SHIVVERS®

Grain Drying Specialists

Performance System
with Certified Capacities

Drying your grain with certified capacities from 40,000 to 140,000 bushels per week!

Shivvers is so sure of our Performance System that we will certify your capacities in writing.

How will Shivvers Make a Difference in YOUR LIFE?

No Babysitting - Saves *You* Time

Anyone can say their dryer requires "No Babysitting", but to really understand the term, we first have to establish what "No Babysitting" means to farmers.

"I can sleep all night and not have to worry about my dryer."
- North Dakota Farmer

"I can trust the control to do its job."
- Nebraksa Farmer

"I know my grain will transfer at the moisture I want, without me being there to watch it."
- Iowa Farmer

"I'm not tied down, I'm free to do other things."
- Ohio Farmer

Shivvers defines "No Babysitting" as precision control and automation with computerized accuracy. It means having enough surge capacity for the dryer to run 24 hours a day, 7 days a week. It means Shivvers owners can concentrate their efforts on harvesting and be secure in the knowledge that their CompuDry Command Center is controlling every aspect of their grain drying and moving operation.

High Efficiency - Saves *You* Money

The Shivvers Performance System offers you peak drying efficiency with minimum fuel consumption. The Performance System ***only*** uses the fuel and electricity needed and won't overdry your grain. With fuel rates going up and up, why use more fuel than necessary to dry your grain?

A higher test weight is one of the many benefits of the Shivvers Grain Drying System that can help you make money. A Shivvers Performance System has a long retention time, the amount of time the grain is in the dryer and exposed to the heated air. This assures you a higher test weight and a higher test weight equals more weight per bushel, resulting in more grain to sell.

Make every cent count.

Performance in Writing

Shivvers builds quality products that are engineered to work individually, but the Shivvers Performance System combines the advantages of these individual components for peak performance. By building all the components, testing them together and installing them per Shivvers requirements, we at Shivvers know how the equipment will perform and what it is capable of doing. Shivvers will certify that the System you purchase will perform at the published capacities or we will do what it takes to make it perform, it is *that simple*.

When you purchase a Shivvers Performance System, you will have a Shivvers Factory Representative visit your Performance System Site and pre-check your system to ensure proper installation. Once your system has been approved, you will receive a full operation manual with a Certification of Drying Capacity stating the capacity you will recieve with your Shivvers Performance System...in writing.

You purchase this system

Your certified performance will give you around 13,000 bushels per day

SHIVVERS®

Performance System

Certification of Drying Capacity

System Owned by: *Joe TopFarmer*

Address: *12345 – 125th Street*

City: *Your Town* **State:** *IA* **Zip:** *12345*

Number of 13 hp Blue Flame drying fans: 2 **Turbo-Boosters:** ☒ Yes ☐ No **Bin Diameter:** 36

Certified Drying Capacity - *see operating conditions.*

36 FT. Two Blue Flame

Approx. Depth	Static Pressure	Bu/Hr[1] 25% - 15%	Bu/Hr[1] 20% - 15%
4 ft.	1.9"	365	586
6 ft.	2.5"	340	545
8 ft.	2.9"	320	515
14 ft.	3.7"	275	440

[1]Bushel Per Hour shown is wet grain in, discharged from dryer at 15.5%, and then allow cooled down to 15%. See full details on reverse side.

