



# RICE DE-HUSKER SEMA H100

User Manual

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# **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the Rice Huller H100 V4.0. The machine aims at removing the husk layer from paddy by passing it twice between rubber rollers operated in opposite directions.

#### 1.1 General

Manufacturer	Alto Precision
Model no.	H100 V4.0
Rated capacity	100 kg/hr
Total net weight	62 kg
Dimensions	2'.0" * 3'.0" * 4'.0"
Hulling Efficiency	@ 75 kg/hr > 95%

#### 1.3 Main Drive

Main drive	Pulleys
Number of belts	1
Size of belt	AX68*1760
Belt tightening	Adjustable tensioner

#### **1.2 Power Unit**

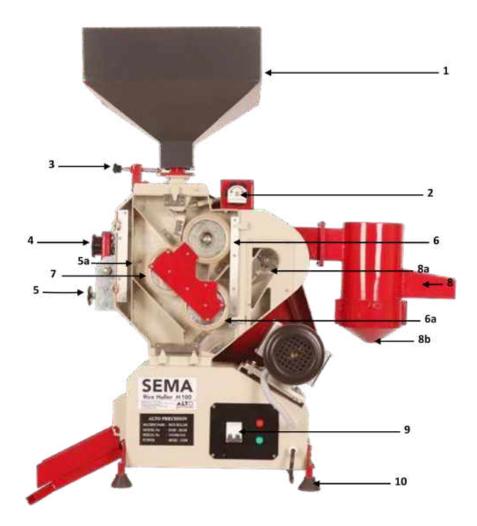
#### **1.4 Feed Arrangement**

Prime mover	220V AC motor	Hopper capacity	20 kg
Power rating	0.5 HP	Flow control	Adjustable knob
Recommended speed	1500 RPM	Feed control	Shutter

#### **1.5 Other Arrangements**

- An inspection window is provided as well as back guards for safe usage of the machine.
- Rubber rollers limit the amount of breakage and allow Head Yield Rice to reach up to 98%.
- A single gap adjustable knob makes the machine easily adaptable to different varieties of paddy.
- H100 V4.0 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.

# 2. Part List



1	Hopper
2	Flow Control
3	Feed Gate
4	Horizontal Gap Adjustment Knob
5	Vertical Gap Adjustment Knob
5a	Vertical Gap Adjustment Lock
6	Fixed Roller
6a	Fixed Roller
7	Adjustable Roller
8	Cyclone Aspirator
8a	Blower Plate
8b	Broken Rice Chamber
9	МСВ
10	Rubber Foot

# 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Feeler gauge
5	1	Ring spanner

# 3. Installation

# **3.1 Installation Procedure**

- As set-up considerations, a leveled floor (pedestal or table) is required for optimum efficiency of the machine. The pedestal and table should be fixed and not undergo shaking under operation.
- Remove the top panel of the wood box.
- Remove bottom bolts to unpack the machine.
- Mount the rubber feet in order to adjust the final leveling of the machine.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect the 3 pin plug to the 220V Standard Socket.
- Wait for the power light signal.
- Close the door.
- Switch on.

# 3.2 Observations At No Load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the huller
  - Heating on window and motor
  - Belt slippage
  - Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

# 4. Operation

# 4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

#### 4.2 Adjust the gap

The gap between rollers is a critical parameter. For an efficient use of the machine, the gap must be adjusted to 30% of the average thickness of the used paddy variety. H100 V4 offers the possibility to adjust the gap through the horizontal gap knob between 0.3 to 0.8 mm, making it readily available to all kinds of paddy.

Recommended gap adjustment is around the 30% value of paddy thickness. Gap



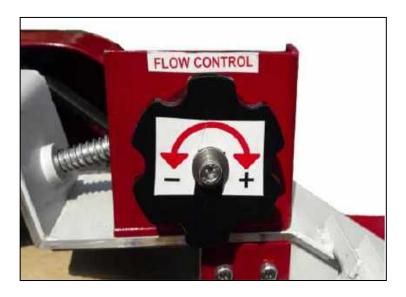
should be adjusted using the feeler gauge (0.3-0.5 for small grain rice and 0.5-0.8 for medium and long grain rice).

#### 4.3 Switch on the Machine

4.4 Put Paddy into the Hopper for optimum hulling, paddy moisture should be maintained at 12-14%.

#### 4.5 Adjust the flow rate

Turn the flow rate knob clockwise to maximum and open the feed gate and allow paddy to flow. Observe hulling efficiency. Turn the flow rate knob anti-clockwise to reduce the flow until desired hulling efficiency is achieved.



4.6 Switch off the machine after 10 minutes and open the broken rice chamber. If excess whole rice is observed in the chamber, decrease the blow by moving the blower plate upwards.

# **5. Best Practice**

- Paddy should be at 14% moisture content.
- Paddy must be free from impurities (large stones, weeds...).
- Remove any grains present between the rollers.
- Adjust the gap to 0.8mm and reduce it until you get the desired efficiency.
- Keep the feed gate fully open to ensure that rollers get uniformly worn out.
- Feed gate opener must be fully closed before starting and stopping the machine.
- Machine must not start or stop with the rollers engaged.
- Machine should be cleaned every day after operation.

