FIRST-IN-DESIGN.

Tower Drying

The innovator of time-proven commercial grain dryers

Zimmerman

Tower Drying

The innovator of time-proven commercial grain dryers
The wet grain storage area and self-cleaning grain receiving chamber at the top of the dryer. Zimmerman has a reputation for engineering excellence. The Tower Dryer exemplifies this, with design innovation unmatched by anyone in the industry. The Tower Dryer design utilizes industry proven drying principles along with many unique features to provide the commercial user with a simple, reliable, fuel efficient grain dryer. Each dryer employs a bolt together (versus welded) design, which permits the wide use of galvanized steel (versus painted steel) throughout the dryer. In addition, all dryers have stainless steel exterior sheeting as a standard feature. These design features simplify dryer erection, improve dryer appearance and promote a long dryer life. Zimmerman’s patented, field proven, Accu-trol Metering System is self cleaning and provides positive grain flow. This system transfers grain from the dryer uniformly and allows for easy dryer clean-out. The touch screen controls offer computerized control of all dryer functions. This “smart” system eliminates guesswork by providing the operator instant information on a large backlit color display and makes the operation of the dryer simple.

Grain enters the dryer at the top and falls into a self cleaning grain receiving chamber. The chamber creates a grain cushion, and with grain falling on grain, helps reduce plenum roof wear. This chamber also provides a means of distributing grain evenly around the dryer. The garner bin at the top of the dryer has a full 40 inches of wet grain storage. This area is completely sealed to help retain grain dust and particulates.

Grain moves down, out of the garner area, and enters 12-3/4” wide grain drying columns in the heat section of the dryer. The Zimmerman Tower Dryer is designed to provide the optimum balance of grain retention time, airflow and temperature. Large column holding capacities result in long grain retention times in the drying section of the dryer. This long retention time, combined with low drying airflows and temperatures result in high quality, efficiently dried grain. Midway down the heat section of the dryer are Zimmerman’s patented grain inverters. The inverters invert the grain from the inside of the grain column to the outside for more uniformly dried grain.

Zimmerman tower dryers are designed to retain bees wings and particulate matter within the drying columns. The largest standard hole size on the exterior screening of the dryer is 0.078 inch diameter perforation. After the grain is turned, the perforation size drops to a diameter of 0.0625 inches. Solid non-perforated exterior sheets are used at the grain inverters and at the top and bottom of the grain columns to help ensure that particulates are not expelled from the dryer.

As grain exits the heat section of the dryer it enters the suction cooling section. Air used to cool the grain is recycled through the blower(s) resulting in significant energy savings.
**DURABLE CONSTRUCTION...YEARS OF RELIABILITY**

The Zimmerman control box is housed in a metal NEMA IV enclosure. The windowed design of the box allows all dryer operations to be viewed through the lockable windowed door and also protects all control switches, indicators, and controls. For convenience, the control box can be remote mounted or mounted at the dryer. The touch screen control panel, pictured at the left, is totally computerized using Allen Bradley industrial controls and communicates with the dryer power box via an DH485 communication link.

The dryer power box pictured above is mounted in a large NEMA IV enclosure, all of the electrical power and dryer monitoring components for the dryer are controlled by an Allen Bradley SLC controller. The electrical layout and wiring of this box is MET laboratories certified, making the box meet all U.S. and Canadian safety standards. This will provide a long reliable control system for the dryer.

Full Color Graphical Display provides continuous visual feedback on the current dryer status as well as a convenient means of setting operating parameters and options. Most set points and status screens are accessed by simply touching an on-screen object.

The Zimmerman Tower Dryer’s electronic control panel indicates any malfunctions via a flashing display. This process saves valuable time in the area of trouble-shooting.

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**EASY ACCESS**

The Zimmerman Tower Dryer was designed with convenience in mind. Catwalks, ladders and cages are provided on all areas of the dryer for easy accessibility. All areas of the dryer can be easily accessed through up to four entry ways. Cleanout, inspection, and general maintenance are never a problem with the Zimmerman Tower Dryer.

Heavy-duty materials and strong structural design provide a solid support for ladders and platforms.
1. Self cleaning cushion box on plenum roof reduces grain damage and plenum roof wear.

2. Stainless Steel outside sheets greatly extends the life of the dryer. The screens utilize different size perforations to reduce emissions.

3. The 12-3/4" grain columns surrounding the heat plenum chamber allows the grain to receive all BTUs from the burner, improving efficiency while providing superior noise reduction.

4. Heavy-duty overall construction results in an extra rigid structure on a minimum of ground space.

5. Uniform low velocity heated air improves efficiency and quality as well as reducing particulate emissions.

6. Inside and outside safety ladders, cages and catwalks provide safe and easy access to all areas of the dryer.

7. Patented Grain Inverters are used to equalize column moisture content and temperature of the grain column, greatly improving quality and efficiency.

8. In-line Maxon NP-LE-AL series burners provide even heat and efficient combustion from either natural gas or LP vapor. Aluminum extrusion reduces burner maintenance.

9. Reducer cone equalizes air velocity past burners for optimum combustion and provides step-in access to burner assembly.

10. Walk-in heat section provides easy access for interior cleaning.
12 Self cleaning divider hopper separates the heating and cooling sections while preventing build-up of particulate matter.

