

SUPPLIERS' TIPS

What preventive maintenance steps are important for keeping my silo or bin in top condition?

Silos and bins can, and usually do, have a long and useful life if they're maintained and inspected regularly and you correct problems immediately. Here are several specific maintenance tips: Carefully clean and inspect your silo both internally and externally on a regular basis. Prepare a preventive maintenance checklist to facilitate data recording and referencing that clearly establishes which components are to be evaluated and which inspection criteria to use. Determine minimum wall thicknesses required for structural integrity and compare these to your silo's actual wall thickness. Look for and repair or replace damaged or loose liners. Remove material buildup that could trap moisture on the outdoor silos' exterior. Check for warning signs, such as air blowing in or out of vents, wear patterns, vibration, or spillage. Inspect and maintain mechanical equipment such as gates, feeders, and dischargers. When repairing or replacing any mechanical component, remember that seemingly innocuous changes can have significant effects.

If your silo is constructed of reinforced concrete, look for any signs of corrosion, exposed rebar, unusual cracking, concrete spalling, or wall stains indicating leakage. If you have a metal silo, look for bolted joints near the hopper's top, waviness along the sheet edges, bolt hole elongation, cracks between bolt holes, outward bulging of the cone shell near the top, and damage at vertical seams. If you spot anything wrong during your routine maintenance checks, stop discharging and filling the silo so you can assess the structure's integrity, and summon expert help.

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One reason silos or bins fail is poor methods used when fixing flow problems. To keep your silo or bin in top condition, don't bang the storage vessel wall with a sledgehammer when you have flow problems. Damage left by a sledgehammer can impede flow even further. Instead, install a permanent flow aid such as a pneumatic vibrator with timed impact. This will have an even better effect on flow than a sledgehammer and will cause no damage to the structure.

To solve flow problems, don't use vibrators whose resonance frequency is close to that of the bin walls, or damage will occur to the bin structure. Ball vibrators commonly have resonance frequencies similar to storage vessel walls, but check with manufacturers to find the best solutions before any installation.

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Preventive silo or bin maintenance is an ongoing battle that begins at installation. As soon as your new silo or bin is installed, inspect it for conformance to plans and specifications, and correct all items found to be in error. Inspect the coatings for damage, and repair them in accordance with the coating manufacturer's instructions.

During the first year, inspect the silo's exterior on a quarterly basis. Complete any repairs immediately to prevent damage from occurring around the affected areas.

After the first year, perform an overall interior and exterior inspection of the silo annually to evaluate damage or problems that may have occurred. Look for any signs of corrosion, leakage, coating damage, grout, and anything else affecting the silo's performance and safety features. Take corrective action immediately after identifying a problem to ensure that irreversible damage doesn't happen. Also, conduct monthly filling- and venting-system inspections. All inspections can be performed by you or by an experienced silo or bin technician.

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Because of the static nature of storage silos and bins, little or no maintenance is normally required. However, certain items must be periodically inspected and maintained to keep them in top condition. You should annually inspect all alloy, aluminum, stainless steel, and plated components, checking for corrosion, intergranular cracking, pitting, and deterioration. Verify that all bolted connections are properly torqued, retighten loose connections, and reexamine them within 3 months. Annually inspect the interior and exterior finish for damage, wear, or corrosion, and touch them up or repair them as needed. Every 6 months, inspect the guardrails for looseness or damage, the wear liners for erosion, the ladders for looseness, and the manholes for proper alignment and fit. Check gaskets for unusual wear, and lubricate hinges as needed. Once every 3 months, inspect all relief valves and vents to make sure they're clear, free, and operational. It's also important to verify that safety signs are applied to manholes and all attached equipment, and that all personnel have read and understood them. You should always perform a post-disaster examination of the silo and all components and make sure that problems are immediately corrected.

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