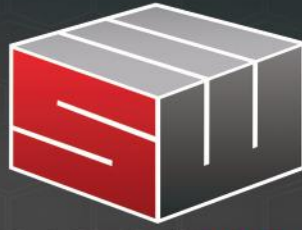


DEWPOINT 331 BUYER'S GUIDE



STAHELI**WEST**



WE DEW HAY[®]

Changing Agriculture. Changing Lives.

www.staheliwest.com — 600 N Airport Rd, Cedar City, UT 84721 — 435.586.8002



Dave Staheli, President
Staheli West, Inc

Making DEW: The Story of How it All Started

A Taco Restaurant – That’s where the idea to apply steam to hay came from. Staheli West, Inc. was founded by Dave Staheli while managing Brent Hunter Farms in Cedar City, Utah.

Watch our latest documentary on the miraculous and inspiring story of one man’s struggle to put up high-quality hay and how a prayer and a taco restaurant inspired one of the most revolutionary concepts in haymaking.

Simply scan the QR code to see the video.



Visit our social media



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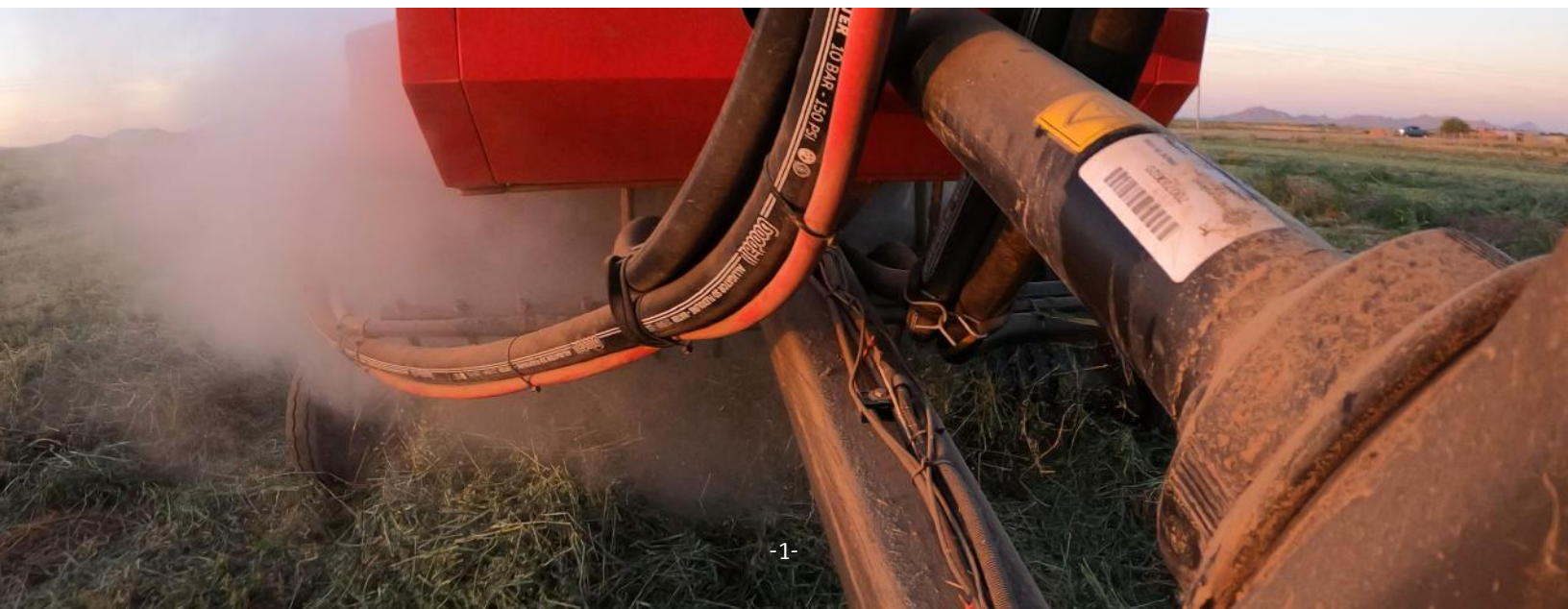
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The DewPoint 331 produces steam, which is injected into the hay during the baling process. The steam softens the hay and allows farmers to make quality hay all hours of the day and night without the need for natural dew.



Benefits of Using the DewPoint 331 Hay Steamer



More Leaf: University studies done with 3-tie balers show that baling with steam cuts leaf loss by 40% compared to baling with a good natural dew at night. The University of Wisconsin performed a study on baling with steam during the day and baling with a good natural dew at night. They state, “Steam rehydrated bales indicated that leaf retention on the stems was superior to that of bales formed with [natural] dew rehydration.” More green in the bale means more green in your wallet.



