



MAXI-mix
THE QUALITY MORTAR
1-888-822-3777
www.maximix.ca

SILO SYSTEM OPERATING MANUAL

Part 01: Maxi-Mix Silo Specifications

Part 02: Pre-Delivery

Part 03: General Guidelines

Part 04: Maxi-Mix Silo Operation

Part 05: Maxi-Mix Mixing Auger Operation

SDS and TDS information available from **Maxi-Mix** or at **MaxiMix.ca**

PART 01

MAXI-MIX SILO SPECIFICATIONS

SPECIFICATIONS:

DIMENSIONS:

8' X 8' X 23'
(APPROX. DIMENSIONS)

SILO WEIGHT:

80,000 LBS. FULL (40 TONS)

POINT LOADS:

20,000 LBS. PER LEG ON
12" BY 12" METAL BASE PLATES

CLEARANCE NEEDED FOR SET-UP:

MINIMUM OF 26' HIGH

CLEARANCE NEEDED FOR ENTRY AND REFILLS:

MINIMUM OF 14' HIGH

SILO DELIVERY:

The Maxi-Mix silo is delivered by a Maxi-Mix truck with a specially designed set-up unit. The ground area where the Maxi-Mix silo is to be located MUST be able to support at least 40 tons. End-User is responsible for selecting the location for the silo.

SILO REFILLS:

Refills should be ordered and scheduled when the level of product in the Maxi-Mix silo reaches the 'Red Line' painted on the Maxi-Mix silo. Once the Maxi-Mix truck is on site, the refill operation takes approximately 45 minutes.



PART 01

MAXI-MIX SILO SPECIFICATIONS (cont.)

The following applies to Maxi-Mix silos fitted with a Maxi-Mix mixing auger:

ELECTRICAL REQUIREMENTS:

A Maxi-Mix supplied mixing unit operates on 220 volts, 30 amps, single phase electric power, or by a 10kw, 12.5kva portable generator. The control panel operates the mixer unit and vibrator operation. 220 volts are needed at the control panel for operation. Maxi-Mix mixing unit panels are ESA approved.

NOTE:

As a guide we suggest using:

#10 CABLE	0 – 100 FEET
#8 CABLE	100 – 200 FEET
#6 CABLE	200 – 300 FEET

Maxi-Mix will supply up to 100' of #10 cable with cord end.

WATER REQUIREMENTS:

A Maxi-Mix supplied mixing unit operates on a minimum of 40 PSI when in operation. It is recommended that the water source be as close to the Maxi-Mix mixing unit as possible.

NOTE:

As a guide we suggest using:

5/8" DIA. HOSE	0 – 100 FEET
3/4" DIA. HOSE	100 – 200 FEET
1" DIA. HOSE	OVER 200 FEET



PART 02

PRE-DELIVERY

1. SILO LOCATION

Selection of the location and design of the base pad to support the silo is the responsibility of the end user and Site Supervisor. It is the responsibility of the Project Site Supervisor/Builder and end-user of the Maxi-Mix silo to select a placement location that is level and able to support at least 40 tons, and that has good water drainage and is well clear of existing and future buildings, existing and future trenching, overhead wires, job site equipment activity, and other potential obstructions to access.

2. ACCESS FOR TRUCKS

Maxi-Mix delivery trucks require clear unobstructed access for the initial delivery of a Maxi-Mix silo, Maxi-Mix silo refilling, and Maxi-Mix silo removal. The access route must be capable of supporting a truck that weighs up to 70 tons.

The access road needs to be solid and stable in all seasons and weather conditions, and preferably, the refill truck should be able to get within 20 feet of the Maxi-Mix silo. It is the responsibility of the Site Supervisor to give consideration to the access road and that it has good water drainage, is well clear of existing and future buildings, existing and future trenching, overhead wires, job site equipment activity, and other potential obstructions to access.



3. SILO BASE AREA

The Maxi-Mix silo needs a minimum area of 10 feet x 10 feet and may be placed on the ground or on a concrete base. The ground or base must be level and must provide for free water drainage. The chosen location shall not be subject to water buildup, flooding, trenching or anything that could disturb or weaken the ground. The chosen location must be able to support a minimum weight of 40 tons. Selection of the location and/or the compacting of soil/fill and/or the construction of a concrete base is the responsibility of the end user and Site Supervisor.

