lower the machine so that it is no more than 2-3 cm off the floor.
5. Position the machine in the desired location and carefully lower the machine.
6. Ensure that the machine is flat on the ground with a spirit level.
7. Plug the machine into the appropriate electrical outlet.

READ BEFORE INSTALLATION:

LFA Machines is able to advise on installation of the larger range of the machines. Please contact us for more information:

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support.asia@lfamachines.com

Moving the RBM™ Ribbon Blender (larger machine range) with Forklifts

Tools and Materials Needed

- Two forklifts that are rated to lift at least 5,000 kg
- Fork extensions for both forklifts
- Straps that are rated for at least 5,000 kg
- Spirit level
- Heavy duty grip gloves
- Steel toe boots

Instructions

1. Wrap the straps around the forklifts' forks.
2. Position the extended forks of the forklift trucks under each side of the machine and wrap the straps on the forks around both sides of the machine.
3. Carefully lift the machine off the pallet.
4. Lower the machine so that it is no more than 2-3 cm off the floor.
5. Position the machine in the desired location and carefully lower the machine.
6. Ensure that the machine is flat on the ground with a spirit level.
7. Remove the straps and plug the machine into the appropriate electrical outlet.

In accordance with Article 13 of the European Directive 2006/42/EC, LFA Machines sells the RBM™ as a partly finished machine, and it is meant to be installed into and function as a part in a production line.



After the installation of this machine, the following measures need to be taken:

- Shields must be installed in order to cover moving parts, those being in particular the Rotating Shaft and Ribbon Agitator.
- An emergency stop/emergency lockout/isolator switch must be installed on the outside of the machine.
- A risk assessment must be conducted on the entire production line.

If you require guidance on the installation of the machine or conducting a safety assessment, please contact LFA Machines.

Performing a Test Run After Installation

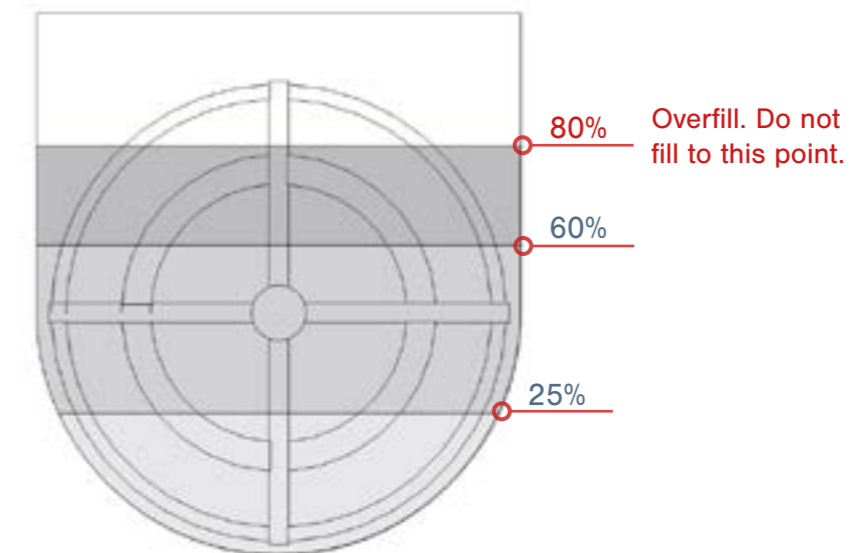
Tools and Materials Needed

- Materials to blend
- Safety goggles
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Ensure that the Discharge Chute is closed.
2. Plug in the machine and operate it without powder first by pressing the green ON button and Start button.
 - 2.1 Note: Watch for any abnormalities in the machine operation. Ensure that the ribbons do not make contact with the Mixing Tank.
3. Press the Stop button to halt operation.
4. Open the Mixing Tank's cover and gradually pour materials into it, beginning with 10% of the full volume.
5. Press the Start button to resume the test run.
6. Gradually increase the amount of material until it reaches 60% to 70% capacity of the Mixing Tank's volume.
 - 6.1 Note: Do not fill the Mixing Tank above 70% volume.



Electrical Controls

Basic Components



A description of the principal components follows:

- The **Mixing Tank** contains the materials that are blended.
- The **Ribbon Agitator** pushes the material from both ends of the Mixing Tank, resulting in the ingredients continuously flowing in different directions and blending.
- The **Rotating Shaft** moves, which causes the Ribbon Agitator to blend the materials.
- The **Control Panel** allows the user to make adjustments to the machine and turn operation on or off.
- The **Discharge Chute** releases the mixed ingredients via an air-powered valve.

Control Panel



1. Light that shows power is on
2. Rotate Mixing Tank in clockwise direction
3. Stop mixing
4. Rotate mixer in counterclockwise direction
5. Open Discharge Chute
6. Close Discharge Chute
7. Mixing Timer setting
8. Continuous mixing or timed mix

RBM™ Ribbon Blender Process

The basic mechanism of the RBM™ Ribbon Blender involves filling the Mixing Tank with ingredients, powering the machine to move the Rotating Shaft and Ribbon Agitator, and discharging the blended materials.

Filling the Mixing Tank with Materials and Blending Them

The materials are poured into the Mixing Tank. As the machine operates, the Rotating Shaft moves, which causes the Ribbon Agitator to rotate. During this process, powder is continuously moved in opposite directions and blended into a homogeneous product.