Think outside the Box...Dryer

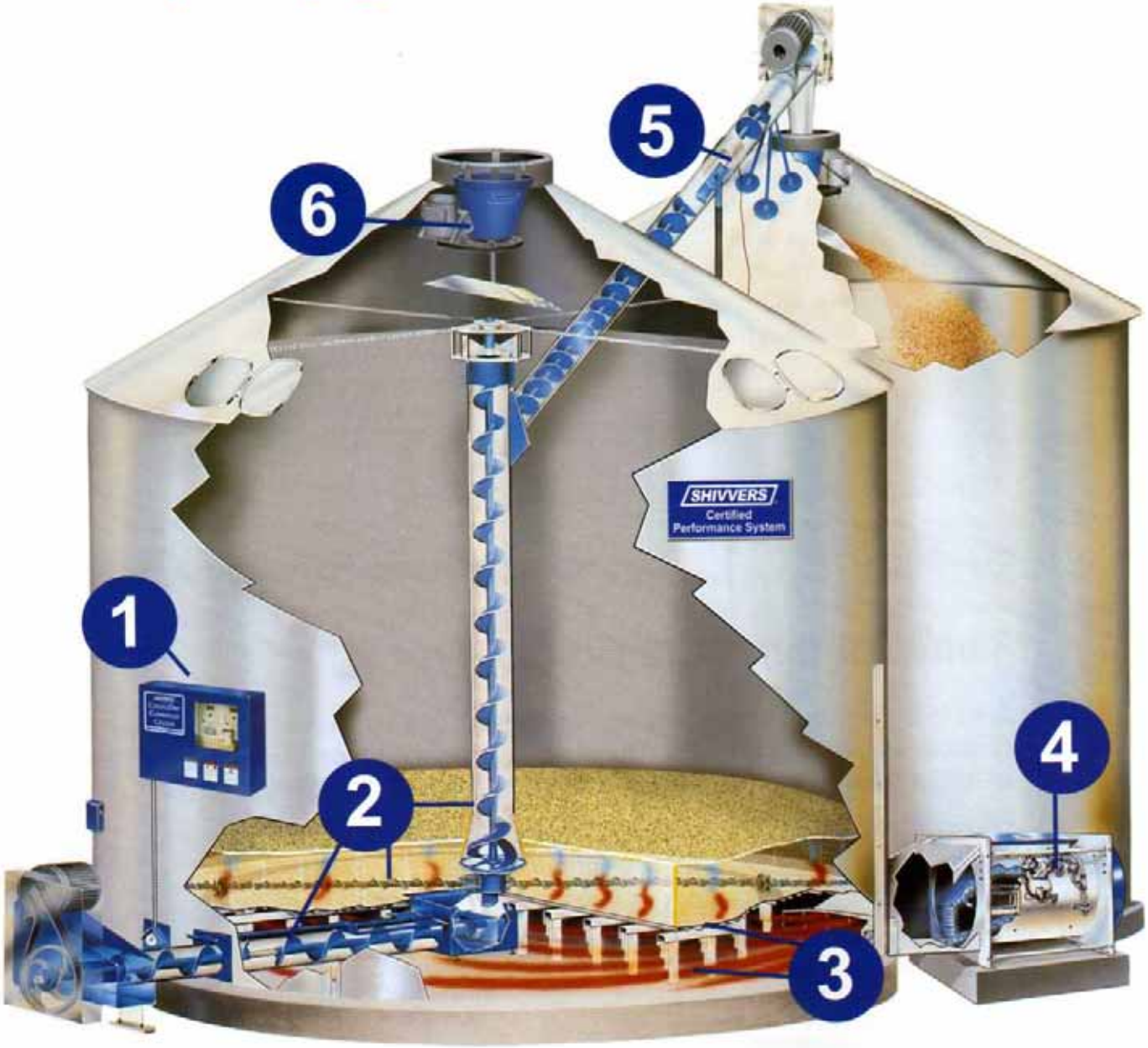
A 42 foot diameter bin can hold approximately 1000 bushels of grain per one foot of depth or about a semi load of grain. The main drying zone (depth) in a Shivvers Circu-Lator bin is approximately 14 inches with a surge capacity maximum of 16 foot. The math isn't hard...we are talking 16 semi loads of surge capacity.

Weigh your options and compare the surge capacity of the competitors dryer...why would you consider an out-of-bin dryer? If you had the trucks needed to supply wet grain surge for a cross-flow dryer, the amount required would equal the length of THREE football fields.

Simply put... to match the type of surge capacity that Shivvers offers, you would need an additional wet holding tank with a 16,000 Bushel capacity.

Shivvers Performance System...

Your assurance of the highest quality grain with *certified capacities.*



Shivvers Performance System controlled by the CompuDry Command Center is a grain drying system specially designed to deliver the right amount of heated air to the grain in order to bring the grain moisture down to safe storage levels. This is done gently so the grain maintains its test weight and quality. The grain is then transferred automatically from the dryer bin to storage, where it is cooled down and stored.

How does a Shivvers System work?

With grain in the bin, air is heated and blown into the plenum, the area under the perforated drying floor, where it flows up through the grain, drying the layer of grain on the floor, and warming the grain above.