4. VARIOUS MIXER ACCOMMODATIONS

If a Maxi-Mix built-in mixing auger is to be used, the Maxi-Mix silo will be placed level, directly on wood blocks. The end-user also has the option to use an independent mixer. If an end-user supplied mixer other than a Maxi-Mix mixing auger is used, the

PART 02

PRE-DELIVERY (cont.)

Maxi-Mix silo will be supplied with leg extensions and can be placed on blocking supports in order to raise it to a level to accommodate the end-user supplied mixer. If the end-user supplies the mixer, an anti-dust device is provided by Maxi-Mix to minimize exposure to dust and related hazards. The device is flexible and extends approximately 12 inches from the valve to the top of the end-user provided mixer. It is the responsibility of the end-user to supply appropriate equipment to the personnel operating a Maxi-Mix silo on site. Maxi-Mix assumes no responsibility for any dust or damage emanating from the mixing unit.



5. SILO RELOCATION AND MAXIMUM HEIGHT RESTRICTIONS

During the project, if a Maxi-Mix silo needs to be relocated for any reason, Maxi-Mix should be notified as soon as possible. The new location for the Maxi-Mix silo must meet the criteria detailed above. Silo relocation is to be done by Maxi-Mix only. Maxi-Mix, its affiliates, subcontractors, representatives, and agents assume no responsibility for any damage, loss, or injury that may occur as a result of a silo relocation, unless such damage, loss, or injury is solely the result of Maxi-Mix's gross negligence or willful misconduct.

IMPORTANT:

The maximum a Maxi-Mix silo can be raised is 6 feet as measured from the discharge valve to the ground. Raising the Maxi-Mix silo higher than this height requires prior written approval by Maxi-Mix. Height changes to Maxi-Mix silos can only be performed by Maxi-Mix personnel.



PART 03

GENERAL GUIDELINES

1. DAILY USE & INSPECTIONS:

Maxi-Mix provides a daily inspection checklist for the Maxi-Mix silo. The end-user will also need to monitor other conditions which could impact the safe operation of Maxi-Mix equipment. The end-user is responsible for conducting and recording a daily inspection including, but not limited to:

- a) **Water** not collecting or flooding near or under a Maxi-Mix silo area. Keep all water drained away from a Maxi-Mix silo area. Failure to do so could weaken the ground supporting a Maxi-Mix silo and cause a Maxi-Mix silo to lean.
- b) Inspect the Maxi-Mix silo support legs, the silo cross members and the metal plates on bottom of legs for any sign of damage. Inspect the wood cribbing under the metal plates on the legs to verify they have not moved or been disturbed. If there is any evidence of damage, movement or ground erosion, contact Maxi-Mix immediately.
- c) Confirm that there is no new or planned **trenching activity** within 6 feet of a Maxi-Mix silo area.
- d) Verify that the Maxi-Mix silo shows no signs of **leaning**. If there are any such signs, contact Maxi-Mix immediately before further use.



2. WEATHER-RELATED PRECAUTIONS:

The Site Supervisor and end-user are cautioned to be aware of weather-related conditions that could cause a Maxi-Mix silo to lean, creating a potential hazard to persons or property. These conditions include, but are not limited to:

- a) **Rain Events:** After a rainfall, inspect the Maxi-Mix silo base area to ensure complete water drainage away from the Maxi-Mix silo. Ensure that soil erosion has not occurred and/or that the ground stability under and around the Maxi-Mix silo has not been weakened.
- b) **Ground Freeze/Thaw:** During winter and spring, conditions can produce a ground freeze/thaw cycle. This can weaken the stability of the ground under and around a Maxi-Mix silo.