Discharging the Powder

After the ingredients are thoroughly mixed, the discharge valve at the bottom of the machine releases the mixed materials.

Fill Volumes

All machines in the RBM™ Ribbon Blender range work on fill volume, rather than maximum weight capacity of the Mixing Tank, because the weight of a powder mix can vary depending on its bulk density.

The maximum fill volume represents only a percentage of the total volume of the Mixing Tank and is dependent on the bulk density of the powder product.

Calculating Bulk Density

Tools and Materials Needed

- Raw material formulation
- Measuring apparatus (e.g. 1 liter cylinder)
- Scale

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Place the measuring apparatus onto the scale.
 - 1.1 Note: Ensure that the scale displays zero.
2. Fill the measuring apparatus with the raw material to the top.
 - 2.1 Note: Ensure not to tap down or disturb the material while it is being poured.
3. Record the weight of the material in mL.
4. Divide the weight of the material by the volume of the measuring apparatus in mL.

Resources for Calculating Bulk Density

To help with calculating bulk density of a material, LFA offers two resources on our website.

To watch a video on how to calculate the loose bulk density of a material, go to <https://www.lfatabletpresses.com/videos/calculating-bulk-density-making-a-tablet-pill-mix>

To see further information on bulk density and use our bulk density calculator, go to <https://www.lfatabletpresses.com/bulk-density-calculator>

How to Mix Materials with the RBM™ Ribbon Blender (smaller range)

Tools and Materials Needed

- Raw ingredients
- RBM™ Ribbon Blender
- Receptacle for mixed material
- Safety goggles
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

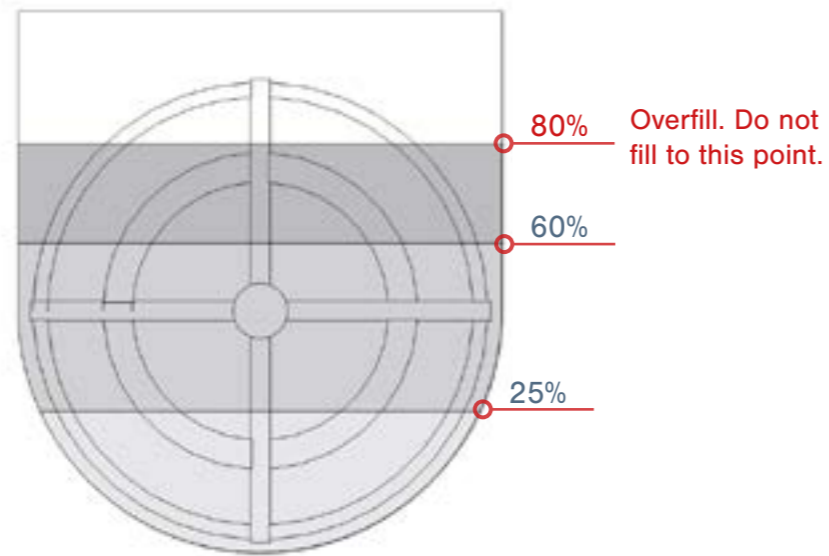


WARNING: For personal protection while operating the RBM™ Ribbon Blender, contain long hair and do not wear loose jewelry

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Ensure that the Discharge Chute is closed.
2. Open the Mixing Tank's cover by hand.
3. Pour the raw ingredients into the Mixing Tank.
 - 3.1 Note: Pour enough material to cover the Ribbon Agitator to get the best mixing results. Do NOT overfill the Mixing Tank. Fill up only to 70% capacity. See graphic below for further information regarding filling capacity percentages:



4. Close the Mixing Tank's cover.

5. Set the mixing time (minutes and seconds).
6. Turn the switch for timed mix.
7. Wait until the timer runs out or press the stop button to halt machine operation.
8. Place the receptacle for the mixed material underneath the Discharge Chute.
9. Press the discharge start button to open the Discharge Chute.
10. Press the discharge stop button to close the Discharge Chute.



Settings and Adjustment

The RBM™ Ribbon Blender's time settings can be adjusted.

Operation Time

Different materials require a specific amount of time in order to be thoroughly blended and mixed. The RBM™ Ribbon Blender has a timer on its control console that allows the machine's operation time to be adjusted.

Tools and Materials Needed

- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Input the mixing time (minutes and seconds).
2. Turn the switch to start operation.



Maintenance

To ensure that the RBM™ Ribbon Blender will have a long operational life, maintenance is essential. This section includes methods for troubleshooting solutions and how often to grease and clean your machine to keep its performance optimal.

General Maintenance Prescriptions

- Use the maintenance checklist (found in the Appendix) before, during, and after machine operation.
- Make sure all grease points are maintained and regularly lubricated.
- Use an appropriate amount of lubricant.
- After cleaning the machine, make sure that the parts are dried and oiled.
- Constantly check for any loose nuts and/or screws before, during, and after machine operation.

Lubrication

Regularly greasing your machine is vital to prolonging its operational life. Parts that are not greased properly can make the machine seize up and cause major problems later. LFA recommends maintaining a lubrication schedule for your RBM™ Ribbon Blender, which can be found in this section.