Higher Yields: In many areas, farmers utilizing DewPoint technology have seen increases in their last cutting yields. This is because most farmers can now bale whenever their hay is dry. They can cut, rake, bale their hay, and get water back on their fields quicker. This adds valuable growing days when the weather is warmest. Added growing days means that farmers will realize higher yields at the end of the year. This is just another way the DewPoint 331 can pay for itself.

Dew More.





More Productivity: Typically, baling with steam allows farmers to bale high-quality hay for 12-24 hours per day. Being able to open up the baling window means that 1 DewPoint setup can typically replace 2-4 conventional baler setups. Being more productive with less equipment and manpower means less capital, fewer maintenance expenses, and lower labor costs.



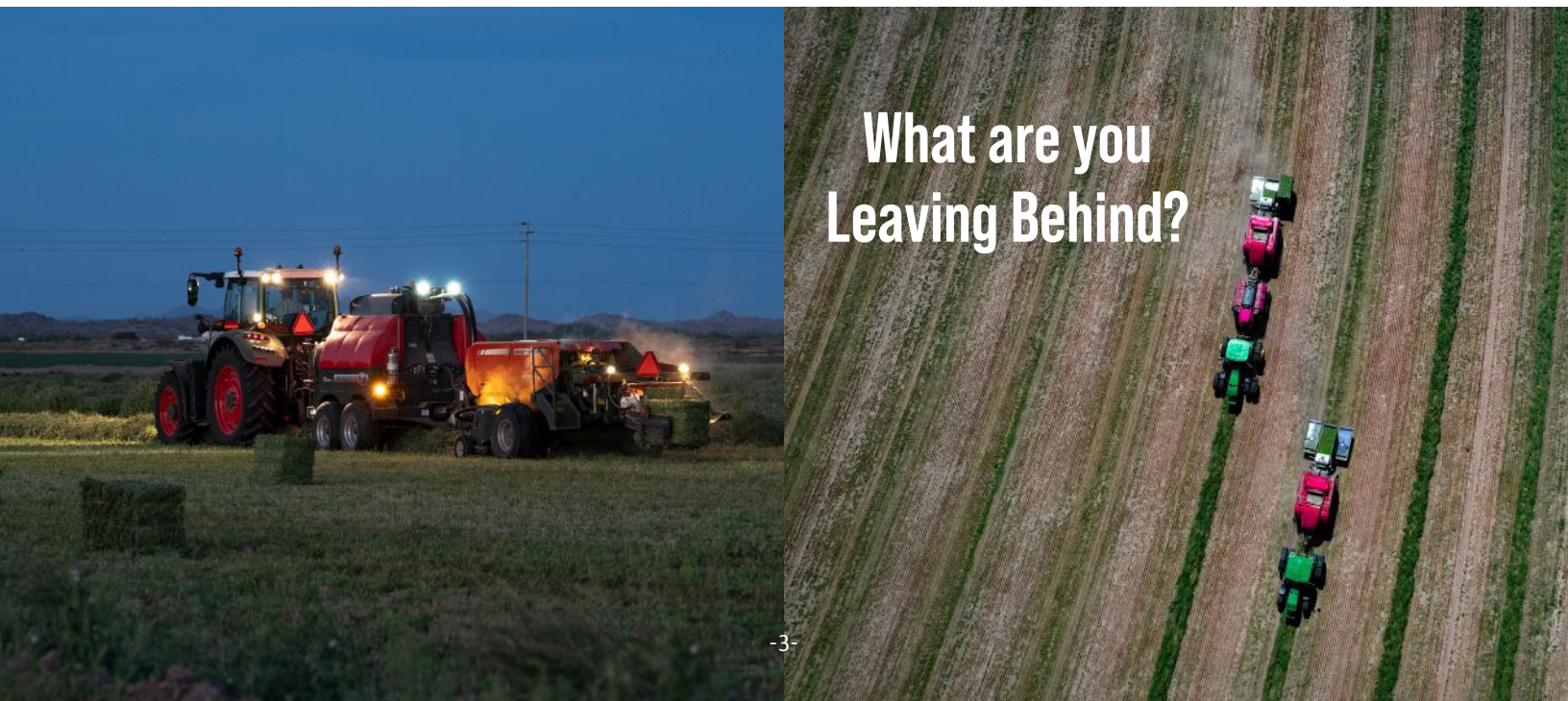
Higher Hay Quality: With the exception of extreme weather events and rain, baling with steam will essentially eliminate lower grades of hay. Even with some rain damage, farmers using the DewPoint 331 are still able to produce a leafy Grade 2 hay or better. Some of our small bale customers say they have very little grade 3 and 4 hay now. Being able to produce a large amount of premium and grade 1 hay with steam has significant financial benefits.



Reduced Crop Loss: There is nothing worse for a hay producer than to have nice, green, leafy hay on the ground and not be able to put it up with proper moisture conditions. Many farmers are forced to bale dry hay for many reasons. Baling hay too dry shatters the crop material and increases leaf loss. With steam you will NEVER bale hay too dry again!