# 6. Troubleshooting and Maintenance

#### 6.1 High Amount Of Unhulled Paddy

A low hulling efficiency can be caused by :

- An Incorrect Gap Between Rollers Vary the gap from 0.3 to 0.8 mm using the feeler gauge, set gap to 0.8 mm and turn the horizontal gap adjuster with a 0.1 mm incrementation until you get the best efficiency. Ensure gap between fixed roller (6) and adjustable roller (7) and gap between fixed roller (6a) and (7) is even (+/- 0.1mm)
- 2. Uneven Gap In case of uneven gap, using the ring spanner provided, turn vertical gap adjustment counter-clockwise once slightly, and adjust roller vertically by turning the vertical gap adjustment knob clockwise and anti-clockwise until an even gap is achieved. Once both gaps are even, turn the vertical gap adjustment knob clockwise and ensure it is fastened and tightened.
- 3. Worn Out Rollers Observe the rollers. If rubber thickness is < 2mm, then replace the rollers.

#### 6.2 Poor Husk Aspiration

In case of poor husk aspiration, i.e. husk coming to the rice output, the fan suction power is limited. Open the door and increase the aspiration by elongating the bottom blow adjustment plate. This is done by unscrewing the movable plate with an allen key and pulling the plate down. In case this adjustment is not enough, open the fan shutter.

#### 6.3 Extra Husk Aspiration

In the opposite scenario where too much rice is getting aspirated, pull the same movable plate up.

#### 6.4 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season.

# Appendix A: Testing report

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and gap)	
Power requirements (at load and at no load)	
Hulling efficiency and rated capacity	
Any marked observations affecting performances	
Any major breakdown	

Approved by : Engineer

Testing





# PADDY PRE-CLEANER SEMA PC250 User Manual

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# **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the PRE-CLEANER PC-250. The machine aims at removing immature husk, large stones, twigs, glass and sand from paddy by passing it through a Husk Aspirator and recoating perforated sieves of different sizes.

# **1.1 General**

Manufacturer	Alto Precision
Model no.	PC250 V2
Rated capacity	150-250 kg/hr.
Total net weight	122 kg
Dimensions	2'.0" * 5'.0" * 5'.0"

# **1.3 Main Drive**

Main drive	Pulleys
Number of belts	1
Size of belt 1	AX50*1300
Size of belt 2	AX51*1330
Belt tightening	Adjustable tensioner

# **1.2 Power Unit**

Prime mover	415/220V AC motor
Power rating	0.5 HP
Recommended speed	1500 RPM

# **1.4 Feed Arrangement**

Flow control:	Adjustable knob
Aspiration/ Reciprocation:	VFD
Flow control:	Adjustable knob

# **1.5 Other Arrangements**

- An inspection window is provided as well as back guards for safe usage of the machine.
- An adjustable tray is provided for adjusting tilt angle.
- Perforated sieves of various sizes allow practical segregation of impurities and paddy.
- A Husk aspirator is provided for segregation of lighter impurities i.e., husk, dust and immature paddy.
- PC 250 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.

# **1.6 Available Screen Sizes:**

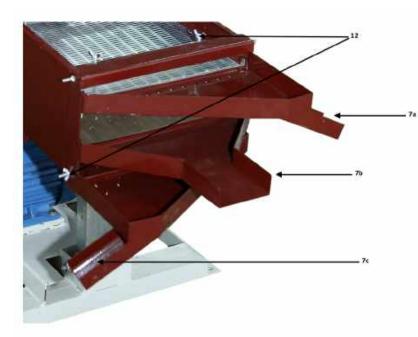
Туре	Dimension
Oblong	2*15mm
Oblong	3*15mm
Oblong	3*20mm
Oblong	3*12mm

Туре	Diameter
Hole	4mm
Hole	3.5mm
Hole	3mm
Hole	2.8mm
Hole	2.5mm
Hole	2.2mm
Hole	2mm
Hole	1.5mm
Hole	1mm

# 2. Part List



1	Hopper	
2	Feed Gate	
3	Flow Control	
4	Reciprocating Tray	
5	МСВ	
6	Variable Frequency Drive	
7a	Exit chute Large impurities	
7b	Exit chute Cleaned paddy	
7c	Exit chute Fine Impurities	
8	Husk Aspirator- immature paddy	
9	Tilt Angle Adjusting Screw	
10	Motor	
11	Dust Collection Pipe	
12	Wing nuts	





# 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Ring spanner
5	4	Anchor Bolts

# 3. Installation

# **3.1 Installation Procedure**

- As set-up considerations, a leveled concrete floor/ platform measuring 2ft \* 2ft is required.
- Remove bottom bolts to unpack the machine.
- Bolt firmly onto the cement platform/ concrete floor using the provided anchor bolts and make sure the machine is level.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect plugs.
- Wait for the power light signal.
- Close the door.
- Switch on.

# 3.2 Observations at No Load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the huller
  - Heating on window and motor
  - Belt slippage
  - Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

# 4. Operation

4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Put Un-cleaned Paddy into the Hopper.