Tools and Materials Needed

- NLGI Grade 2 grease
- #20 machine oil or WA 460 oil
- Grease gun
- Metric wrench set
- 1/4 inch compression packing rope
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



WARNING: To prevent any potential personal injury, unplug the RBM™ Ribbon Blender from the electrical outlet.

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Open the machine's cabinets to reveal the Gearbox and bearings.

2. Open the oil inlet's cover on the Gearbox and if needed top up with #20 machine oil or WA 460 oil.



3. Grease the bearings on each end of the Rotating Shaft with a grease gun.



4. Grease the bearings on either side of the Discharge Chute with a grease gun.



5. Open the bolts on the seals on both sides of the Rotating Shaft with a metric wrench.









6. Open the seals and remove the old compression packing rope.

7. Insert the new compression packing rope into the seal.

8. Close and tighten each seal's bolts with a metric wrench.

Lubrication Schedule

LFA recommends the following RBM™ Ribbon Blender parts to be lubricated according to the following frequency:

Part	Location	Image	Frequency	Type of Lubricant
Gearbox	Oil inlet topped with cap on the Gearbox		Visually inspect and top up when dry. Check weekly or every 100 hours of use (whichever comes first).	#20 machine oil or WA 460 oil
Bearings (Rotating Shaft)	On each end of the Rotating Shaft		Every 100 hours/once per week.	NLGI Grade 2
				
Bearings (Discharge Chute)	On either side of the Discharge Chute		Every 100 hours/once per week.	NLGI Grade 2
				
Main Shaft Sealing Rope	On each end of the Rotating Shaft inside the seals		Whenever powder begins to leak from the main shaft	1/4 inch compression packing rope

Cleaning

After the RBM™ Ribbon Blender's operation, powder may accumulate in the Mixing Tank. It is important to clean the RBM™ Ribbon Blender thoroughly to prevent rusting and cross contamination.

LFA recommends that the machine be cleaned after each operation.

Tools and Materials Needed

- Cleaning brush (smaller machine range)
- Bagless vacuum (smaller machine range)
- Cleaner (e.g. Member's Mark Commercial Lemon Fresh Disinfectant)
- Sanitizer (e.g. Member's Mark Commercial Sanitizer)
- Potable water
- Clean cloths
- Shop vacuum (larger machine range)
- Pressure washer (larger machine range)
- Ladder (larger machine range)
- Disposable latex/rubber gloves
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



WARNING: To prevent any potential personal injury, ALWAYS unplug the RBM™ Ribbon Blender from the electrical outlet when replacing parts.

Instructions

Note: Wear safety goggles and latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

Clean the Machine (smaller machine range)

1. Remove all residual material from the machine's exterior with a bagless vacuum.
2. Open the machine's cover to reveal the interior of the Mixing Tank.
3. Vacuum the Mixing Tank's interior until all residual material is gone.



4. Clean the Mixing Tank's interior with a clean cloth, potable water, and cleaner.
 - 4.1 Note: Ensure to clean all sides of the Mixing Tank, as well as the Ribbon Agitator and Rotating Shaft.
5. Dry the Mixing Tank's interior with a clean cloth.
6. Open the Discharge Chute and clean it with a clean cloth, potable water, and cleaner.
7. Dry the Discharge Chute with a clean cloth.
8. Sanitize the Mixing Tank's interior and the Discharge Chute.

Clean the Machine (larger machine range)

1. Remove all residual material from the machine's exterior with a shop vacuum.
2. Use a ladder to access the top of the Mixing Tank.
3. Open both of the Mixing Tank's powder inlets.
4. Clean out the residual material inside the Mixing Tank with a shop vacuum.
 - 4.1 Note: Vacuum inside from both powder inlets.
5. Use a pressure washer to clean and expel any residual powder.

Cleaning Schedule Matrix

Part	Frequency							
	After installing machine	After every use	Before every use	In between products that present a cross contamination risk	Weekly	Monthly	Before placing in storage	After removing from storage
Mixing Tank (interior)	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine
Ribbon Agitator	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine
Mixing Tank (exterior) and Cover	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine
Cabinets (interior)	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine
Cabinets (exterior)	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine	Clean on machine

Cleaning Level Key	
Level 1 - Remove powder	
Level 2 - Dry clean with cloth	
Level 3 - Dry clean and re-lubricate if specified in lubrication schedule	
Level 4 - Wet clean and re-lubricate if specified in lubrication schedule	
Remove from machine - Take part out of machine and clean if required. Store it correctly or install back into machine.	
Install into machine - Install part into the machine and make sure that it has been cleaned. If needed, lubricate to the level required.	
Clean on/in machine - Clean the part while in the machine and do not remove it. Make sure that all contact surfaces are clean to the level required.	

This cleaning matrix is intended as a guide only and is not an exhaustive list. All cleaning schedules will need to be adapted to the industry and product, following industry regulations and the material safety data sheets that come with specific products. Please check with your Food Safety Manager/Department, Quality Control Manager/Department, or other relevant internal departments at your company before using.

Troubleshooting

Sometimes unavoidable issues will occur while operating the RBM™ Ribbon Blender. Fortunately, there are several methods to remedy these issues.

