



Grain dryers

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Equipment description

Grain dryers are most commonly used in the United States for corn and soybean crops. The level of moisture content in a given quantity of grain directly impacts the useful life expectancy of the grain. Grain with higher moisture content almost always has a lower value than grain with a lower moisture content. Grain dryers blow air through the grain to reduce moisture content. The dryer may be of the “fan only” variety, or it may heat the air prior to blowing it through the grain. Heated air dryers are the most effective and efficient. Propane-fired heaters are used to heat the air and high-capacity fans are used to blow the heated air through the grain. Many farmers use static in-bin grain dryers. Many in-bin systems are at least 25 years old. There is a current shift toward using continuous-flow dryers that provide a higher drying temperature and higher throughput capacities. These dryers pass the grain through a concentrated, highly heated air stream. Continuous-flow dryers may flow the air in cross-flow, counter-flow, or concurrent-flow. Currently, the most popular type of dryer in the United States is the cross-flow type.

The best source of assembly, operation, maintenance, loss prevention, and safety information for your specific make and model of equipment is the original equipment manufacturer (OEM) owner’s manuals. Copies of these can usually be obtained without charge from the OEM or the OEM website.

Maintenance tips

- It’s important to adhere to the operational guidelines provided by the OEM.
- Automated control systems are essential for proper operation of modern grain dryers. All automated control systems should be installed, operated, tested, inspected, and maintained strictly in accordance with the OEM instructions.

- All fan and other bearings require proper lubrication to prevent severe wear and eventual failure. Bearing grease should be inspected and maintained at proper levels and cleanliness prior to each use.
- To help prevent potential imbalance, fan/blower blades should be cleaned and inspected prior to each use.
- Surface dirt and rust often hide more serious deterioration. All surfaces should be periodically cleaned and inspected for damage or deterioration.

Failure/Loss prevention tips

- Failures of grain dryer units may occur mechanically in the fan or blower system. This can be caused by metal fatigue failures caused by vibration. Fan or blower systems may fail due to blade cracking or damage to bearings caused by imbalance. Imbalance and vibration are usually a result of mechanical damage to the fan from foreign objects or from buildup of dirt and debris on the fan blades. Be sure to keep all rotating parts in proper balance and avoid hitting any foreign material that could cause internal damage.
- All intake guards should be properly in place and the blades should be inspected and cleaned prior to each use.
- Gas-fired dryers should have all fuel supply systems and lines properly installed by trained personnel. All connections should be inspected for integrity and protection from damage. When not in use, the burner should be covered to prevent rainwater from accumulating on the equipment and freezing.

Energy savings/Conservation tips

- Newer grain-drying equipment is usually more efficient than older models and includes features such as recapturing and reusing exhaust heat. Higher-efficiency equipment results in lower fuel costs.
- Heat-and-cool type units can provide energy savings and improved long-term drying than heat-only units.

Safety tips

- Propane fuel systems should be installed with proper distance and clearances. They should be inspected, maintained, and refilled only by properly trained personnel.
- Turn off the grain dryer immediately if there is excessive vibration, unusual noises, or if you smell propane or natural gas.