3. LEANING SILO:

Taking basic precautions can help prevent this situation from occurring. Maxi-Mix silo leaning can result from improper use, poor location, ground settlement or from being hit by other

PART 03

GENERAL GUIDELINES (cont.)

equipment. A leaning Maxi-Mix silo can usually be corrected by Maxi-Mix provided the Maxi-Mix silo can be accessed and the ground under the Maxi-Mix silo base area is suitable to support the silo and has not been weakened. A fully or heavily loaded Maxi-Mix silo could impede safe pick up and handling of the Maxi-Mix silo. Correction of a leaning silo is to be done by Maxi-Mix only. Maxi-Mix, its affiliates, subcontractors, representatives, and agents assume no responsibility for any damage, loss, or injury that may occur as a result of such efforts at correction, unless such damage, loss, or injury is solely the result of Maxi-Mix's gross negligence or willful misconduct.

4. LIABILITY:

It is essential these guidelines are followed. Compliance with health and safety regulations may require additional considerations as a legal or implied duty of care requirement. In addition, site specific conditions may require further considerations and precautions. Maxi-Mix, its affiliates, subcontractors, representatives, and agents assume no responsibility for any damage or environmental liability, nor for any accident or injury arising at any time, or for any reason, from use or misuse of its equipment.

NOTE:

Training job site personnel on Maxi-Mix equipment operation and specific hazard awareness is the responsibility of the end-user.

IMPORTANT:

Maxi-Mix provides a daily inspection checklist for the Maxi-Mix silo for completion by the end user.

PART 04

MAXI-MIX SILO OPERATION

PERSONAL PROTECTION EQUIPMENT:

Refer to product SDS, as appears on the Maxi-Mix website MaxiMix.ca.

MAXI-MIX SILO SET-UP:

Maxi-Mix silo set-up is to be performed by trained Maxi-Mix personnel only.

PLACING OF AN INDEPENDENT MECHANICAL MIXER:

The end user must ensure the Maxi-Mix silo valve lever is closed (horizontal position) and locked (using the locking pin) prior to use. The end user will set up his independent mechanical mixer — positioning the center of the mixer under the Maxi-Mix anti-dust device attached to the Maxi-Mix silo dispensing valve.



**CLOSED
WITH LOCKING PIN**



**ANTI-DUST
DEVICE**

IMPORTANT:

The end-user is to ensure that the mixing equipment is filled with Maxi-Mix products only. No additives are to be added as this will void content quality.

If a Maxi-Mix silo or equipment is filled with any other products, the Maxi-Mix silo or equipment may be damaged. The end-user will be responsible to repair such damage as deemed by Maxi-Mix.

PART 04

MAXI-MIX SILO OPERATION (cont.)

MIXING PROCEDURE:

STEP 1: Start mechanical mixer.

STEP 2: Place sufficient water in mixer prior to adding dry product.

STEP 3: Remove valve locking pin on the Maxi-Mix silo and open valve by moving lever to vertical position releasing dry product into mixer.

STEP 4: Add sufficient dry product to produce the desired consistency. Adjust water and dry product as needed.

STEP 5: Close valve and replace locking pin on the Maxi-Mix silo.

STEP 6: Let mix for 6 – 8 minutes or until ready for use.



OPEN



CLOSED
WITH LOCKING PIN

DOCUMENT REFERENCE:

The information found in this **Maxi-Mix Operating Manual Parts 1, 2, and 3** is an essential prerequisite to the safe and efficient operation of a Maxi-Mix silo. Do not operate or use a Maxi-Mix silo without first reading, understanding, and following those instructions.



PART 05

GENERAL SAFETY INFORMATION

& MAXI-MIX MIXING AUGER OPERATION

DOCUMENT REFERENCE:

The information found in this **Maxi-Mix Operating Manual Parts 1, 2, and 3** is an essential prerequisite to the safe and efficient operation of a Maxi-Mix silo. Do not operate or use a Maxi-Mix silo without first reading, understanding, and following those instructions.

SAFETY:

- 1) Always use appropriate personal protective equipment. Refer to the product SDS, available on our website **MaxiMix.ca**.
- 2) Always shut off main power switch and LOCKOUT before servicing any Maxi-Mix equipment.
- 3) Never operate Maxi-Mix equipment without all components correctly installed.
- 4) Never reach into discharge end of Maxi-Mix mixer without proper LOCKOUT at the Control Panel.
- 5) Check all Maxi-Mix equipment, hoses, cords, and cables for damage on a daily basis.
- 6) Report any unsafe conditions to a Supervisor immediately.
- 7) Never enter a Maxi-Mix Silo – Confined space and engulfment hazard.