Common Machine Issues

Symptom	Possible Cause	Possible Solution
The Ribbon Agitator is blocked with ingredients	The powder's bulk density is too high.	Reduce the bulk density of the powder.
	The batch size of the ingredients is too much.	Reduce the amount of materials in the Mixing Tank (does not exceed 70% full).
The ingredients take too long to mix	The Mixing Tank is overfilled.	Reduce the amount of powder in the Mixing Tank (does not exceed 70% full).
	The sequence in which the ingredients are poured into the Mixing Tank is incorrect.	Ensure that the smaller ingredients are loaded in between larger ingredients.
There is damage to the product	The mixing time is too long.	Reduce the amount of mixing operation.
There is powder leaking from sides of Mixing Tank	The seals are worn.	Replace seals on the side of the Mixing Tank.
	The compression ropes in the seals are worn.	Replace the compression ropes inside the seals.
The Mixing Tank stops during operation	The batch size of the ingredients is too much.	Reduce the amount of powder in the Mixing Tank (does not exceed 70% full).

Storing the RBM™ Ribbon Blender

After its thorough cleaning, the RBM™ Ribbon Blender needs to be stored in the proper conditions. It is important to store it in an environment in which the machine is safe from rusting. The machine's high traction areas need to be lubricated before storing it.

Tools and Materials Needed

- Plastic wrapping to cover machine
- Lubricant/grease (NSF approved lubricant if machine has a high chance of contact with the food or drug product)
- Disposable latex/rubber gloves (for food grade products and to protect hands from lubricant)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

Lubricate the Rotating Shaft

Fill the Rotating Shaft's grease cup with the appropriate lubricant.

Lubricate the Gearbox

Check the Gearbox's oil level. If needed, fill with #20 machine oil or WA 460 oil.

Lubricate the Bearings

Apply grease to the rolling bearings on each side of the machine. Ensure that the grease covers up to 1/3 of the rolling bearings' cavities.

Cover the RBM™ Ribbon Blender

Carefully cover the RBM™ Ribbon Blender with the plastic wrapping. You can use the plastic wrapping that came with the machine in the shipping container.



Environmental Conditions

It is important that the environment in which you store the RBM™ Ribbon Blender has the appropriate temperature and relative humidity levels. These two environmental factors can potentially cause the machine to rust and/or cause the blended materials to have a lower quality. The table below shows the acceptable temperature and relative humidity levels:

Machine	Temperature		Humidity
	°C	°F	
	RBM™ Ribbon Blender	18-24	

Appendix

Glossary

Term	Definition
Bulk density	The weight of a volume unit of materials/powder.
GMP	Good manufacturing practice.
Ingredients/Materials	Raw formulation to be mixed in the machine.
RBM™	LFA trademarked term for ribbon blender mixer.
Ribbon Agitator	The ribbon-shaped stainless steel mixing blades inside the Mixing Tank.
Rotating Shaft	Shaft that supports the mixing blades and causes them to rotate and mix the materials.
Seals	Guards that are fixed at either end of the Rotating Shaft. They prevent not only foreign material from coming inside the Mixing Tank, but also the mixed materials from escaping.

Material of Contact Parts

Contact Part	Material
Mixing Tank	304 SS (316 SS on request)
Ribbon Agitator	304 SS (316 SS on request)
Rotating Shaft	304 SS (316 SS on request)