The tapered sweep augers bring a grain sample from the floor up to the moisture sensor where it determines the moisture content. If the grain has reached the desired setting, the Command Center turns on the Continuous Flow Auger to take the grain to the storage facility.

If the grain has not reached the desired moisture, the Continuous Flow Augers are left off and the center vertical auger spreads the grain sample back on top in the drying bin. This process assures that no wet grain transfers into storage.

1. The brains of the Performance System is the **CompuDry Command Center**. The Command Center provides automatic control without babysitting. Simply set your desired grain moisture and drying temperature and the Command Center will do the rest. Around the clock control and performance that gives you the confidence that you have the best quality in every kernel, of every bushel, of every load of grain you sell.

2. The Shivvers **Circu-Lator II** is the heart of the Shivvers Performance System. The Circu-Lator is scientifically engineered to remove an even layer of dry grain from the floor of the drying bin and transfers it through the Continuous Flow Auger System. The design of the Circu-Lator gives you built-in wet holding for 24 hours a day.

3. With 23% open area, Shivvers perforated **Channel-Lock Drying Floor** and **Steel Floor Supports** allow maximum air flow from the plenum chamber up into the grain.

4. The Shivvers **Blue Flame Dryer**, with it's 3,650,000 BTU, is the largest burner made for a 28 inch fan. This powerful fan and heater combination provides enough heat to warm freezing air to 200° F. The Blue Flame provides the most evenly heated drying air for a Continuous Flow Dryer. Coupled with the air flow enhancing Turbo Booster, the combination can overcome conditions of over 10 inches of static pressure for speedy drying.

5. Shivvers heavy duty, long-lasting **Continuous Flow Augers** are always in place, out of the way of other equipment and ready to go to work at the flip of a switch. Transfer the grain to any storage bin in the system conveniently and economically.

6. The High Capacity Shivvers **Grain Hog Spreader** distributes the incoming grain evenly within the drying bin for even drying.

Shivvers CompuDry Command Center with Printer

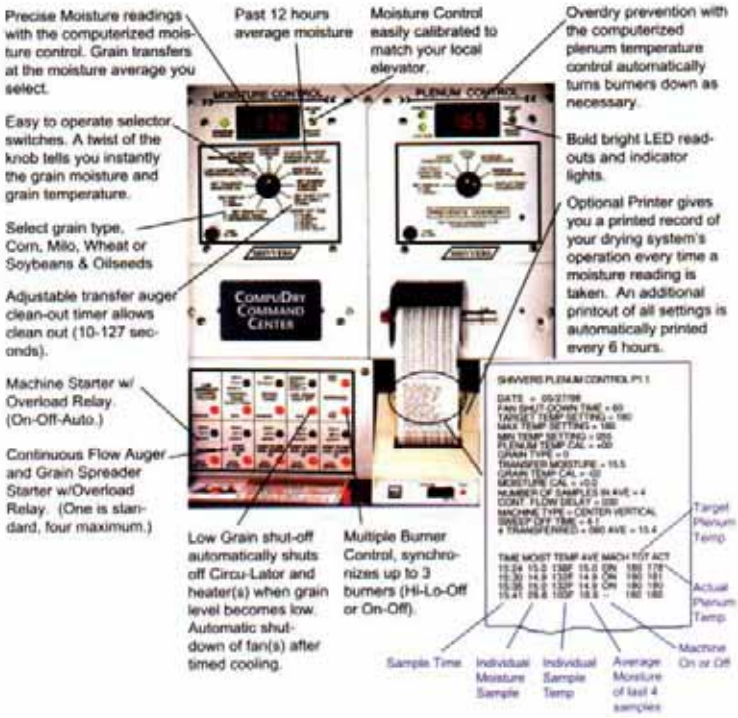
The **CompuDry Command Center** constantly monitors conditions, such as grain moisture, grain temperature, plenum temperature, and controls all components of the system. You make some intial settings to the Command Center, concentrate on harvesting your crop, and keep grain in the bin...while the Command Center does the rest. It is designed with the operator in mind, it's easy to use and gives you fingertip control of your entire in-bin continuous flow system.

Take a look at what we have to offer below. Compare our advantages to our competition. See if anyone else can offer you the accuracy, precision, and control that you require in these times where every cent counts.