Better Flakes: One of the things producers and hay buyers notice instantly is that steamed hay feels different than hay baled with dew. Flake conformation on steamed hay is superior to that of hay baled with dew. When feeding horses or livestock, you will notice that the flakes hold together very well during handling and feeding.



What are you
Leaving Behind?



Dust Reduction: Dusty hay can cause harm to the respiratory systems of horses. In fact, some horse farms use small steamer boxes to steam each bale as they feed it to their horses to minimize hay dust. Using the DewPoint 331 to bale hay in the field reduces hay dust in the bale. Even in grasses, where dust is an issue, baling with the DewPoint 331 Steamer dramatically decreases the amount of dust in the hay. Being able to market this aspect of your product could go a long way with some of your equine customers.



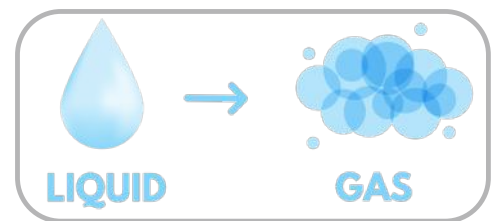
Increased Round Bale Density: If you are using steam to bale round bales, you can expect to produce a leafier bale with higher density. Through our preliminary round bale testing, we have seen exceptional leaf retention and bale density increases.





Why Use Steam?

Unlike water particles in the liquid state, steam particles are widely separated and are free to move randomly. When injected steam contacts dry crop material it instantly condenses and bonds with other water molecules in the vicinity, which causes instant absorption into the dry crop material. Steam particles can penetrate through the tiny pores in plant material more effectively than water and soften the hay without making it too wet. This is the reason the DewPoint system works so efficiently.



How it Works

The DewPoint 331 generates steam which is injected into hay windrows. The machine is powered by the electrical and hydraulic system of the tractor. A diesel oil burner heats water inside the boiler to produce steam. This steam is transferred through hoses into custom manifolds mounted on the baler. The operator controls the steam rate and distribution in the baler.



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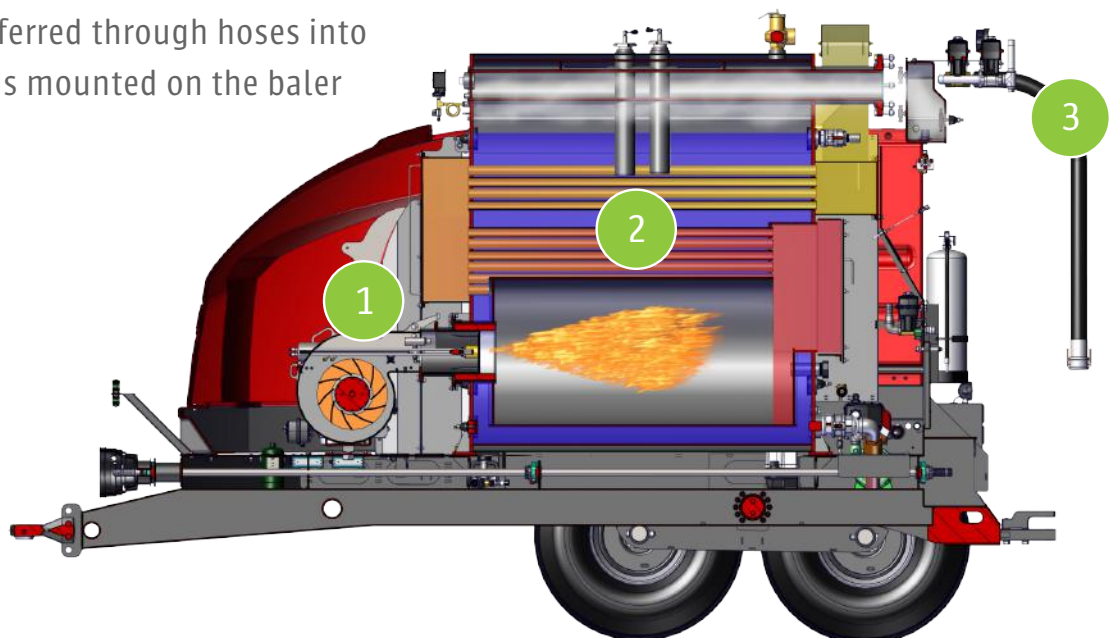
Main Components

