

User Manual



GESILOS
Est. 1978

Manufacturers of quality, custom-built
Australian-made silos with a service guarantee.

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Dear Valued Customer,

Congratulations, you are now the proud owner of a quality G. E. Silos Pty Ltd, Silo.

At G. E. Silos we have built our reputation of providing products that are of excellent quality with superb functionality through our great designs and local knowledge.

We pride ourselves on providing high quality products made from the finest quality of materials available from market leader suppliers BlueScope Steel (Zincalume) and Australian Tube Mills (DuraGal); no down grade is used. This ensures your choice of silo gives you utmost satisfaction through superior and long lasting performance and reliability.

We aim to provide the best product on the market tailored to suit your needs by producing the same high quality standards that people expect.

I thank you for your support and look forward to dealing with you again in the future.

Jason Comer
Managing Director.
G.E Silos Pty Ltd.

- ▶ Think safety
- ▶ Each silo requires a risk assessment
- ▶ Silos must be correctly installed before use
- ▶ Avoid entry into silo unless safe
- ▶ Avoid climbing silo unless safe
- ▶ Only trained personnel should be near silos in use
- ▶ Do not remove safety components from silo
- ▶ Do not allow children near silo



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Introduction

This manual is given to you to help get the best out of your silo and ensure safe operation of your silo.

Read this manual carefully before carrying out any operations on the silo. The installation of the silo and all operations involving it must be performed in conformity with the regulations in force concerning personal safety.

The silo is to be used only for the purpose for which it was specifically designed. All other uses are to be considered incorrect and therefore unreasonable.

Do not fill silo with heavier product than designed for.

G.E. Silos Pty. Ltd. cannot be held responsible for any damage to a silo or plant resulting from improper, incorrect or unreasonable use.

General Safety Standards

The silo may be used only by trained and authorized personnel. A risk assessment must be compiled by the owner.

Any tampering with the silo or alterations not approved beforehand by G.E. Silos Pty. Ltd. relieve the latter of responsibility for any damage resulting from above actions.

The removal of or tampering with safety devices constitutes a violation of the Australian Safety Standards.

Maintenance

Before carrying out any maintenance job on the silo, it is obligatory to stop all machinery attached to the silo.

Entry to the base manhole should be avoided, if entry is required regulations must be followed in the Health and Safety Regulations 2007 under confined spaces.

Grain and pellets can be flammable so avoid flames and ignition source around the silo.

Do not relocate silo to another site without professional carriers. G. E. Silos Pty. Ltd. cannot be held responsible for any damage caused to a silo or plant from improper, incorrect and unreasonable use if caused by persons other than employees/ Contractors of G.E. Silos.

Management

G.E. Silos Pty. Ltd

Your Silo is ready to use when:

- ▶ An appropriate site has been chosen where farm machinery, augers and trucks can maneuver safely.
- ▶ **DO NOT** place silos near overhead power lines – moving augers, tipping trucks and trailers, may come into contact with power lines.
- ▶ The foundations need to be laid according to the foundation plan applicable to the model of the silo being installed. The foundations must be dug out to suitable compacted soil. If in doubt, contact an expert authority, i.e., the local shire engineer.
- ▶ The area must be drained so that surface water is diverted around the site and no water can lie within 5 metres of the foundations.
- ▶ Good quality concrete must be used
- ▶ Concrete foundation surface must be flat.
- ▶ Existing concrete slabs suitability must be verified, i.e. no cracks, thickness etc.
- ▶ Gaps between the silo and the concrete **MUST BE** packed using steel packers, timber **MUST NOT** be used. There shall be no more than 1.0mm gap between the silo legs and the concrete.
- ▶ Silo **MUST BE** bolted or chained to concrete.
- ▶ Before filling the silo, ensure that all outlets are closed and that there are no personnel inside the silo and the surrounds clear. You are now ready to fill the silo.
- ▶ Fill the silo from the top centre lid. **DO NOT** fill from the side inspection hole. If this is used the grain will form a wall on one side of the silo and may cause damage as the weight distribution is not even.
- ▶ Fill the silo with the blower pipe attached to the silo.



Regulating bodies throughout Australia impose certain requirements on grain silos. A basic list has been provided as a guide only - please check with your local regulating body for further information.

Main Body

- ▶ The silo must remain bolted down as in accordance per the foundation instruction sheet. Bolts must not be removed under any circumstances unless appropriate transportation has been arranged.
- ▶ Cleaning of inside the silo must be done via the base manhole. A silo should not be entered as it is classified as a confined space in the OHS Regulations 2007. Correct procedures should be followed if entry is required.
- ▶ To prevent entering silo, clean using an extendable broom through the base manhole or wash with hose and let dry. Dust mask **MUST BE** used.