Command Center Advantages

- ✓ **No Babysitting - Saves You Time!**
- ✓ Grain moisture, Grain temperature and Plenum temperature are all controlled from one location
- ✓ NO OVERDRYING - the Command Center automatically turns down burners as necessary
- ✓ Fingertip control of your entire In-Bin Continuous Flow Grain Drying System
- ✓ Your Performance System can run 24 hours a day...7 days a week

What Is "Fingertip Control" with a Shivvers CompuDry Command Center?



Blue Flame Crop Dryer

Performance Systems require high levels of evenly controlled heat and maximum volumes of air flow to achieve their full potential. The Shivvers dryers deliver capacity under the most difficult conditions, because they are built tough for the job.

Shivvers drying fans are in a class of their own. Only Shivvers offers dryers designed to specifically increase the speed, safety and economy of in-bin continuous flow drying. The selection of the proper burner and fan will determine, to a large measure, the capacity and satisfaction you will receive from your in-bin continuous flow Performance System.

With superior construction, the **Blue Flame Dryer** includes a stainless steel 3,650,000 BTU burner, high capacity vaporizer and a 28-inch vane axial fan powered by a 13 HP soft start single-phase or three-phase electric motor. Also available for Shivvers Performance Systems is a Shivvers 20 HP 3 Phase **Centrifugal Fan** and 3,200,000 BTU Centrifugal Heater (capacity calculated at 180° plenum). The Shivvers Centrifugal Fan allows Performance Systems to be used in noise limiting areas.

Meet the fuel economy demands of today with the Shivvers Blue Flame Dryer. Designed and built to increase the drying capacity of your Shivvers Performance System. The Blue Flame provides peak drying efficiency with minimum fuel consumption. You can choose a Blue Flame model to burn liquid propane, propane vapor or natural gas and because each dryer burns with an intense blue flame, you are assured of the right gas/air mixture for clean, complete fuel consumption.

No fuel is wasted...
no matter which fuel you use.

Blue Flame Advantages

- ✓ Burner will deliver 200° F drying temperature at 0° F outside air temperature
- ✓ A high-flame and low-flame burner runs continuously in normal operation for precise, even temperature control
- ✓ A unique combination of safety features guards the system by shutting it down should the plenum, grain, burner or vaporizer temperature go too high
- ✓ Down-wind burner design delivers 15% more air because of hot air expansion through burner
- ✓ Hi-performance fans deliver maximum air flow
- ✓ Computerized electronic flame rectification assures positive ignition and safe burning

Blue Flame Turbo Booster

The **Blue Flame Dryer with Turbo Booster Fan** dramatically steps-up drying capacity in any in-bin continuous flow system. Working together, they deliver air at up to 14 inches static pressure, higher than any centrifugal fan on the market. The 13 HP Turbo Booster Fan easily bolts to the Blue Flame Dryer and inter-connects into the Blue Flame safety controls. A separate start-stop switch and magnetic starter are standard on the turbo unit.

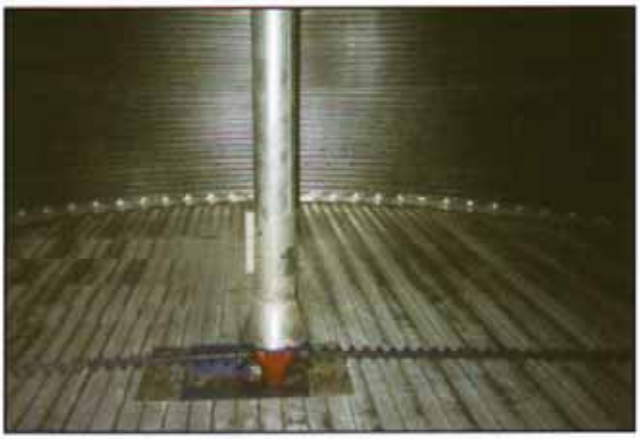
Blue Flame		Blue Flame with Turbo Booster			
Static Pressure	CFM*	Static Pressure	CFM*	Static Pressure	CFM*
1"	16.300	1"	19.300	8"	10.733
2"	14.545	2"	17.950	9"	9.510
3"	12.610	3"	17.125	10"	9.175
4"	10.560	4"	15.975	11"	5.750
5"	8.095	5"	14.780	12"	3.755
6"	5.045	6"	13.490	13"	2.640
7"	2.346	7"	12.140	14"	2.345

Standard on each Performance System is a **Clean-Out Door**. One is included for each burner and allows fines to be blown out of the plenum chamber so maximum air flow is maintained.