4.3 Switch On the Machine.

4.4 Ensure the frequency is set at 25 Hz by rotating the Knob on the variable frequency drive.

4.5 Open the feed gate and allow the paddy to flow.

4.6 Turn the Flow rate control knob counterclockwise to maximum.

#### 4.6 Observe the following outcomes :

- Quantity of cleaned Paddy coming in Exit chute (7b).
- Quantity of cleaned paddy and large impurities in Exit chute (7a).
- Immature paddy in husk aspirator.

The goal is to achieve maximum quantity of cleaned paddy and minimum mixture of large impurities, husk and immature paddy in exit chute (7b).

4.7 Reduce the flow rate until the output of cleaned paddy is satisfactory and rejection is at a minimum.

4.8 After the entire batch is cleaned, recirculate the mixture of large impurities and cleaned paddy till desired output is achieved.

# **5.1 Sieve Selection**

- In order for optimum cleaning, the top and bottom sieve must be selected carefully.
- Ensure that the top oblong sieve selected is both thicker and longer than the required cleaned paddy.
- Ensure that the bottom sieve selected is smaller than <sup>2</sup>/<sub>3</sub> of the length of the paddy (usually 1 mm and 1.5mm would be ideal).

# **5.2 Sieve Replacement**

- Unscrew wing nuts (12) and remove the top/ bottom sieve by sliding it out.
- Slide the desired size into the reciprocating tray and fasten the exit chute tightly, ensure no gaps or leakage is observed.

# 6. Troubleshooting And Maintenance

#### 6.1 High Amount Of Immature Paddy With Cleaned Paddy

This can be can be because of :

- 1. High Flow Rate Reduce flow rate by turning the flow control knob clockwise.
- 2. Low Air Pressure Increase the frequency (6) marginally until the required inclusion is at a minimum or is satifactory.

#### 6.2 High Amount Of Cleaned Paddy With Large Impurities

• This can be avoided by decreasing the tilt angle. Unlock the tilt angle adjustment screw and reduce the angle of the reciprocating tray. This allows the paddy to remain for a longer time on the tray for finer cleaning.

#### 6.3 High Amount Of Whole Paddy In Aspirator

1. Decrease the frequency (6) marginally until the required inclusion is at a minimum or is satifactory.

#### 6.4 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season, in case of any knocking sound or clattering noise, call a trained technician or your nearest dealer.

# Appendix A: Testing report

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and frequency )	
Power requirements (at load and at no load)	
Any marked observations affecting performances	
Any major breakdown	

Approved by :

Testing Engineer





# RICE SEMI-POLISHER SEMA SP100

User Manual

# **Table of Contents**

<b>ce</b>

# **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the Semi Polisher SEMA SP100. The machine aims at removing the outer bran layer from paddy or husked paddy (brown rice) by rubbing the grains against each other and against a stainless steel impeller surrounded by a perforated screen.

#### 1.1 General

Manufacturer	Alto Precision
Model no.	SP100
Rated capacity	100 kg/hr
Total net weight	57 kg
Dimensions	1'.0" * 1'.75" * 1'.11"

#### 1.3 Main Drive

Main drive	Pulleys
Number of belts	1
Size of belt	BX40*1060mm
Polishing level	<5%

#### 1.2 Power Unit

#### **1.4 Feed Arrangement**

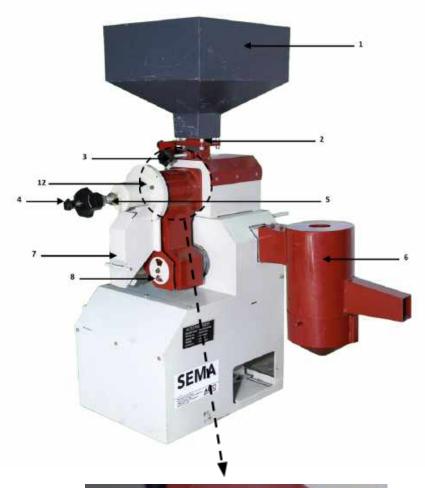
Prime mover	220V AC motor	Hopper capac
Power rating	2.0 HP	Flow contro
Recommended speed	1500 RPM	Feed contro

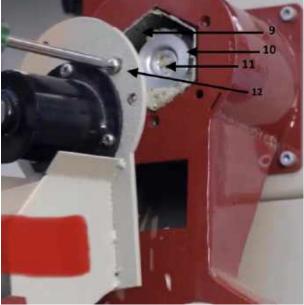
Hopper capacity	20 kg
Flow control	Adjustable knob
Feed control	Shutter

#### **1.5 Other Arrangements**

- SEMA SP100 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.
- A stainless steel impeller and perforated mesh is provided for long life and efficient steel friction polishing.