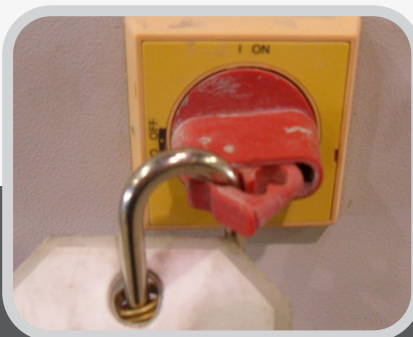
SILO SET-UP:

Maxi-Mix silo set-up is to be performed by trained Maxi-Mix personnel only.

MIXING AUGER SET-UP:

Refer to Maxi-Mix website **MaxiMix.ca** “Instructional Video” for additional explanations.

- 1) Verify Maxi-Mix silo valve is closed-handle in horizontal position – and the locking pin is inserted.
- 2) Hang Control Panel on ‘X’ bracing of Maxi-Mix silo legs.
- 3) Connect blue cord for the electric motor to the blue receptacle on the control panel.
- 4) Connect the orange cord for the vibrator to the orange receptacle on the control panel.
- 5) Connect the female end of the power cable to the appropriate control panel receptacle.
- 6) Connect the water hose with the “Chicago” fittings to the wet mixing chamber.



LOCKOUT THE SWITCH



CLOSED

PART 05

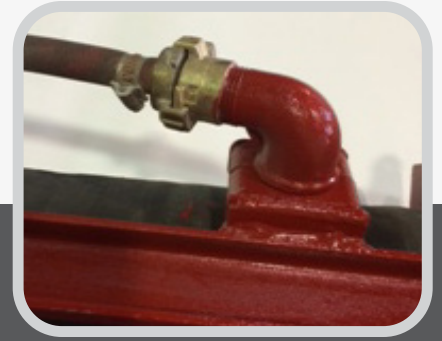
MAXI-MIX MIXING AUGER OPERATION (cont.)

IMPORTANT:

The power source should be dedicated to the Maxi-Mix Mixing Auger Control Panel and located as close as possible to the Maxi-Mix silo. Only a qualified Electrician should connect the power cable to the power supply. The power cable is hard-wired to the source power panel. Maxi-Mix will supply up to 100 feet of #10 cable with ends.



CORDS



CONNECT HOSE WITH
“CHICAGO” FITTINGS

- 7) Connect the water source hose to the water system inlet located below the control panel.
- 8) Turn main power switch to the ‘On’ position (located on the control panel).
- 9) Press green ‘Start’ button (located on the control panel).
- 10) Let system run for 3 – 5 seconds to confirm components are working.
- 11) Press ‘Stop’ button (located on the control panel).



CONNECT WATER SOURCE HOSE



FRONT OF PANEL

MIXING AUGER SET-UP:

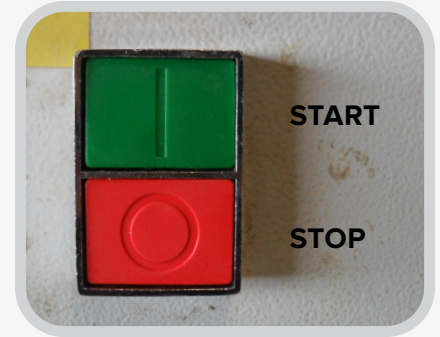
- 1) Remove Maxi-Mix silo valve locking pin and move handle to vertical position, opening the valve.
- 2) Press ‘Start’ button (located on the control panel) to begin mixing operation.
- 3) Adjust water content, if necessary, only after the mixer has been running for 20 – 30 seconds.
- 4) Adjustments should be gradual – only 1/8 to 1/4 revolution at a time.
- 5) Press ‘Stop’ (located on the control panel) button when desired batch size is produced.

PART 05

MAXI-MIX MIXING AUGER OPERATION (cont.)