- Boiler
- Steam Hoses
- Water Tanks
- Fuel Tanks
- Burner
- Baler PTO Shaft



The Process

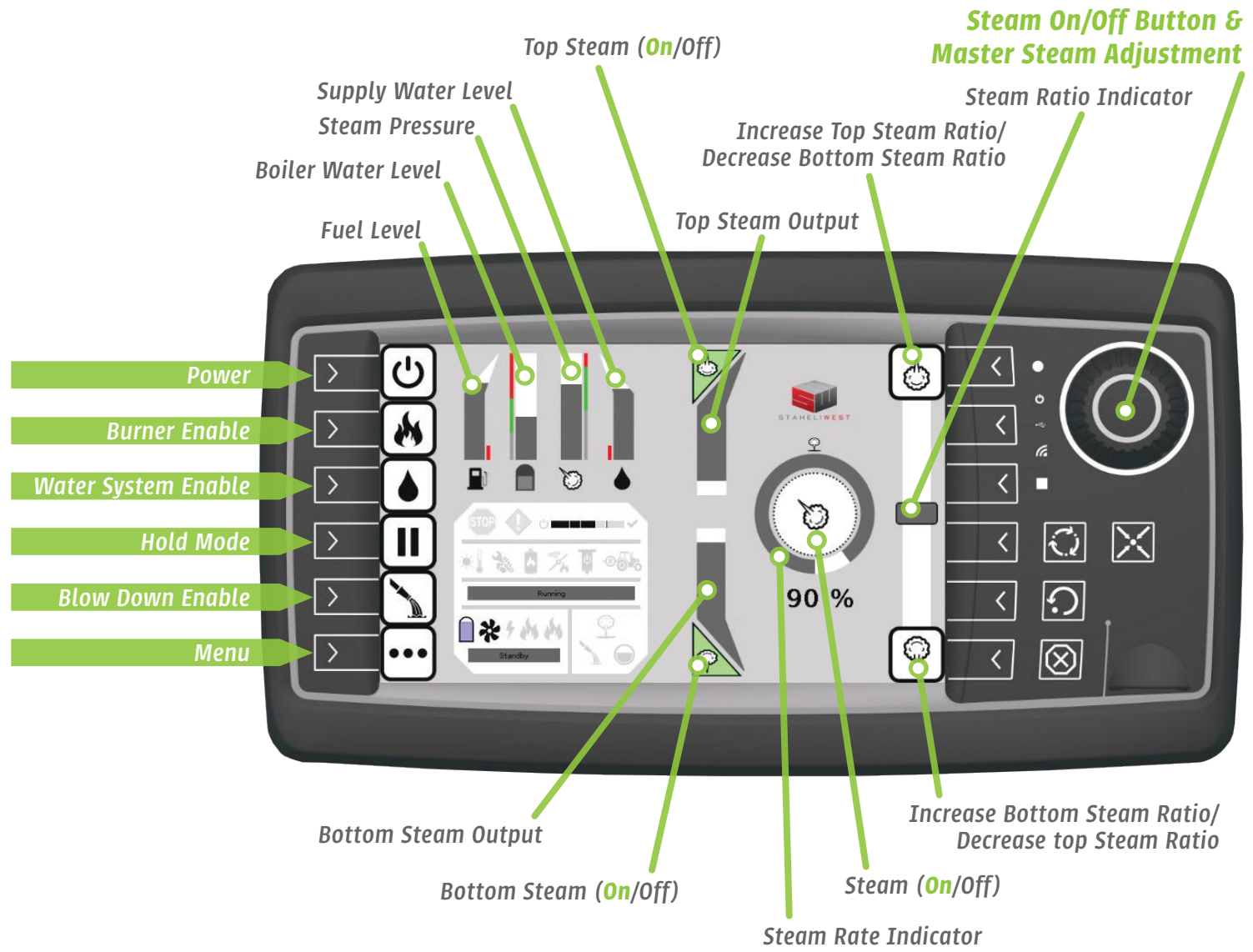
1. Diesel oil burner heats water
2. Water inside the boiler turns to steam
3. Steam is transferred through hoses into custom manifolds mounted on the baler