# 2. Part List





1	Hopper
2	Feed Gate
3	Flow Control
4	Pressure Control Knob
5	Lock Nut
6	Bran Aspirator
7	Rice Exit Chute
8	Air Pressure Inlet
9	Polishing Gap
10	Perforated Mesh
11	Impeller
12	Star Head Screw

# 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Feeler gauge
5	1	Ring spanner

# 3. Installation

# **3.1 Installation Procedure**

- As set-up considerations, a leveled floor (pedestal or table) is required for optimum efficiency of the machine. The pedestal and table should be fixed and not undergo shaking under operation.
- Remove the top panel of the wood box.
- Remove bottom bolts to unpack the machine.
- Mount the rubber feet in order to adjust the final leveling of the machine.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect the 3 pin plug to the 220V Standard Socket.
- Wait for the power light signal.
- Switch on.

# 3.2 Observations At No Load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the huller
  - Heating on window and motor
  - Belt slippage
  - Vibration in fan
  - $\circ$   $\;$  Unusual wear or slackness in components  $\;$
- Observation of any of the above statements should be recorded and information must be given to support service.

# 4. Operation

4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Put paddy/ unpolished rice in the hopper for optimum polishing. Paddy moisture should be maintained at 12-14%.

4.3 Switch on the machine.

4.5 Open the feedgate and allow the rice to flow through the polishing chamber for 15 to 20 seconds and then check the output.

4.6 Adjust pressure by turning the pressure control knob (4) clockwise or anti-clockwise till desired polishing level is achieved.

# 5. Best Practice

- Rice should be at 14% moisture content.
- Rice must be free from impurities (large stones, weeds...).
- Adjust the minimum pressure and maxim flow rate and repeat for multiple passes to curb milling losses.
- Perforated mesh (10) should be opened and cleaned everyday after operation.

# 6. Troubleshooting And Maintenance

#### 6.1 High Amount Of Broken Rice

BROKEN RICE (  $< \frac{2}{3}$  of length of Rice) is caused by the following :

- 1. The grain quality, improper drying and aging, processing at very low or very high moisture content. Incase of the following please follow ideal grain management or contact our team for assistance.
- 2. Uneven Gap In case of uneven gap between impeller (11) and perforated mesh (10), this can be corrected by ensuring the gap remains at 1.5 times the length of the grain evenly all around the impeller.
- 3. Excess Pressure In Chamber :
  - a. The polishing level is determined by the amount of pressure exerted on the grain. By tightening the pressure control knob, an optimum pressure should be maintained which compromises between the polishing level and broken rice.
  - b. Excess pressure could also be caused by impurities, stones, other foreign/ objects in the polishing chamber. Open the chamber and clean thoroughly to avoid this.

#### 6.2 Poor Bran Aspiration

In case of poor bran aspiration, i.e. bran coming to the rice output, the fan suction power is limited. This is done by unscrewing the air pressure inlet plate and turning it clockwise or anti-clockwise with an allen key.

#### 6.3 Uneven Polishing

This is caused when the pressure in the chamber changes during polishing. Replace the spring in the pressure control knob assembly at regular intervals.

#### 6.4 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season.

# **Appendix A: Testing report**

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and gap)	
Power requirements (at load and at no load)	
Gross Rice Recovery	
Net Rice recovery	
% of Broken observed	
Any marked observations affecting performances	
Any major breakdown	

Approved by : Engineer Testing





# RICE FULL-POLISHER SEMA FP100

User Manual

# **Table of Contents**

<b>ce</b>

# **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the Full Polisher SEMA FP100. The machine aims at removing the outer bran layer from paddy or husked paddy (brown rice) by rubbing the grains against each other and against a stainless steel impeller surrounded by a perforated screen.

#### 1.1 General

Manufacturer	Alto Precision
Model no.	FP100
Rated capacity	100 kg/hr
Total net weight	88 kg
Dimensions	4'.0" * 2'.0" * 3'.6"

#### 1.3 Main Drive

Main drive	Pulleys
Number of belts	2
Size of belt 1	BX41*1080mm
Size of belt 2	BX41*1080mm
Polishing level	<14%

#### 1.2 Power Unit

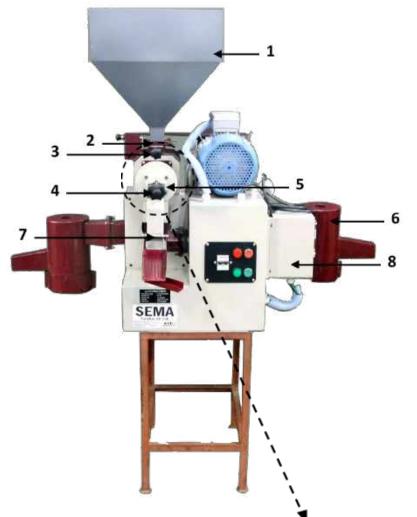
#### **1.4 Feed Arrangement**

Prime mover	220V AC motor	Hopper capacity	20 kg
Power rating	3.0 HP	Flow control	Adjustable knob
Recommended speed	1500 RPM	Feed control	Shutter

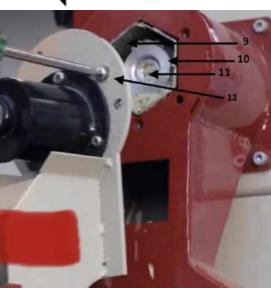
#### **1.5 Other Arrangements**

- SEMA FP100 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.
- Stainless steel impeller and perforated mesh is provided for long life and efficient steel friction polishing.
- Two blowers are provided for efficient bran removal and a shiny finish onto the rice grains.