13 Internal mounting provides the added benefit of ultra quiet operation as the surrounding grain creates a natural noise barrier.

14 Internal inline, mixed flow centrifugal blowers deliver high volumetric airflow to the pressure heat and suction cool sections.

15 Recycling heat from the cooling grain results in significant fuel savings.

16 Walk-in cool section provides easy access to blowers and metering system.

17 A specially designed flow control system houses the Moisture Control Sensor. This insures a constant accurate reading from the sensor back to the Moisture Control System.

18 Industrial quality components (including Maxon valves and burners) ensure years of reliable service.

19 Weather-proof NEMA IV cabinets and NEMA rated electrical components ensure safe and reliable operation in all conditions.

20 PLC Control System provides one of the most advanced and reliable dryer controls on the market.

BLOWER(S) AND BURNERS
Depending on the size of the dryer, one, three, or four industrial duty blowers are used in the Zimmerman Tower Dryer. These internally mounted, in-line mixed flow blowers are sized to operate at slow speeds, which means low noise levels, low electrical usage and long blower and motor life.

Airflow from the blowers is ducted across a Maxon NP-LE-AL line burner. The burner can operate on either natural gas or LP vapor. The burners are sized and profiled to provide even, efficient heat distribution to the drying section of the dryer. (fuel oil burners are optional)

METERING DRIVE
The SCR variable speed DC motor and the single maintenance free Cyclo gearbox located in the cooling chamber provides simple, trouble free operation of the dryer's metering system.

SWEEP DISCHARGE
Field proven (patented) Accu-trol Metering System is self cleaning and provides positive grain flow.

SUPERIOR WORKMANSHIP
Standard operational features on the dryer include double Maxon gas blocking valves on the gas train, exhaust air temperature sensors, plenum high temperature limits, grain level monitoring, continuous flame monitoring, airflow monitoring and motor overload monitoring. We take pride in the design and workmanship that goes into the Tower Dryer, and stand behind it with a full two year warranty (5 years on frames and internal infrastructure).

CUSTOMER SERVICE
Should you ever need service on your Zimmerman Tower Dryer, Zimmerman has an extensive dealer network and professional service technicians ready to assist with your particular needs.
PATENTED GRAIN INVERTERS promote more even drying, higher test weights, and help reduce operating costs.

While old grain exchangers move grain from the inside of the grain column to the outside of the column in 6” columns, the patented Zimmerman Grain Inverters put a new twist on this process.

Zimmerman's Grain Inverters move all grain, except the outer two inches, within the column to eliminate over-dried grain and to maximize drying efficiency and grain quality. The inverters redirect the warmest grain from the inside of the column to the wettest grain at the outside of the column. The wet grain at the outer wall is dried using the captured heat which would have otherwise escaped the dryer. (See diagrams below for visual illustration.)

This process maintains optimal grain temperature, thus maximizing grain quality while using less fuel and significantly reducing operating costs.

A convenient clean-out door also provides easy access for quick maintenance.
HEAT PLENUM CHAMBER

The heat plenum chamber is entirely surrounded by a 12-3/4" grain column. All heated air must pass through the grain column resulting in total use of heated air. Stainless steel, smooth sidewall construction with .078" and .0625" perforation diameter helps retain particulate matter.

Inside:
- Heating section has .078" perforation sidewalls.
- Cooling section has .0625" perforation to minimize particulate matter entering the cooling section.

Outside:
- Heating section to the Grain Inverter has .078" perforation sidewalls.
- Grain Inverter to the cooling section has .0625" perforation sidewalls to contain the particulate matter.
- Cooling section has .078" perforation sidewalls.

NOTE: Overall heights do not include optional 20" vertical inlet spout height.
# TOWER DRYER SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Diameter (ft)</th>
<th>Height (ft)</th>
<th>Burner</th>
<th>Blower</th>
<th>Inverters</th>
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<tr>
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1. Dimensions exclude outside catwalk. See models below for diameter with catwalk.
2. Overall height includes 60" discharge height but not include the 20" inlet spout.
3. Capacities listed are wet bushels/tonnes, shelled corn at listed moisture content and are estimates based on drying principles, field results and computer simulation. Variance may occur due to grain's physiological factors (kernel size, chemical composition, variety, maturity), excessive fines, adverse weather conditions, etc.

**Larger models are shown on the inside back cover. All dryers are shown at relative size.**

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**Z-4036**

18" diameter x 96'-0" height, 25" diameter w/Catwalks

**Z-3531**

18" diameter x 86'-0" height, 25" diameter w/Catwalks

**Z-3026**

18" diameter x 76'-0" height, 25" diameter w/Catwalks

**Z-2521**

18" diameter x 66'-0" height, 25" diameter w/Catwalks

**Z-2420**

12" diameter x 65'-0" height, 19" diameter w/Catwalks

**Z-2018**

12" diameter x 59'-0" height, 19" diameter w/Catwalks

**Z-1816**

12" diameter x 53'-0" height, 19" diameter w/Catwalks

**Z-1512**

12" diameter x 52'-4" height, 19" diameter w/Catwalks

**Z-1210**

12" diameter x 52'-0" height, 19" diameter w/Catwalks

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