User Interface

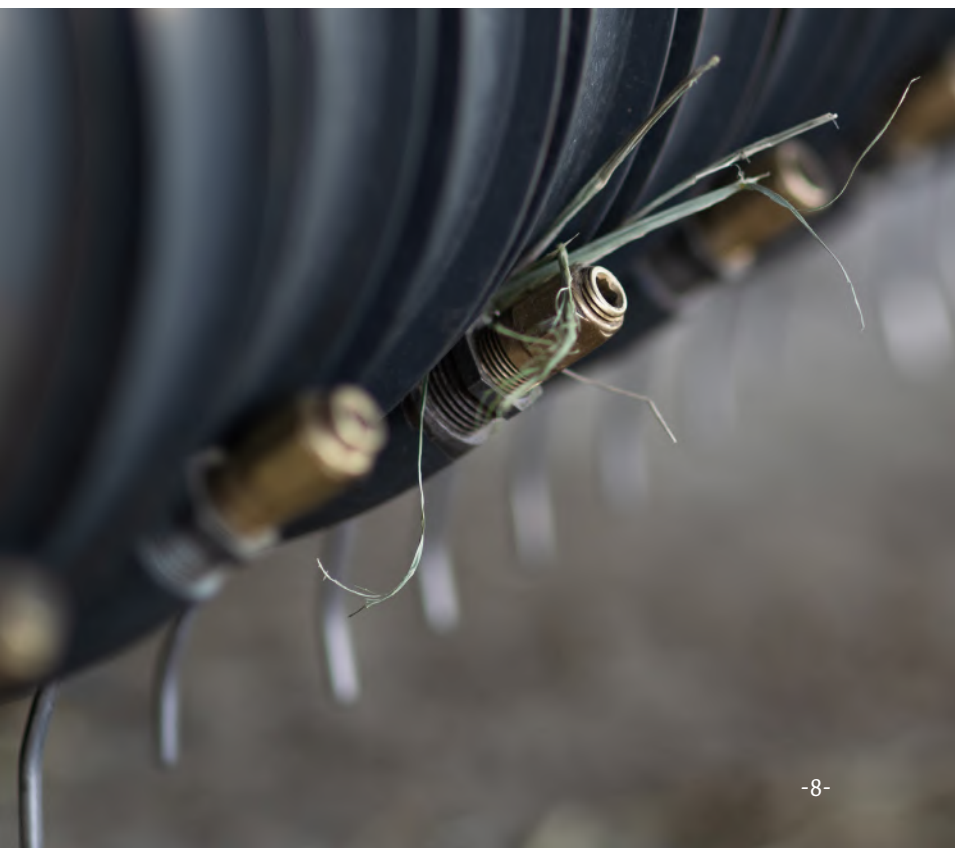
The DewPoint 331 is controlled by the operator in the tractor cab. The DewPoint 331 display automates most of the machine functions to make it easy and simple to use. The display allows farmers to make steam rate and steam distribution adjustments on the fly as needed.



Where is the Steam Applied?

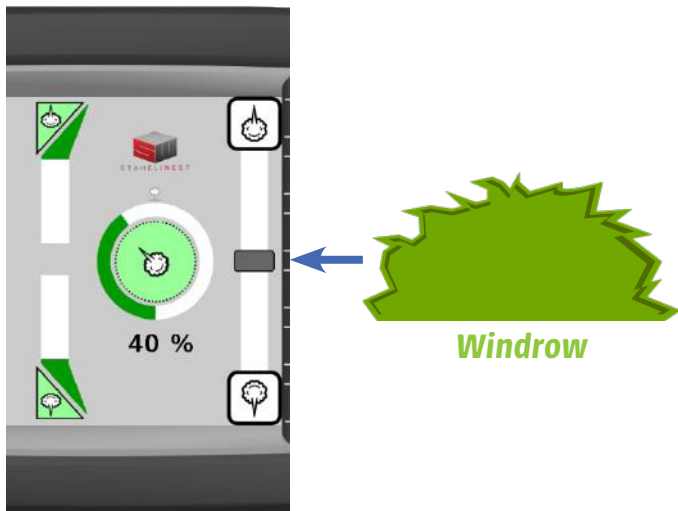
Steam produced by the DewPoint 331 is injected into the hay as it is lifted from the windrow by the baler pickup and further as it passes through the feed chamber of the baler. The treatment of the hay is accomplished by injecting steam through a series of distribution manifolds mounted in the baler. Bale moisture is monitored continuously and adjustments to the steam injection rate are made by the machine operator as needed to maintain desired bale moisture conditions at all times. Most baler steam hardware is made up of 4 manifolds that inject steam into the hay during the baling process.

The DewPoint 331 display allows the operator to control not only the amount of steam being injected into the hay but the distribution of the steam as well. For example, the top and bottom manifolds can each be controlled separately for different windrow conditions. Below are some common valve settings operators use. (See on page 9)