# 2. Part List



1	Hopper
2	Feed Gate
3	Flow Control
4	Pressure Control Knob
5	Lock Nut
6	Bran Aspirator
7	Rice Exit Chute
8	Variable Frequency Drive
9	Polishing Gap
10	Perforated Mesh
11	Impeller
12	Star Head Screw



# 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Feeler gauge
5	1	Ring spanner

# 3. Installation

# **3.1 Installation Procedure**

- As set-up considerations, a leveled floor (pedestal or table) is required for optimum efficiency of the machine. The pedestal and table should be fixed and not undergo shaking under operation.
- Remove the top panel of the wood box.
- Remove bottom bolts to unpack the machine.
- Mount the rubber feet in order to adjust the final leveling of the machine.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect the 3 pin plug to the 220V Standard Socket.
- Wait for the power light signal.
- Switch on.

# 3.2 Observations at no load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the huller
  - Heating on window and motor
  - Belt slippage
  - $\circ$  Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

# 4. Operation

4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Put paddy / unpolished rice in the hopper for optimum polishing, paddy moisture should be maintained at 12-14%.

4.3 Switch on the machine.

4.5 Open the feedgate and allow the rice to flow through the polishing chamber for 15 to 20 seconds to check the output.

4.6 Adjust pressure by turning the pressure control knob (4) clockwise or anti-clockwise till desired polishing level is achieved.

# 5. Best practice

- Rice should be at 14% moisture content.
- Machine should be used in conjunction with the semi-polisher for optimum output.
- Rice must be free from impurities (large stones, weeds...).
- Adjust the minimum pressure and maxim flow rate and repeat for multiple passes to curb milling losses.
- Perforated mesh (10) should be opened and cleaned everyday after operation.

# 6. Troubleshooting and maintenance

#### 6.1 High Amount of Broken Rice

BROKEN RICE (  $< \frac{2}{3}$  of length of Rice) is caused by the following :

- 1. The grain quality, improper drying and aging, processing at very low or very high moisture content. Incase of the following please follow ideal grain management or contact our team for assistance.
- 2. Uneven Gap In case of uneven gap between impeller (11) and perforated mesh (10), this can be corrected by ensuring the gap remains at 1.5 times the length of the grain evenly all around the impeller.
- 3. Excess Pressure In Chamber :
  - a. The polishing level is determined by the amount of pressure exerted on the grain by tightening the pressure control knob and optimum pressure should be maintained which compromises between the polishing level and broken rice.
  - b. Excess pressure could also be caused by impurities, stones, other foreign/ objects, the polishing chamber, open the chamber and clean thoroughly to avoid this.
- 4. Excess Speed Reduce the speed by altering the frequency of the variable frequency drive (8). 25 hz is for best polishing.

#### 6.2 Poor Bran Aspiration

In case of poor bran aspiration, i.e. bran coming to the rice output, the fan suction power is limited. This is done by unscrewing the air pressure inlet plate and turning it clockwise or anti-clockwise with an allen key.

#### 6.3 Uneven Polishing

This is caused when the pressure in the chamber changes during polishing. Replace the spring in the pressure control knob assembly at regular intervals.

#### 6.4 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season.

# **Appendix A: Testing report**

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and gap)	
Power requirements (at load and at no load)	
Gross Rice Recovery	
Net Rice recovery	
% of Broken observed	
Any marked observations affecting performances	
Any major breakdown	

Approved by : Engineer Testing

# ALT() precision



# RICE GRADER SEMA G180

User Manual

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# **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the Grader G180. The machine aims at grading whole rice, half rice and broken rice from a mixture of the three.

# **1.1 General**

Manufacturer	Alto Precision
Model no.	G180
Rated capacity	150-180 kg/hr.
Total net weight	95 kg
Dimensions	2'.0" * 5'.0" * 4'.0"

# **1.3 Main Drive**

Main drive	Pulleys
Number of belts	1
Size of belt	AX50*1300
Belt tightening	Adjustable tensioner

# **1.2 Power Unit**

Prime mover	415/220V AC motor
Power rating	0.5 HP
Recommended speed	1500 RPM

# **1.4 Feed Arrangement**

Flow control:	Adjustable knob
Aspiration/ Reciprocation:	VFD
Flow control:	Adjustable knob

# **1.5 Other Arrangements**

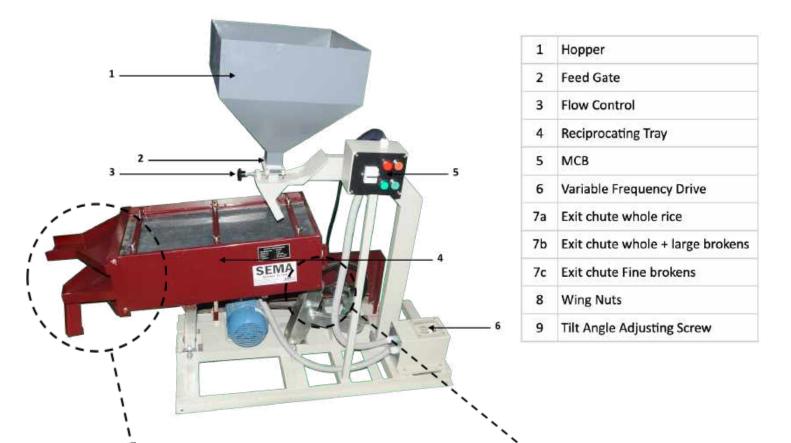
- An adjustable tray is provided for adjusting tilt angle.
- Perforated sieves of various sizes allow a practical segregation of impurities and paddy.
- G180 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.