Ladders

- ▶ If a ladder is fitted to your silo you **MUST** do your own risk assessment before climbing silo.
- ▶ The silo ladder should only be used if completely necessary. It is much safer to do something from the ground if practical to eliminate the high risk.
- ▶ It is highly recommended that you do not climb the ladder on the silo unless necessary. A vertical ladder requires more strength and energy to climb than an angle ladder.
- ▶ Climbing of the external ladder requires a harness with a twin access lanyard. You **MUST** have procedures to follow to reduce the risks.

Use of Harnesses

- ▶ Harness with a twin access lanyard **MUST BE** worn when climbing the external ladder and any internal ladder in older models.
- ▶ Harnesses must be used according to harness manufacturers' instructions or serious injury could result.
- ▶ Any user of a harness **MUST** be supervised at all times, and have emergency plan ready to rescue someone if required.



It is very important for the safety of yourself and your workers that steps are taken to minimize the risk of falling from heights and working in confined spaces.

There are various publications that may help:

- ▶ Worksafe Victoria's website: www.worksafe.vic.gov.au
- ▶ Occupational Health and safety Act 2004
- ▶ Occupational Health and safety Regulations 2007

Regular maintenance of your silo will mean a troublesome free long life for your silo. Silos need to be regularly cleaned out and inspected. Silos near marine environments and piggeries need a more frequent overhaul inspection, both inside and out, mainly checking for corrosion. DO NOT use silo if too rusted as it may collapse causing serious injury or death.

Safety Guards

Safety guards have been placed on Top Lid Opening, side roof inspection lid, Ladder and Base outlet to stop access and limit access. There is no guard on the Base manhole which is the access for cleaning and inspections, entry should be by authorized personnel only.

Standard Pellet Silo, Feed and Seed Silos

- ▶ Pellet silos should be cleaned and inspected after emptying at least every 6 months.
- ▶ Check the silicon where the wall sheet meets the cone. Pellets can erode the silicon. If Silicon is worn it will lead to a buildup of dust behind silicon and will hold moisture causing an increase in rust to the silo.
- ▶ Clean silo either by broom or hose out with water. Make sure silo is dry before closing hatches. **DO NOT** leave hatches open for long periods of time (birds like to make nest inside silos)
- ▶ Inspect the condition of the silo via the base manhole, check for faults, deformation and corrosion.
- ▶ **DO NOT** fill silo with superphosphate or any other corrosive product.
- ▶ **DO NOT** leave moist grain or pellets in silo for extended periods as this will greatly reduce the silo life.
- ▶ If silo is regularly cleaned and looked after it should last well over 30 Years.

Grain Silos

- ▶ Grain silos should be cleaned and inspected after emptying every 12 months.
- ▶ Check seals for wear on silicon and reseal if worn. If Silicon is worn it will lead to a buildup of dust behind silicon and will hold moisture causing an increase in rust to the silo.
- ▶ Hoppers removed, cleaned and stored in a dry place while not in use.
- ▶ Do not have an auger running whilst cleaning is in operation. If an auger is necessary make sure the guard on the auger flight has not been removed.
- ▶ Clean silo either by broom or hose out with water. Make sure silo is dry before closing hatches. **DO NOT** leave hatches open for long periods of time (birds like to make nest inside silos)
- ▶ Inspect the condition of the silo via the base manhole, check for faults, deformation and corrosion.



Superphosphate Silos and Industrial Silos

Superphosphate Silos should be cleaned immediately after emptying to prevent corrosion.

- ▶ Clean silo either by broom or hose out with water. Make sure silo is dry before closing hatches. **DO NOT** leave hatches open for long periods of time (birds like to make nest inside silos)
- ▶ Inspect the condition of the silo via the base manhole, check for faults, deformation and corrosion.
- ▶ **DO NOT** leave moist grain or pellets in silo for extended periods as this will greatly reduce the silo life.
- ▶ Superphosphate should not be stored for long periods as it will become packed in and will not flow out of silo properly, this may cause damage to silo. G.E. Silos recommends to store no longer than 3 months.

Sealed Grain Silos

After delivery of your sealed silo, make sure base manhole is not screwed tight when silo empty meaning silo won't be airtight. This is to prevent damage to silo from quick temperature changes which occur during storms by allowing silo to breathe quicker than the breather.

When you need to out load your silo via the Auger Boot/Hopper you should open the top lid to let air enter while product is being emptied, this is to prevent damage to the silo from negative internal pressure.

Do not fill silo with superphosphate or any other corrosive product.

Sealed silos should be checked for a gas tight seal before every fill so replacing of rubber or silicon can be done while silo is empty.



Sealed Silo Maintenance

Keep the pressure relief valve topped up to the level specified by the Manufacturer. Use only light hydraulic oil or paraffin oil. Never use vegetable oil, which can solidify in the valve. This renders the silo vulnerable to collapse if there is a sudden internal pressure change. This can occur during out loading or in the rapid temperature change that sometimes occurs in a summer thunderstorm.

An important precaution is to open the top lid during out loading.

A sealed silo is fitted with rubber strips that act as seals on the loading and out loading points.