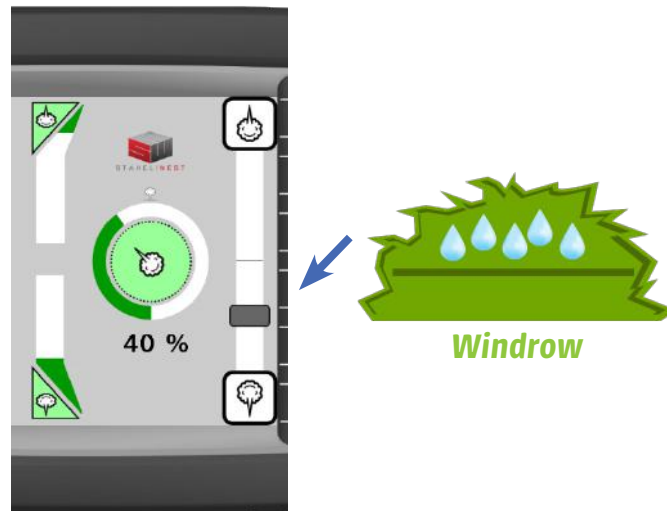
Common Valve Settings

Windrow Evenly Cured Top to Bottom



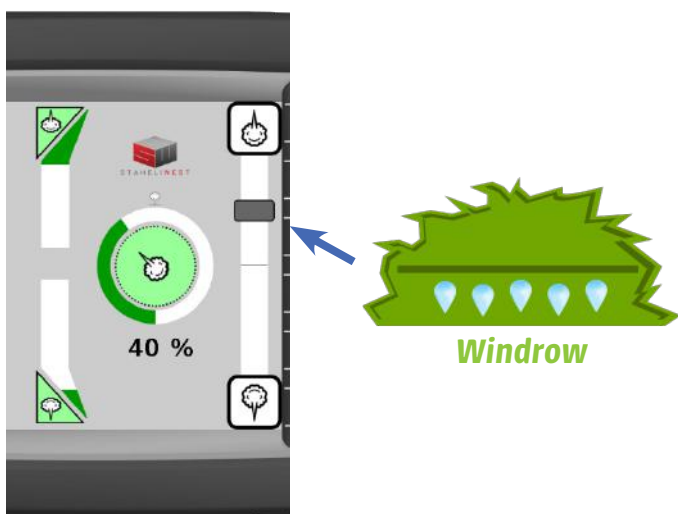
When a windrow is evenly cured, start with the Steam Ratio Indicator in the middle and the steam rate at 40%. Adjust steam rate as needed.

Windrow with More Moisture on Top than Bottom



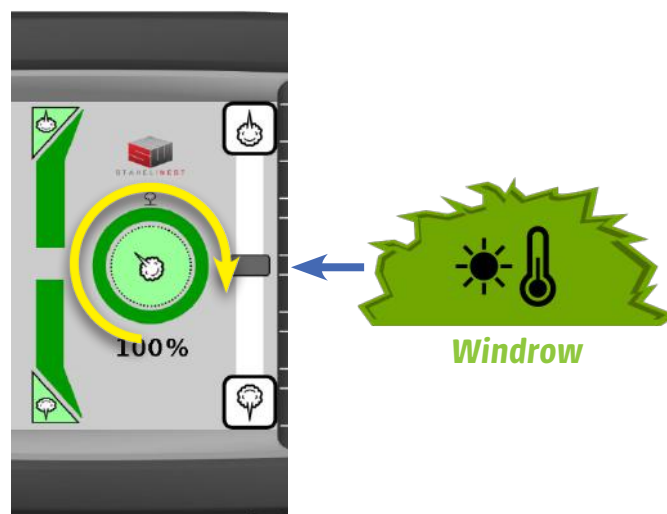
When a windrow has more moisture on top than on bottom, start with the Steam Ratio Indicator closer to the bottom and the steam rate at 40%. Adjust steam rate as needed.

Windrow with More Moisture on Bottom than Top



When a windrow has more moisture on bottom than on top, start with the Steam Ratio Indicator closer to the top and the steam rate at 40%. Adjust steam rate as needed.

Hot and Dry Conditions



When baling in hot and dry conditions, start with the Steam Ratio Indicator in the middle and the steam rate at 100%. Adjust steam rate as needed.



Moisture Sensor

Typically, a Gazeeka Colt Moisture Sensor is used when baling with steam. The Gazeeka Colt is a non-contact moisture sensor that uses high frequency electromagnetic waves that are transmitted between two antennae. These waves pass through the entire width of the bale and give operators an accurate bale moisture reading in real time right in the tractor cab. By using the moisture readings from the Gazeeka Colt, operators of the DewPoint 331 can adjust steam rates to meet their desired moisture level and produce a consistent product.



MAKING THE BEST QUALITY

Consistency in every bale is now



HAY ON YOUR OWN TERMS.

Now possible with a DewPoint 331.



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Water Requirements

Water Softener or Reverse Osmosis Unit



Since the DewPoint 331 machine uses a boiler to generate steam, it's important that you use softened or RO water to avoid building up scale inside the boiler.

Water Storage & Transportation



We recommend using a black water tank for treated water storage to avoid algae growth in the tank.

Boiler Water Treatment



Whenever you fill the DewPoint 331 with water, you will also add $\frac{1}{2}$ gallon of Boiler Guard[®]. This will maintain the inside of the boiler and keep it from building up scale.

Water Transfer Pump



You may use a transfer pump to quickly fill the supply water tanks on the DewPoint machine.

Depending on the geography of your farm, you may consider investing in a water truck or trailer.



Make Dew

Morning - Noon - Night



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Tractor Requirements



0-2% Slopes
0-5% Slopes
0-10% Slopes

**Minimum
Engine Horsepower**

**Recommended
Engine Horsepower**

100

125



125

150

150

175

Hydraulic Requirements

-  Closed center hydraulic system is preferred.
-  Open center hydraulic system may require an oil cooler with the machine.