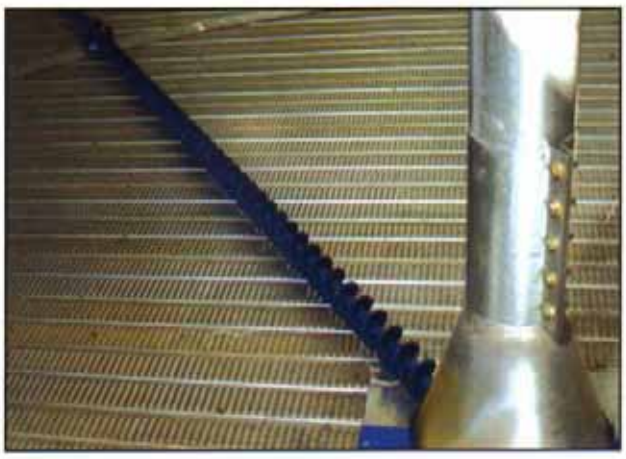
**Air Delivery is corrected for 160° F plenum temperature and is rated with burner and vaporizer in place.*

Circu-Lator II with High Temperature Gearbox

The **Circu-Lator II** is the augering equipment inside the bin that removes the dry grain from the floor and lifts it to the transfer augers where it is transferred to the cooling bin. The Shivvers Performance System Circu-Lator II consists of a center gearbox and basket assembly, an 8" horizontal unloading auger, two tapered sweep augers with wear track and center vertical auger.



The drive motor mounts to the outer end of the unloader and powers the unloader and the drive shaft that passes through the center of the unload flighting to the gearbox. The heavy duty gearbox then powers the tapered sweep augers and the center vertical auger.



The **Tapered Sweep Augers** are scientifically designed to move around the floor of the bin on a Wear Track, removing an even layer of dry grain as they travel. As in all Shivvers Performance Systems, the tapered sweeps are hard surfaced for longer life. High capacity tapered sweep augers are used on all Shivvers Performance Systems in bins 30' diameter and larger. As the grain is evenly drawn off the drying floor, it is taken to the center, where the Center Vertical Auger elevates the grain up to the transfer auger.

The **Center Vertical Auger** is designed with special pick-up fingers at the bottom to collect grain from the tapered sweeps and start it moving up to the transfer auger.

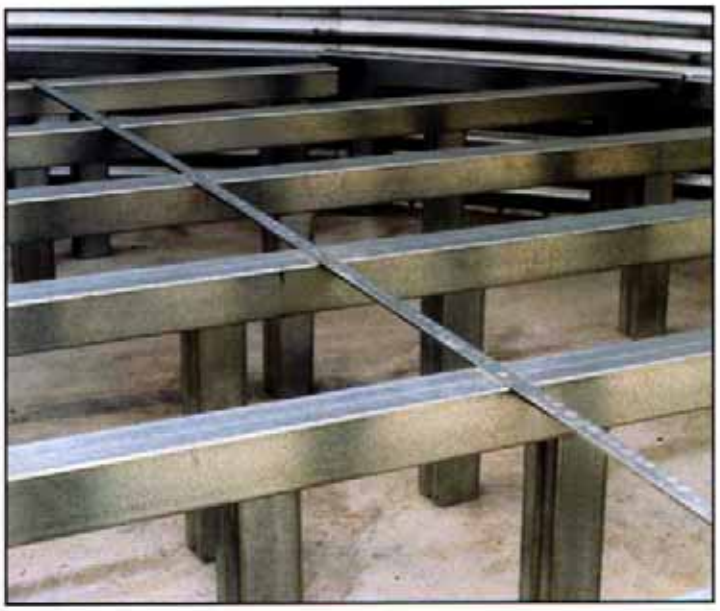
Channel Lock Floor and Steel Floor Supports

Shivvers standard **Channel-Lock Floor** with its 23% open area is one more key feature that sets the Performance System apart from other in-bin continuous flow dryers. It has an 8" plank with a patented center rib design which gives the appearance of two 4" planks side-by-side. This rib gives far greater strength especially with the In-Bin Continuous Flow Drying Systems and deep depth aeration applications.