Technical Specifications

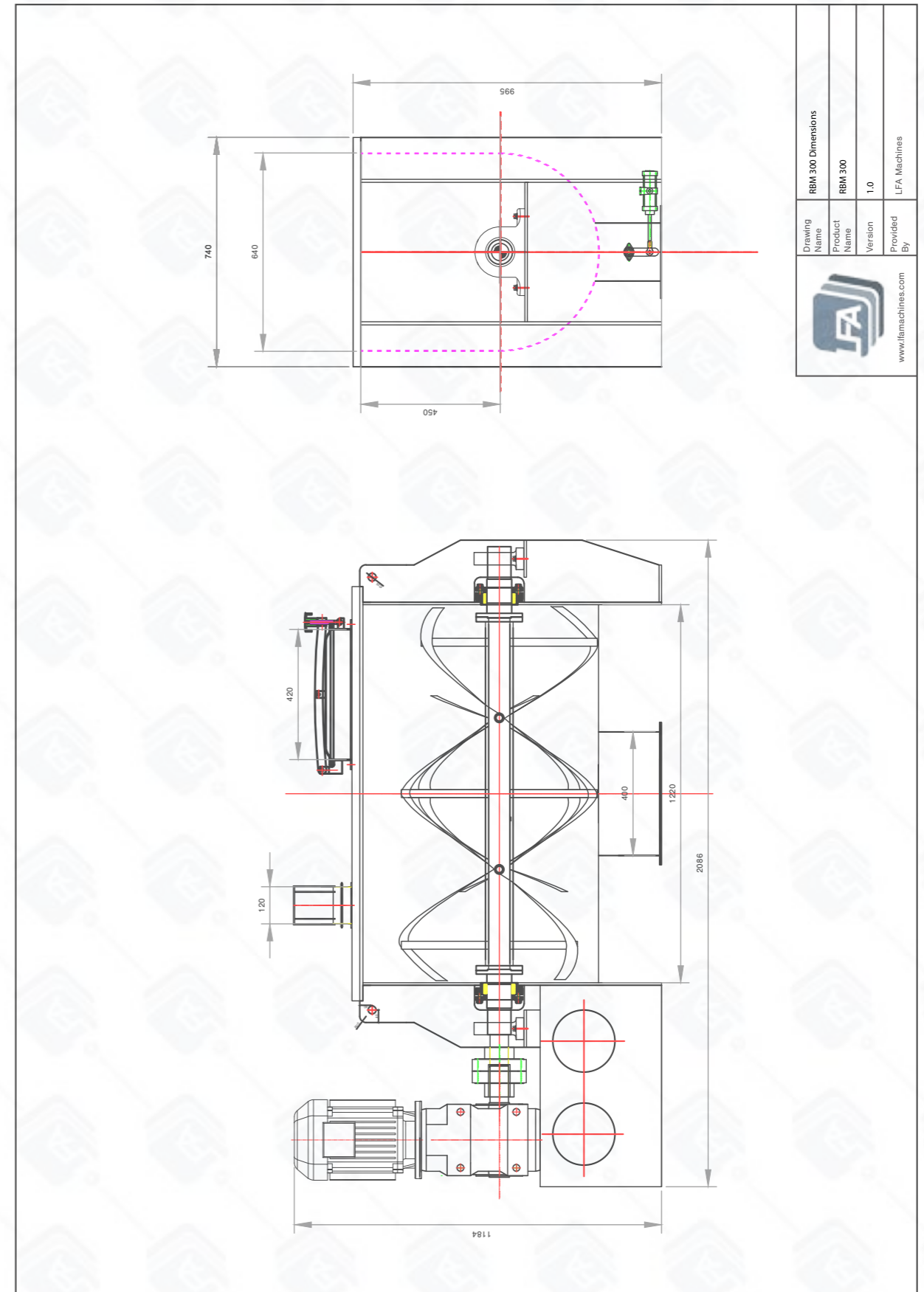
Model	RBM 300	RBM 500	RBM 1000	RBM 3000
Mixing cabinet capacity (L)	300	500	1000	3000
Approximate capacity	180 kg / 396 lbs	140 kg / 308 lbs	400 kg / 881 lbs	1,400 kg / 3086 lbs
Stirring paddle diameter (mm)	540	700	815	1190
Stirring revolutions per min	52	24	52	35
Motor power (kW)	4	7.5	11	22
Voltage (V)	440 / 220	440 / 220	440 / 220	440 / 220
Dimensions (mm)	1920 x 660 x 900	2280 x 700 x 1150	2828 x 930 x 1350	3900 x 1370 x 1800
Dimensions with suggested working clearance (mm)	2820 x 1560 x 1800	3180 x 1600 x 2050	3728 x 1830 x 2250	4800 x 2270 x 2700
Weight	350 kg / 771 lbs	1500 kg / 3307 lbs	1290 kg / 2844 lbs	2640 kg / 5820 lbs