**Minimum
Recommended
Hydraulic GPM**

**Open Center
15 GPM**

**Closed Center
15 GPM**

**Maximum
Recommended
Hydraulic GPM**

**Open Center
25 GPM**

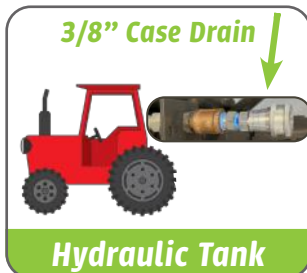
**Closed Center
N/A**

1 Set of SCV's



3/8" Case Drain

Female hydraulic fitting that will fit the Parker 0303-050 male fitting direct to tractor hydraulic tank



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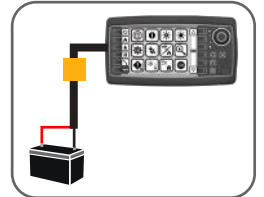
Call Today For More Information 435-586-8002

Electrical Requirements

**12 Volt Auxiliary Port
Required**



**Staheli West Harness
11546 & 11547
(Included)**




**Trailer Brake Controller
(Included)**

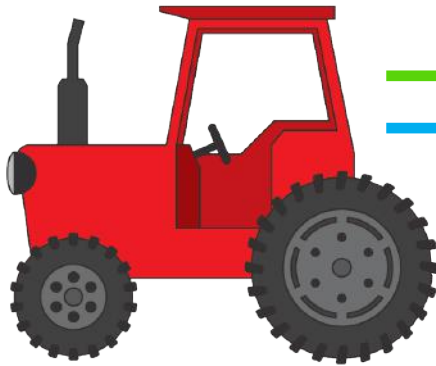


Hydraulic Systems

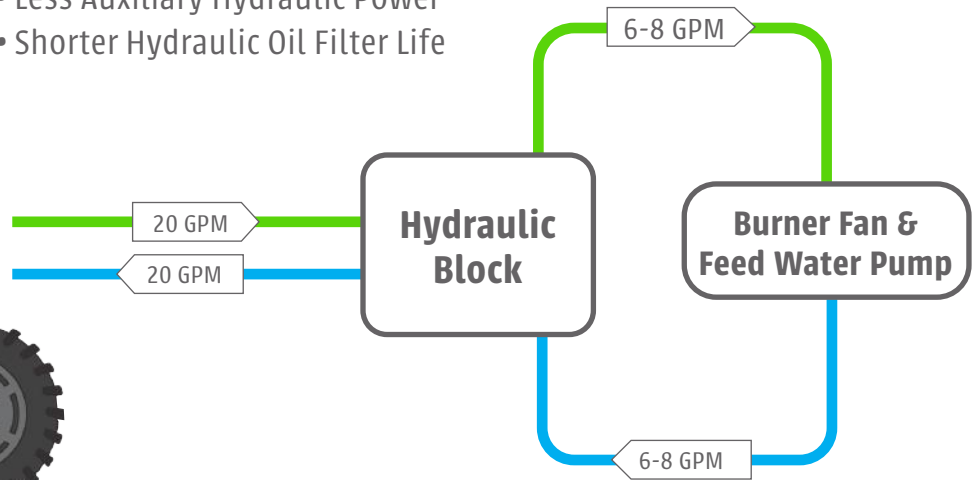


Open Center

- More Heat Generated 
- Less Auxiliary Hydraulic Power
- Shorter Hydraulic Oil Filter Life