Shivvers floors with their generous open area aid in defeating the static pressure problems incurred with higher grain depths and multiple fan situations.

Channel-Lock Floor Advantages

- ✓ Floor planking is 20 gauge and embossed for optimum strength
- ✓ Standard floor has a round hole punch of .094" making an open area of 23%
- ✓ Optional small grain floor has a round hole punch of .054" making an open area of 19.5%
- ✓ Includes heavy, 20 gauge flashing and installation hardware
- ✓ Has 8" plank with reinforced center rib
- ✓ Fast and easy installation



Shivvers **Steel Floor Supports** are ideal for use under drying and storage floors. Rails are made with a channel opening on the underside that accepts the support legs. The legs snap into place for ease of installation. Rails are tied together at predetermined spacings to maintain the strength required under grain depths of up to 30 feet (16 feet for Circu-Lators).

Steel Floor Supports

- ✓ Maximum air flow
- ✓ No air channeling
- ✓ Sturdy 16 gauge steel
- ✓ Quick and easy to install
- ✓ Supports available to fit Performance Systems in bins 24' to 48' diameter

Heavy Duty Transfer Augers

Heralded as one of the best in the industry, Shivvers heavy duty Basic **Continuous Flow Augers** are up to the challenge of moving hundreds of thousands of bushels of grain annually. As grain is lifted by the Center Vertical Auger, it is deposited in the Center Vertical Boot. Here, the Continuous Flow Auger picks it up and further elevates it to the top of the next bin by the Transfer Auger where it is dropped through a downspout and into the cooling bin.

When a third, fourth, or multiple bins are used in the system, you may need to add a Horizontal Transfer Auger with possible drop outlets to fill the various bins. All Transfer Augers are automatically controlled by the CompuDry Command Center. All Shivvers Performance Systems are equipped with 6" Continuous Flow Augers, Grain Sample Valves, which allow grain sampling from the ground when transferring, a motor and pulley, roof braces and truss, which free spans exceed 60'.

Transfer Auger Advantages

- ✓ Always in place, ready to go with a flip of a switch
- ✓ Heavy duty so they can handle hundreds of thousands of bushels of grain annually
- ✓ All Transfer Augers can be controlled by the CompuDry Command Center

Grain Spreaders

The **Grain Hog** is a high capacity grain spreader that distributes the grain as it is added to the bin, to give a more even air flow throughout. Standard on all Shivvers Performance Systems, the Grain Hog has a 4,000 bushels per hour capacity.

Patent No. 6,923,389

Shivvers also offers the **Controlled Flow Grain Spreader** that truely spreads level because of its dual motor drive system. The dual motor drive has variable motor speed that drives the spreader pan, while another motor drives a Diverter Valve. This diverter valve rotates as it fills the pan and can be stopped to fill in low areas that develop, sometimes caused by drying. If your need is to fill large diameter bins and keep your grain depth level for drying or cooling, this is for you.

Grain Spreader Advantages

- ✓ Grain Hog available in ½, 1 or 1 ½ HP motor with ranging bushels per hour of 3,200 to 5,000
- ✓ Controlled Flow Spreader (2 HP) can be used in bins of 27 to 48 ft. diameter with capacity up to 6,000 BPH
- ✓ High capacity spreaders built for really tough jobs

Hi-Torque Performance Systems: 42 ft. and 48 ft.

To achieve the highest capacity drying with a Shivvers Circu-Lator, large diameters bins are a necessity. In dryer bins 42 foot and 48 foot diameter, capacities of up to 835 bushels per hour can be achieved, with sufficient fans and heaters. In order to fill this necessity, Shivvers has designed, built and tested the Hi-Torque Circu-Lator.

For large diameter drying bins, 42 foot and 48 foot diameter, the amount of torque required to start the Circu-Lator with grain in the bin is increased due to the longer length and larger diameter flite of the Ultra High Capacity tapered sweep augers. These sweeps can remove 835 bushels per hour as compared to standard Performance Systems with High Capacity Sweep Augers at 555 bushels per hour. In order to assure the starting of a Circu-Lator of this size, Shivvers has designed a drive head, driven by two 10 HP motors, that is capable of producing twice the torque that one 10 HP motor is able to produce. The Hi-Torque Circu-Lator is a real workhorse for ultra high capacity grain drying.