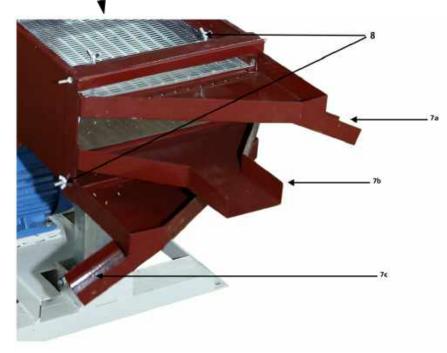
## **1.6 Available Screen Sizes:**

Туре	Dimension
Oblong	2*15mm
Oblong	3*15mm
Oblong	3*20mm
Oblong	3*12mm

Туре	Diameter
Hole	4mm
Hole	3.5mm
Hole	3mm
Hole	2.8mm
Hole	2.5mm
Hole	2.2mm
Hole	2mm
Hole	1.5mm
Hole	1mm

## 2. Part List







## 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Ring spanner
5	4	Anchor Bolts

## 3. Installation

## **3.1 Installation Procedure**

- As set-up considerations, a leveled concrete floor/ platform measuring 2ft \* 2ft is required.
- Remove bottom bolts to unpack the machine.
- Bolt firmly onto the cement platform/ concrete floor using the provided anchor bolts and make sure the machine is level.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect plugs.
- Wait for the power light signal.
- Close the door.
- Switch on.

## 3.2 Observations at No Load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the huller
  - Heating on window and motor
  - Belt slippage
  - $\circ$  Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

## 4. Operation

4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Put whole rice and broken rice mixture into the Hopper (1).

4.3 Switch On the Machine.

4.4 Ensure the frequency is set at 25 Hz by rotating the knob on the variable frequency drive (6).

4.5 Open the feed gate (2) and allow the rice to flow.

4.6 Turn the flow rate control knob counterclockwise to maximum.

#### 4.6 Observe the following outcomes :

- Quantity of Whole Rice in Exit chute (7a).
- Quantity of Half Rice Exit chute (7b).
- Quantity of Broken Rice Exit chute (7c).

The goal is to achieve maximum quantity of whole rice and minimum mixture of large brokens and whole rice in exit chute (7b) and fine brokens in (7c).

# 4.7 Reduce the flow rate until the output of Grade 1 rice is satisfactory and Brokens is at a minimum.

4.8 After the entire batch is cleaned, recirculate the mixture of large impurities and cleaned paddy till desired output is achieved.

## **5.1 Sieve Selection**

- In order for optimum grading the top and bottom sieve must be selected carefully.
- Ensure that the top sieve selected is both thicker and longer than the required broken rice to be seperated or is at least  $\frac{2}{3}$  the diameter of the length of rice.
- Ensure that the bottom sieve selected is smaller than <sup>2</sup>/<sub>3</sub> of the length of the paddy (Usually 1 mm and 1.5mm would be ideal).

## **5.2 Sieve Replacement**

- Unscrew wing nuts (8) and remove the top/ bottom sieve by sliding it out.
- Slide the desired size into the reciprocating tray and fasten the exit chute tightly, ensure no gaps or leakage is observed.

## 6 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season, in case of any knocking sound or clattering noise, call a trained technician or your nearest dealer.

## 7. Best Practice

- Select 4 mm (hole) as sieve 1 and 3 mm as sieve 2 for the first pass to obtain Grade 1.
- Select 3.5mm (hole) as sieve 1 and 2.5 mm as sieve 2 for the second pass to obtain Grade 2.
- Select 3mm and 2 mm for final pass.
- For fine grading, use minimum flow rate and minimum tilt angle.
- For rough grading, use maximum tilt angle and maximum flow rate.
- Keep frequency at 25 Hz. Increase as nessary.

In all three passes remove the desired output to be mixed equally during packing

## **Appendix A: Testing report**

Testing station	
Serial number	
Variety of rice Graded	
Optimum adjustments (feed rate and frequency )	
Power requirements (at load and at no load)	
Any marked observations affecting performances	
Any major breakdown	

Approved by :

Testing Engineer





# DESTONER SEMA DS250

User Manual

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## **1. Machine specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the DESTONER SEMA DS250. The basic principle of the destoner is to separate dry granular material into two specific weight fractions, such as glass, stones and metal from a large amount of light product.

Sema de-stoners are constructed of heavy gauge steel and are driven by a unique eccentric drive which is counterbalanced for years of trouble-free operation.