SHUTDOWN / CLEANING OPERATION:

- 1) Close Maxi-Mix silo valve moving handle to horizontal position and insert locking pin.
- 2) Press 'Start' button (located on the control panel) and let wet and dry mixing chambers run until empty.
- 3) Press 'Stop' button (located on the control panel).
- 4) Turn off main power switch (located on the control panel) and LOCKOUT the switch.
Disconnect all cords and hoses from Control Panel.
- 5) Remove end cap of wet mixing chamber and remove wet mixing auger.
- 6) Undo the latch on the wet mixing chamber and swing open.



- 7) Using fresh water, clean the end cap, wet mixing chamber auger, and interior of wet mixing chamber.
- 8) Use a wire brush (provided by Maxi-Mix) to clean the joining surfaces of the wet chamber auger and the dry chamber auger, and where the dry chamber auger meets the motor.
- 9) Close and re-latch the wet mixing chamber.
- 10) Insert mixing shaft and replace end cap.
- 11) Disconnect all cords and hoses from Control Panel.
- 12) Drain water from valve system using drain valves.
- 13) Control Panel needs to be removed at end of day when temperatures are and/or are expected to go below 5 degrees C overnight and stored in a warm place to prevent freezing.

IMPORTANT:

DO NOT get water into the dry part of the Maxi-Mix mixer.

The mixing shaft end has to be dry before its insertion back into the mixing chamber. Never use grease or other materials on mixing shaft connection.

MAXI-MIX SILO DAILY INSPECTION CHECKLIST

OPERATOR INFORMATION

NAME & POSITION:	
COMPANY:	
TELEPHONE NUMBER:	
TODAY'S DATE:	
PROJECT NAME:	
DATE JOB STARTED:	
SILO#:	

***** DAILY USE & INSPECTIONS:**
 Daily use begins with a thorough inspection of Maxi-Mix silo and auger (or mixer). During each work day, you will need to monitor other conditions which could impact the safe operation of Maxi-Mix equipment. For your convenience, Maxi-Mix silos are equipped with a sample daily inspection checklist label. Training in equipment operation and specific hazard awareness is the responsibility of the end-user and Site Supervisor. We recommend you perform and record a daily inspection.***

Y	N	DAILY CHECKLIST
<input type="checkbox"/>	<input type="checkbox"/>	STRUCTURAL INTEGRITY – Is there a visible lean to the Maxi-Mix silo? Is there any sign of damage to the Maxi-Mix silo support legs, the silo cross members and/or the metal plates on bottom of legs?
<input type="checkbox"/>	<input type="checkbox"/>	STABLE GROUND – Has the ground the Maxi-Mix silo is placed on changed or become a hazard?
<input type="checkbox"/>	<input type="checkbox"/>	CRIBBING OF WOOD – Has the wood shifted or changed since the prior day of work?
<input type="checkbox"/>	<input type="checkbox"/>	ENVIRONMENTAL CONDITONS – Has there been rainfall or snowfall that created pooling of water around the base of the Maxi-Mix silo?
<input type="checkbox"/>	<input type="checkbox"/>	NEW ACTIVITY IN AREA OF THE MAXI-MIX SILO – Has a new job scope or project been started or will start in close vicinity to the Maxi-Mix silo position? (example: trenching)
<input type="checkbox"/>	<input type="checkbox"/>	SITE ACCESS – If the Maxi-Mix silo is to be filled, maintained or moved, is there anything impeding adequate access for the driver to perform his operations?

IF YES HAS BEEN CHECKED IN ANY OF THE BOXES ABOVE PLEASE CONTACT THE PROJECT SITE SUPERVISOR/BUILDER AND MAXI-MIX TO MAKE ARRANGMENTS FOR CORRECTION

NOTE: Liability: These safety guidelines and recommendations need to be followed at a minimum. Compliance with Health & Safety Regulations may require additional considerations as a legal or implied duty of care requirement. Maxi-Mix, its affiliates, subcontractors, representatives, and agents assume no responsibility for any damage or environmental liability, nor for any accident or injury arising at any time, or for any reason, from use or misuse of its equipment.

SIGNATURE OF INSPECTOR: _____ **DATE:** _____



MAXI-MIX®
"THE QUALITY MORTAR"

MaxiMix.ca

8105 Esquesing Line, Milton, ON, L9T 9E3 · Tel: 888-822-3777 · Fax: 905-876-0511

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