The Hi-Torque Circu-Lator operates in much the same way as the standard Circu-Lator II. It has been designed heavier duty with an oversized 1 1/4" Drive Shaft and 1 1/4" double keyed shafts in the gearbox. The Ultra High Capacity Tapered Sweep Augers and Center Vertical Flighting are hard surfaced to withstand the wear of drying hundreds of thousands of bushels of grain.

The Center Vertical Auger has been redesigned with double flighting and a larger "wide spread head" allowing the grain to be thrown out to the sidewall in the larger diameter bins. Also available is a High Angle Transfer Auger Boot that angles as much as 60°. This provides opportunity to transfer into much taller bins that are generally utilized when drying massive amounts of grain.

Shivvers Performance System Options

Shivvers offers several options that can be added to your Performance System to make a sure fit to your needs. The **Intermediate Well** is invaluable in unloading the bin. One or more wells allow grain to be removed much faster when loading out to a truck.

A **Vertical Unload** is available for those who need to load out trucks from the dryer bin. This option eliminates the need for an auxilliary transport auger. It is powered from the machine drive motor when the horizontal unload is engaged.

If you need maximum capacity from your Performance System, take a close look at the **Level-Dry** option. Capacities are dramatically increased when grain is kept at a level depth, because air flows through the grain evenly. When operating a Level-dry in a fixed depth mode and using a wet holding tank ahead of the dryer, wet grain can be pulled in, as needed, to maintain a predetermined depth.

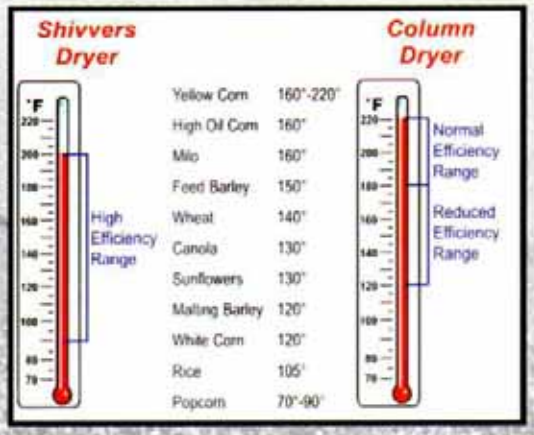
Simpler...Faster...Shivvers

High Efficiency Drying for all Grains

The Shivvers System has a deeper depth drying zone, unlike portable continuous flow dryers that have narrow 12" - 14" drying columns. Shivvers' deeper zone allows efficient drying at all temperatures.

Narrow column dryers exhaust unsaturated (unused) drying air when used at temperatures below 180° F, rapidly losing drying capacity.

The Shivvers System maintains efficiency and delivers good capacity at the lower 90° - 160° F, most commonly used with specialty grains such as white corn, grass seeds and high oil corn. This same Performance System has the versatility to rapidly dry yellow field corn at 200° F with high efficiency.



Higher Test Weight

Farmers and universities alike report higher weight for corn dried in Shivvers systems. This is due to the naturally uniform drying action and long retention time of the Shivvers System. High test weights are the hallmark of Shivvers drying systems...and the number one indicator of high quality grain.

Drying Capacities

bushels per day **6 ft. average depth	24'	27'	30'	33'	36'	42'	48'
1 – 13 HP Blue Flame	5,100	5,600	6,000				
1 – 13 HP Blue Flame w/ Turbo Booster	6,600	7,300	7,700	8,100			
2 – 13 HP Blue Flames	NA*	8,100	9,000	9,900	10,700	11,800	12,600
2 – 13 HP Blue Flames w/ Turbo Boosters	9,300	10,700	11,900	13,000	13,900	15,400	16,400
3 – 13 HP Blue Flames w/ Turbo Boosters	NA*	NA*	NA*	NA*	17,500	20,200	22, 200
SURGE CAPACITY**	5,800	7,400	9,000	11,000	13,100	17,800	23,200

** NA = Not Advised*

***Bushels per day figured at 6 ft. depth, 200° F Plenum and removing 7% moisture. Numbers have been rounded to the nearest hundred.*

Highest Precision Moisture Control

The CompuDry Command Center accurately controls the grain moisture content, regardless of input moisture with computerized accuracy. The computer also has exclusive plenum control, reducing or increasing the plenum temperature as neccessary to prevent overdrying.

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