Maintenance Checklist

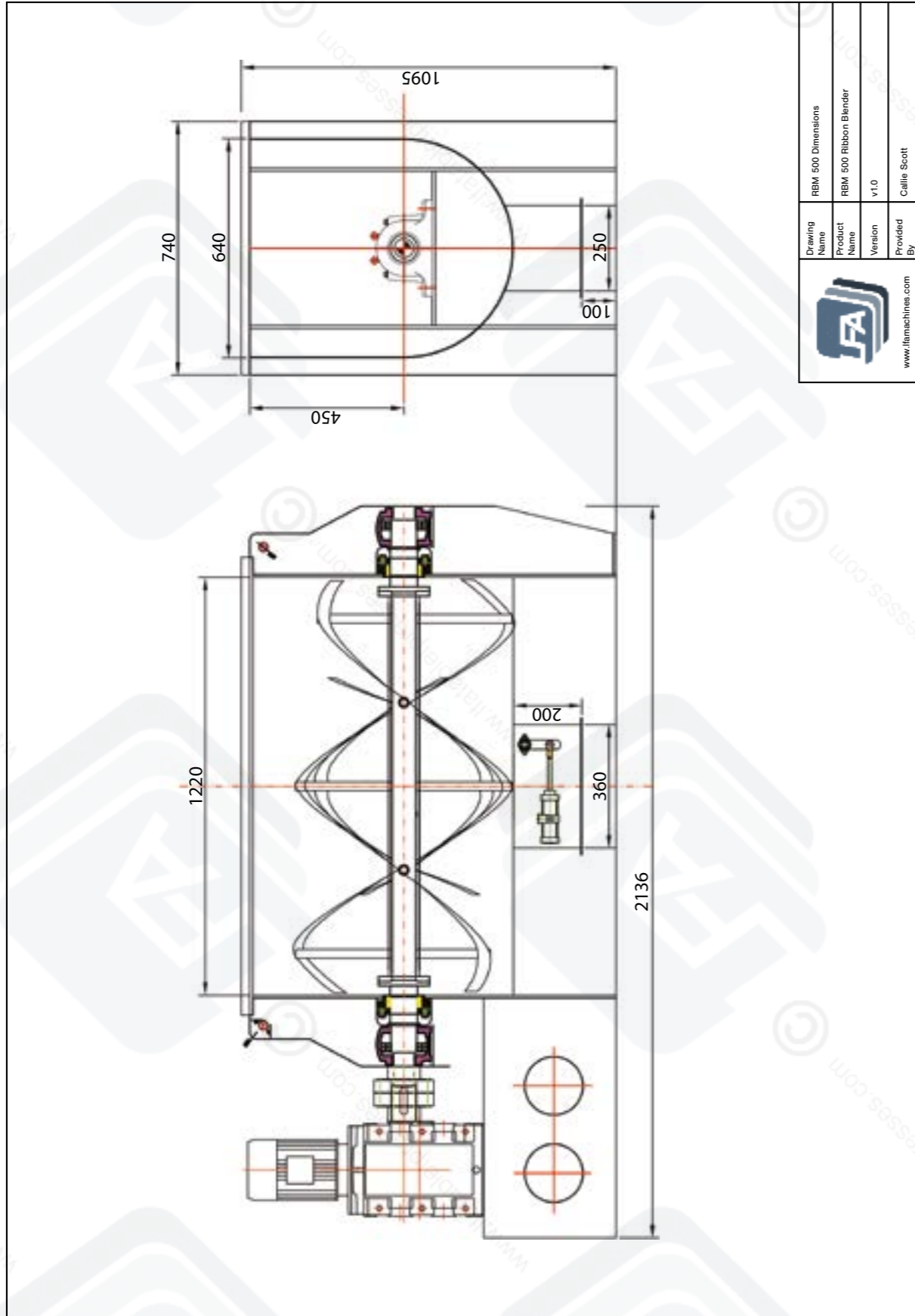
Before Operation	
<input type="checkbox"/>	Ensure all seals, nuts, and bolts are tight.
<input type="checkbox"/>	Ensure that the Gearbox has enough oil.
<input type="checkbox"/>	Ensure that the cabinet doors are shut and locked.
During Operation	
<input type="checkbox"/>	Watch out for excessive vibration or noise coming from the Mixing Tank and ensure that the Ribbon Agitator and Rotating Shaft are in alignment.
<input type="checkbox"/>	Ensure that no powder leaks from the sides of the Mixing Tank due to weak seals.
After Operation	
<input type="checkbox"/>	Unplug machine and remove all excess powder with a bagless vacuum.
<input type="checkbox"/>	Clean the inside of the Mixing Tank and the Ribbon Agitator and Rotating Shaft.
<input type="checkbox"/>	Wipe down the other surfaces with a damp cloth.
<input type="checkbox"/>	Check the oil level in the Gearbox.
<input type="checkbox"/>	Ensure all seals, nuts, and bolts are tight.
<input type="checkbox"/>	Ensure that the Ribbon Agitator and Rotating Shaft are in alignment.