#### 1.1 General

Manufacturer	Alto Precision
Model no.	DS250
Rated capacity	250 kg/hr
Total net weight	160 kg
Dimensions	2'.3" * 4'.0" * 4'.3"
Cleaning Efficiency	99%

#### 1.3 Main Drive

Main drive	Pulleys
Number of belts	2
Size of belt 1	AX38*1000
Size of belt 2	AX26*690
Belt tightening	Adjustable tensioner

#### **1.2 Power Unit**

Prime mover	220V AC motor
Power rating	2 HP
Recommended speed	1500 RPM

Hopper capacity	20 kg
Flow control	Adjustable Lever

Shutter

**1.4 Feed Arrangement** 

Feed control

#### **1.5 Other Arrangements**

- Variable frequency drive to adjust air-pressure and vibration.
- Adjustable tilt pitch and tilt angle for fine separation.
- DS250 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.
- Easily adjustable exit gate for heavier impurities.

## 2. Part List



1	Hopper
2	Feed Gate Lever
3	Vibratory Deck
4	Air Inlet Gate
5	Rocker Arm Back
6	Rocker Arm Front
7	Exit Baffle
8	Knob
9	Variable Frequency Drive
A	Exit Gate (Lighter)
в	Exit Gate (Heavier)

## 2.1 Toolkit

SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Feeler gauge
5	1	Ring spanner

## **3. Installation 3.1 Installation Procedure**

- As set-up considerations, a leveled floor is required for optimum efficiency of the machine. The machine must be anchored and not undergo shaking under operation.
- Remove the top panel of the wood box.
- Remove bottom bolts to unpack the machine.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect the 3 pin plug to the 220V standard socket.
- Wait for the power light signal.
- Close the door.
- Switch on.

## 3.2 Observations at No Load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the destoner
  - Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

## 4. Operation

The basic principle involves flowing dry material over an inclined, vibrating, screen covered deck. The steady airflow holds the material in stratified flotation. The lighter material stays in the upper strata as it flows down the inclined vibrating deck with screens. The heavier material, such as stones, coarse sand, glass, metal, etc., travels up the inclined vibrating deck.

# 4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Put the dry material (mixture of rice and stones/paddy and rice) that is to be separated into the Hopper (1).

4.3 Switch On the machine.

4.4 Ensure the frequency is set to 50 Hz by rotating the knob on the variable frequency drive.

4.5 Open the feed gate Lever (2) and allow the dry material onto the vibratory deck (3).

#### 4.6 Observe the following outcomes :

- Quantity of grain (lighter ) in Exit chute A.
- Quantity of the heavier material, such as stones, coarse sand, glass, metal, at the top of the vibrating deck.

4.7 Adjust the air pressure by closing the air inlet gate (4) till the desired material (heavier) is observed at the top of the vibrating deck.

4.8 Open the exit baffle (7) by pulling the knob (8) EVERY 20 MINS OR after the entire batch to remove the heavier material from the vibrating deck through the exit chute B.

Note: For large batches, turn the knob B clockwise to adjust the gap between the exit baffle (7) and vibratory deck (3) to about 2mm.

## 5. Troubleshooting and Maintenance

#### 5.1 High Amount Stones in Mixture

A low de-stoning efficiency can be caused by :

- 1. An Incorrect Pitch Ensure the rocker arm back (5) and vibrating deck (3) is adjusted to 45 degrees and the rocker arm front (6) is adjusted to 35 degrees, for rice. A different setting is required for different materials. This can only be achieved by trial and error.
- 2. Uneven Air Pressure Check the air pressure at the top of the vibrating deck, if it's noticed that there is uneven pressure, check for leaks, if leaks are observed, change the air duct or contact service center.
- 3. Rice Not In Stratified Flotation If too much material flows on the vibrating deck, then it may cause some of the rice not to float. To avoid this lower flow rate till all the lighter material, i.e rice, is observed to be in flotation.

#### **5.2 Maintenance**

Ensure the machine is well-oiled and serviced by a trained technician at least once every season.

## **Appendix A: Testing report**

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and gap)	
Power requirements (at load and at no load)	
Weight of Dry Mixture (Rice + Stones)	
Weight of output in Exit chute A (Rice)	
Weight of output in Exit chute B (Rice+impurities)	
Efficiency (Visual)	

Approved by : Engineer

Testing

# ALT() precision



# SEPARATOR SEMA S200

User Manual

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## **1. Machine Specifications**

This User Manual (UM) provides the information necessary for farmers to effectively use the SEPARATOR SEMA S200. The separator is used to separate a mixture of brown rice and paddy. Paddy has a rough surface and hence higher friction.