Because the rubber is exposed to extremes of climate and wear and tear when opening and closing of the hatches, the rubber strips should be replaced every 2 years or when signs of deterioration are showing. If damaged it then must be replaced immediately.

Check for damage to walls and cracks in any internal sealant. Repair as necessary with brushon sealants or silicone.



Testing a Sealed Silo

Once a year pressurise your sealed silo to check for leaks. If the gas leaks out, the concentration of fumigant will be reduced, the fumigation will fail and there is a chance of insect survival. These insects have undergone natural selection to snub lethal atmosphere of the phosphine and will have a resistance to the fumigant.

Silos can be checked using a standard farm compressor attached to a rubber-less tyre valve fitted to the silo wall.

Relief valves must be operating properly for this procedure or damage to the silo could occur.

First, check the oil level in the valve. Top up if necessary.

Pressurise the silo to create a 25mm difference in the oil levels. (See Diagram 1) Then watch the oil levels and check the time taken to fall to a 12mm difference. The time should meet the manufacturer's specifications. The industry standard is 5 minutes.

Failure

If the silo fails to hold the pressure for the specified period, check for leaks using soapy water. Maintain the pressure on the silo while spraying a soapy solution on all the outlets and seams. Bubbles will quickly appear if there is a leak.

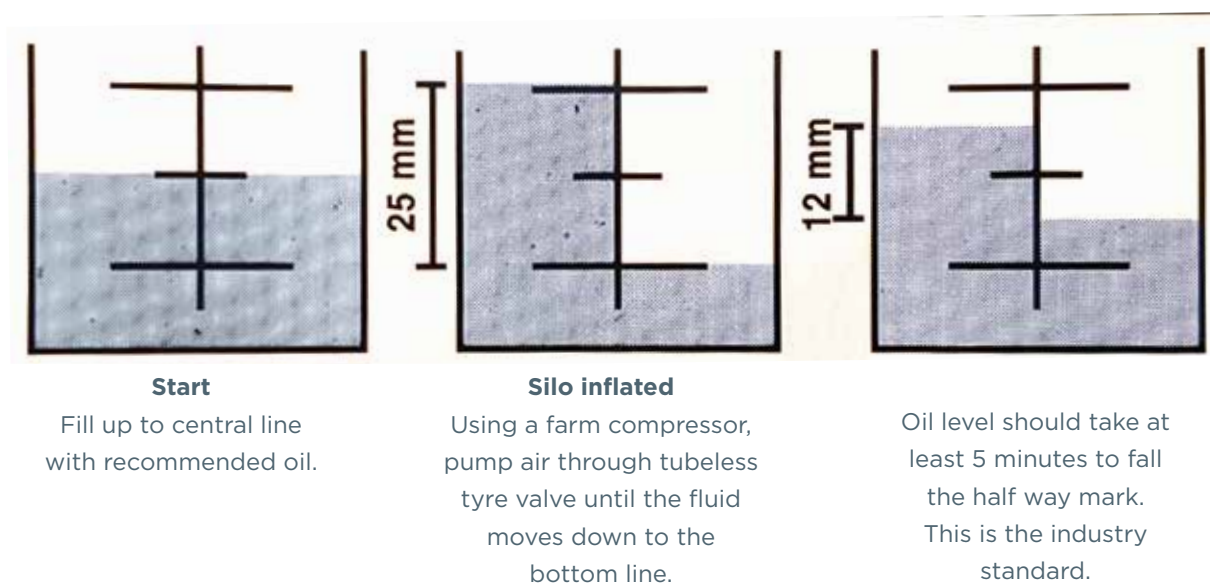
Common area's to find leaks are:

- ▶ Base outlets – check rubber and clamped properly
- ▶ Top lids – check rubber and pressure on lids.
- ▶ Cone to walls silicon seal – can wear after being filled may need extra silicon
- ▶ Oil breather – Check rubber seal behind is tightly fastened

Replace the rubber seals with a firm foam rubber strip.

Any joints leaks can be repaired using flexible membrane paints. Alternatively use a silicone sealant or a caulking compound such as Selleys 'No More Gaps'.

Diagram 1. Sealing test



Field Bins

Field Bins have 4 roof doors. To open, remove pin and use lever to lift and open one section at a time. Pin lever in the open position.

Wheel Lifts.

- ▶ To put silo into transport mode,
- ▶ Move hand ratchet Ram back and forth to lift wheels into position for transport.
- ▶ Place locking pin in to secure for transport.
- ▶ Place pull on tow and secure.
- ▶ **DO NOT** transport field bin at more than 40km per hour on a good bitumen road. If the road has uneven surface reduce speed.
- ▶ **DO NOT** transport field bin with grain in the silo.
- ▶ **DO NOT** fill field bin when still in a transportable position.
- ▶ When empty, **DO NOT** leave field bin in transportable position. (Wind can move them)
- ▶ **ALWAYS** place field bin on level ground.
- ▶ Auger field bins **MUST BE** transported by tractor or truck only.