Diagrams

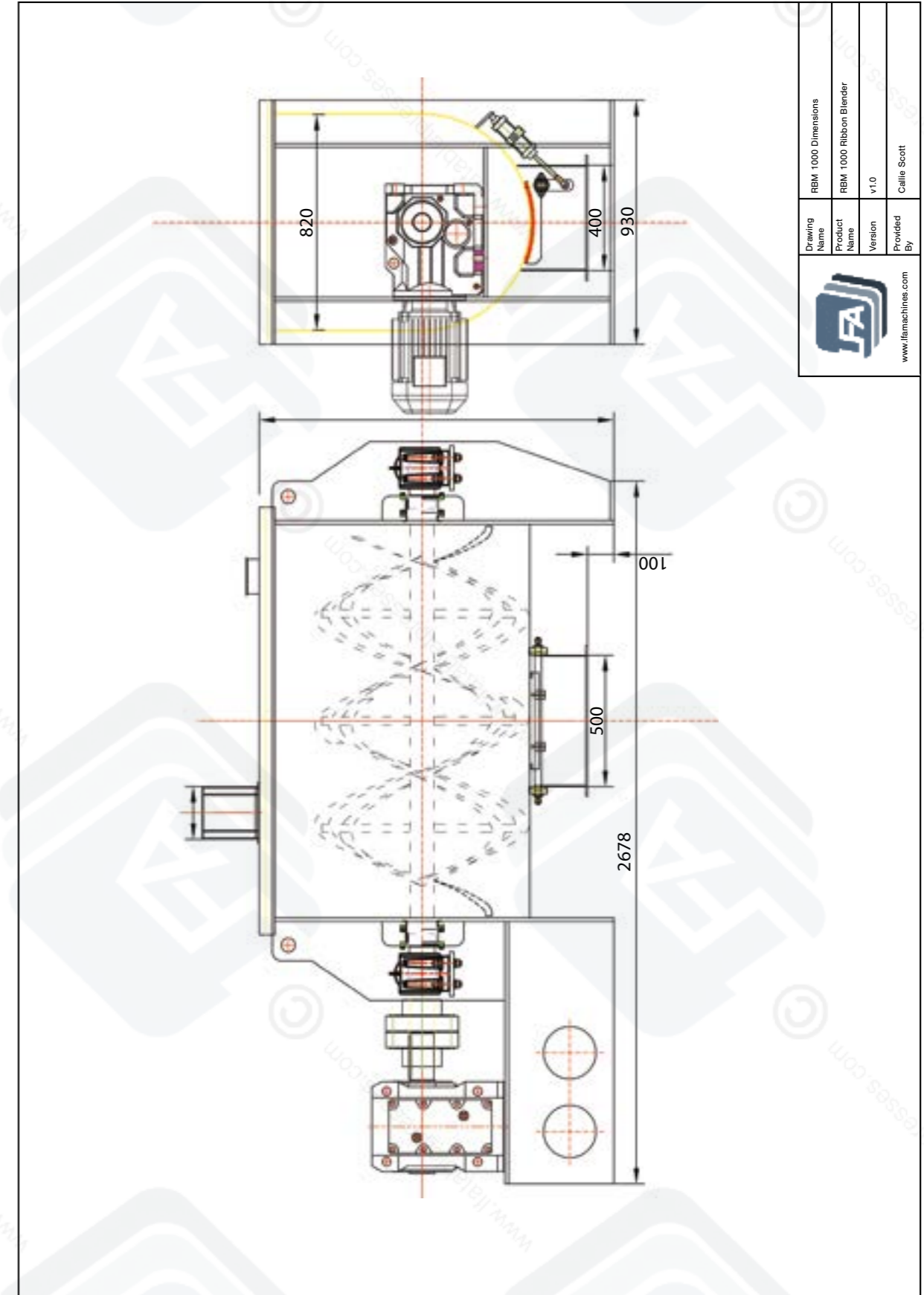
RBM™ 300 Dimensions



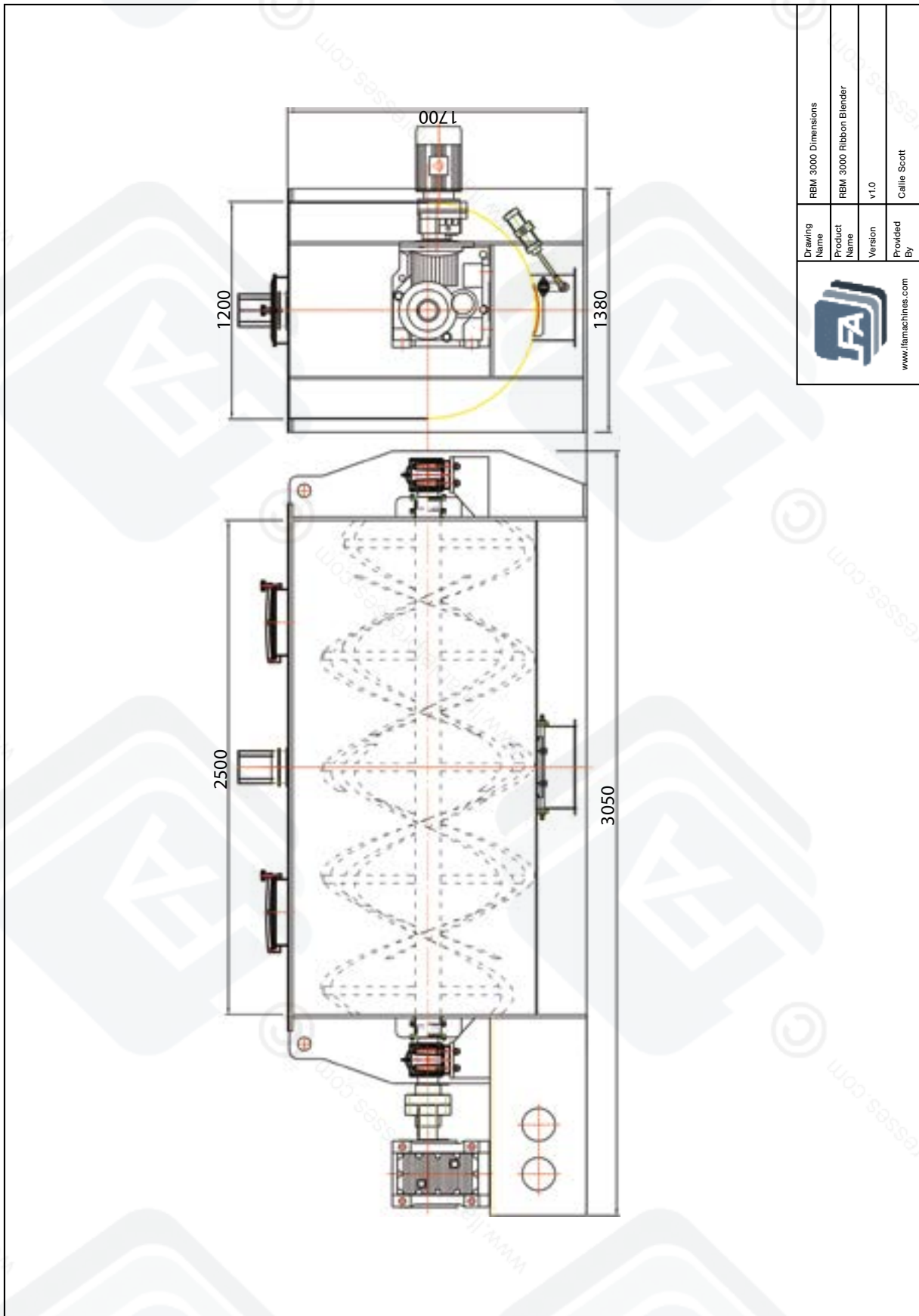
RBM™ 500 Dimensions




RBM™ 1000 Dimensions

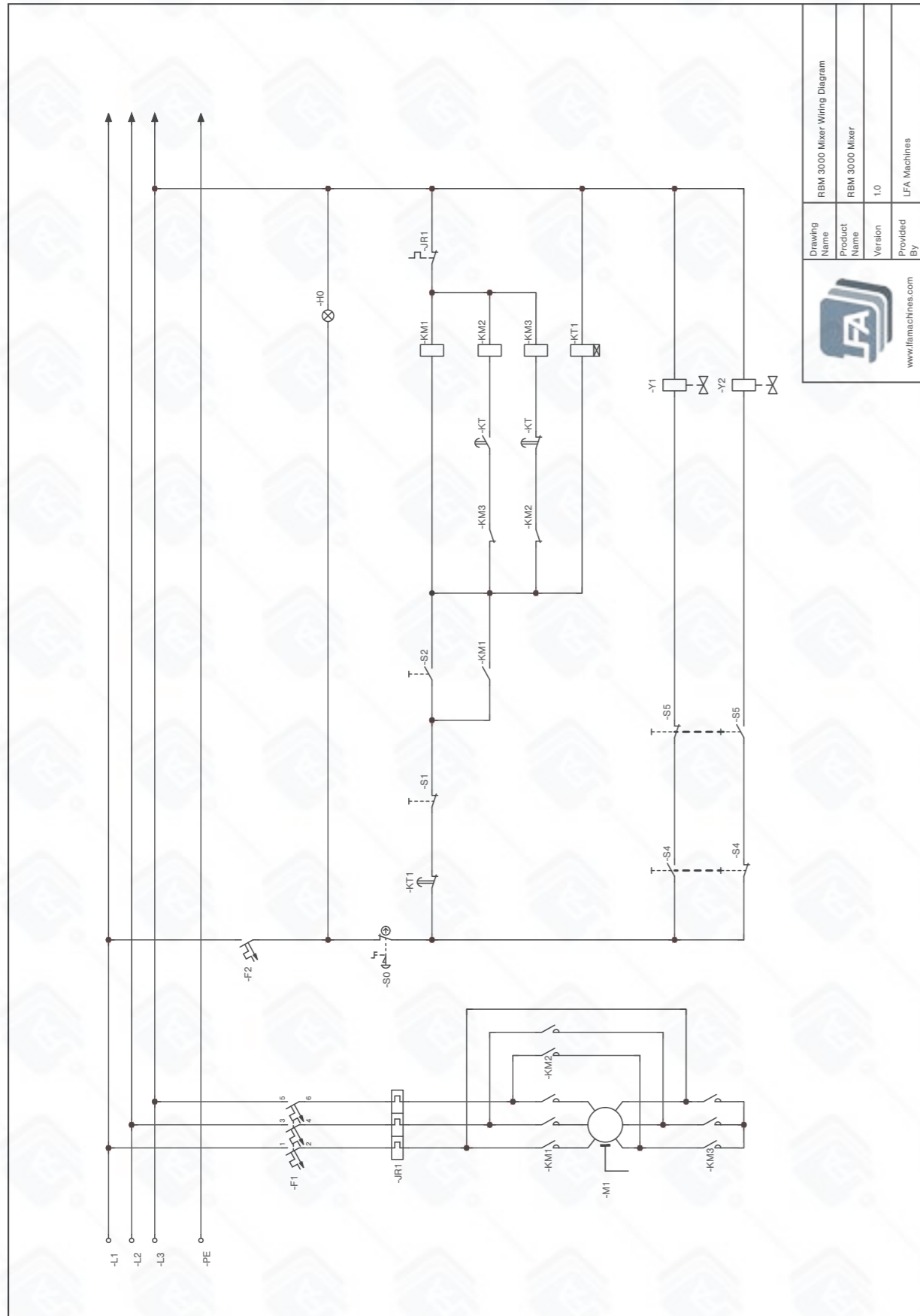


RBM™ 3000 Dimensions



 www.famachines.com	Drawing Name RBM 3000 Dimensions
	Product Name RBM 3000 Ribbon Blender
Version v1.0	Provided By Calle Scott

RBM™ 3000 Wiring Diagram



Resources

Helpful Links

Warranty

For information regarding the warranty policy of the RBM™ Ribbon Blender and other LFA products, please visit <https://www.lfatabletpresses.com/warranty>

LFA Website

In order to aid you in your mixing production, LFA Machines maintains a website that offers a breadth of useful information about the RBM™ Ribbon Blender and other mixers.

Visit the LFA homepage at <https://www.lfatabletpresses.com>

LFA Machines YouTube Channel

Our YouTube videos provide you an opportunity to see how to use our mixers, common troubleshooting tips, and other LFA products such as capsule fillers and tablet presses. We regularly upload videos to give you a visual aid that will hopefully support you in your production efforts. To watch our videos, please visit <https://www.youtube.com/channel/UCwtbcwja77ai7vX2o34FUkQ>

LFA Machines Social Media

Social media is a great way to keep yourself updated on new developments and exciting things happening at LFA Machines. The list below contains our current social media pages:

Twitter: @lfatabletpress

Instagram: @lfatabletpresses

Facebook: <https://www.facebook.com/lfatabletpresses>

LinkedIn: <https://www.linkedin.com/company/lfa-machines-oxford-ltd/>

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