#### 1.1 General

Manufacturer	Alto Precision
Model no.	S 200
Rated capacity	200 kg/hr
Total net weight	143 kg
Dimensions	3'.6" * 4'.0" * 2'.6"
Cleaning Efficiency	<10% paddy

Main drive	Pulleys
Number of belts	2
Size of belt 1	AX88*2270
Size of belt 2	AX41*1070
Belt tightening	Adjustable tensioner

#### **1.2 Power Unit**

#### **1.4 Feed Arrangement**

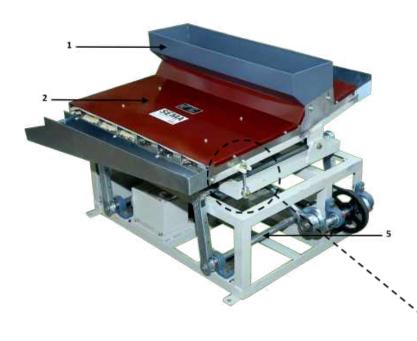
**1.3 Main Drive** 

Prime mover	220V AC motor	Hopper capaci	<b>ty</b> 20 kg
Power rating	0.5 HP	Flow control	Adjustable plate
Recommended speed	1500 RPM	Feed control	Shutter

#### **1.5 Other Arrangements**

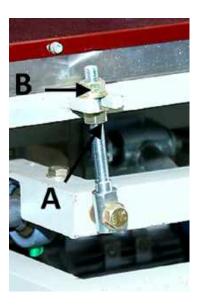
- Variable frequency drive to adjust air-pressure and vibration.
- Adjustable tilt pitch and tilt angle for fine separation.
- DS250 is entirely zinc plated and powder coated, which makes it highly resistant to corrosion and considerably improves its lifetime.
- Easily adjustable exit gate for heavier impurities.

## 2. Part List



1	Hopper
2	Tilted Deck
3	Lower Deck Output (rice)
4	Upper Deck Output (paddy)
5	Eccentric Shaft
Α	Bottom Nut
в	Top Nut
С-Н	Output Chambers





SL No.	QTY	TOOL
1	1	3mm Allen key
2	1	4mm Allen key
3	1	Star screwdriver
4	1	Feeler gauge
5	1	Ring spanner

## 2.1 Toolkit

## 3. Installation

A 6ft by 5ft square hole 6 inch in depth must be dug on top of which a concrete platform which is 12 inch thick and 6ft in length and 5ft in breadth should be made. Ensure 6inch of the platform is below the ground and 6 inch is above. (Contact dealer or manufacturer for specific details)

## **3.1 Installation Procedure**

- As set-up considerations, a leveled floor is required for optimum efficiency of the machine. The machine must be anchored and not undergo shaking under operation.
- Remove the top panel of the wood box.
- Remove bottom bolts to unpack the machine.
- Check for any damage due to transportation by manually operating the pulleys.
- Connect the 3 pin plug to the 220V Standard Socket.
- Wait for the power light signal.
- Close the door.
- Switch on.

## 3.2 Observations at no load

- The machine must be run for 10 minutes without load during which the user should make sure of the absence of:
  - Marked vibration during running
  - Undue noise in the destoner
  - $\circ$  Vibration in fan
  - Unusual wear or slackness in components
- Observation of any of the above statements should be recorded and information must be given to support service.

## 4. Operation

The basic principle involves allowing the rough paddy and rice (smooth) to flow down a tilted reciprocating table, the rough paddy with higher friction will climb up and fall down from the upper deck, while smooth brown rice with smoother surface and less friction will flow will fall down into the lower deck.

# 4.1 Switch off the machine and follow the below steps for optimum operation of the machine.

4.2 Ensure the tilted deck is tilted to the maximum angle by turning the NUT (A) on either side anti-clockwise and tightening the NUT (B) on either side clockwise.

4.2 Pour the mixture of paddy and brown rice into the different compartments evenly (if a double hopper is provided, open the flow control of the double hopper evenly).

4.3 Switch On the machine.

#### 4.4 Observe the following outcomes :

- Quantity of paddy in lower deck output (3).
- Quantity of rice in upper deck output (4).

4.5 If excess paddy is observed in the lower deck output, increase the tilt angle gradually by turning the NUT (A) clockwise and tightening the NUT(B) on either side until no paddy is observed.

## 5. Troubleshooting and Maintenance

#### 5.1 High Amount Paddy In Lower Deck (Poor Separation)

This can be caused by:

- 1. Uneven Tilted Deck :
  - a. Observe the output from each chamber C,D,E,F,G,H. If the paddy is only observed in 1 or 2 chambers, it confirms that the deck is uneven.
  - b. Use a spirit level and ensure the deck is level by changing the bolt positions A and B, in such a case both bolts will be offset from each other.
  - c. Do this until the spirit level indicates an even surface.
- 2. Reciprocating Speed :
  - The standard speed is kept at 25 Hz. If the tilted table is leveled and paddy still persists, then increases the speed to 30 Hz.

#### 5.2 Maintenance

Ensure the machine is well-oiled and serviced by a trained technician at least once every season.

## 6. Best Practice

- Ensure even surface.
- Husking efficiency must be above 90% for efficient paddy rice separation.
- Mixture must be free from stones etc (pre-cleaning must be done before husking).
- Double hopper should be used for optimum operation.

## **Appendix A: Testing report**

Testing station	
Serial number	
Variety of paddy used	
Optimum adjustments (feed rate and gap)	
Power requirements (at load and at no load)	
Weight of Dry Mixture (Rice + Stones)	
Weight of output in Exit chute A (Rice)	
Weight of output in Exit chute B (Rice+impurities)	
Efficiency (Visual)	

Approved by : Engineer

Testing