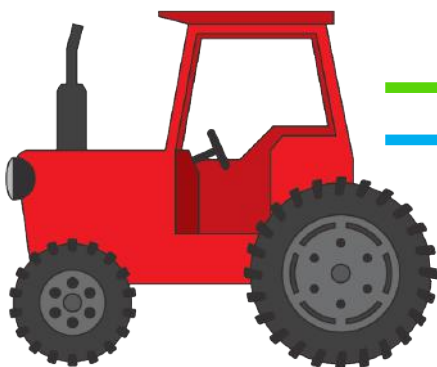
20 GPM Hydraulics



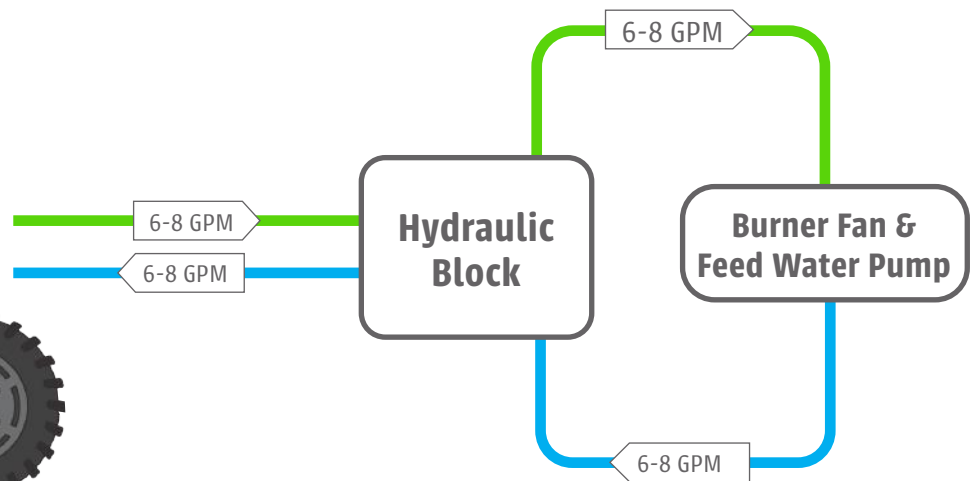
Open center hydraulic systems will create more heat because they send the hydraulic pump's full capacity to the DewPoint 331. The DewPoint 331 then bypasses all unnecessary flow back to the tractor. If an operator has the option to run hydraulic pumps coupled at low rpm's or run one pump at higher rpm's, they should run one pump at higher rpm's. Turning down the flow on the SCV will create more heat within the tractor and is therefore *not a good option*. The hydraulic oil cooler will sufficiently cool the oil.



Closed Center



20 GPM Hydraulics



Closed center hydraulic systems will create less heat because they send only the necessary GPM to the DewPoint 331. *Closed center hydraulic systems are preferred for this reason.*

Compatible Balers

The DewPoint 331 will be used in 2-tie, 3-tie, and round bale markets. Currently we have designed hardware for all major Massey Ferguson inline small square balers, and some of the most popular round balers. We will design steam hardware to fit different brands and models of balers as needed.



Common Questions

Can I bale in the day? In most places, operators can bale hay all day long if necessary. Most farmers choose to bale hay in the cooler parts of the day and at night to reduce water and fuel consumption. In areas like Arizona, farmers bale at night during the summer, because daytime temperatures are often above 100 degrees Fahrenheit (37.8 deg. C).

Will my 2-tie or 3-tie bales be too heavy? With steam you can produce a much heavier, more compact bale. However, turning down baler pressures or swapping out the baler rams to Staheli West's smaller ram kit on 3-tie MF 1844 balers will allow you to use steam and still hit your desired weights for the retail market.

How long do I have to wait to stack steamed hay? You can stack the hay if the internal bale temperature is below 115 degrees Fahrenheit (46.1 deg. C). With 2-tie or 3-tie bales, you can typically stack the hay a few hours after baling. In extreme heat, you may want to wait until the next morning to stack the hay. Round bales may take a little longer to cool down, so if you are baling in the hot afternoon, you will probably need to wait until the next morning to stack the hay. When baling at night you can usually haul and stack the hay the next morning.

Will my employees be able to run the steamer? The biggest requirement you will need in an operator is someone who cares. If you have an operator that cares, he will be able to learn how to operate the DewPoint 331 and the moisture sensor relatively quickly. To make things better, the screen can be used in English or Spanish.

How do I see the baler? One of the biggest adjustments you will notice is that you can't turn your head and see the baler. The DewPoint 331 comes with a 4-camera system. These cameras are mounted on the back of the steamer and on the baler, so you can easily keep a good eye on the baler pickup, the knotter area, and bales coming out of the baler.

How does steam compare to natural dew? Most customers say that baling with steam is like baling

with perfect natural dew. However, steamed hay is different than hay baled with dew. Steamed hay tends to flake and stick together better than hay baled with dew. University studies done with 3-tie balers have shown that baling with steam reduces leaf loss by over 40% compared to baling with dew at night.

How does the DewPoint 331 affect my baling speed? The Dewpoint 331 does not affect baling speed when baling small square bales for the retail or other equestrian markets because you still want to maintain a certain bale weight with a certain number of flakes per bale. Enough steam is produced that it will easily keep up with your baler. Because steamed hay packs into a bale easier, you can generally increase your speeds when baling round bales or heavy small square bales and still have a higher bale density.

What are the operating costs of running the DewPoint 331? The main operating costs to run the steamer are fuel and water. You will typically spend between \$2.00-\$4.00 per ton of hay to operate the steamer on small square bales and somewhat less than that on round bales.

How often do I have to refuel and refill the water tanks? The machine holds 500 gallons of water and will operate 2.5-5 hours on one load of water, and the 120 gallons of diesel fuel will last 5-10 hours before refueling. Runtime depends on the steam use rate in your given conditions.

How much moisture will I be adding? For small square bales, we like to bring cured hay up to around 16-18% moisture when baling with steam. This may seem high, but much of the added moisture will come out of the bale within a matter of a few hours, and you will ultimately see it settle in at around 10-12% moisture. We recommend baling round bale hay at around 14-16% moisture.

Is my farm big enough for a steamer? Some believe that their farm may be too small for the DewPoint 331. Although the steamer is a large investment, you don't have to have a large farm to pay for it. Even smaller operations are seeing significant financial benefits from the DewPoint machine.



Our Goal

Our goal at *Staheli West* is to revolutionize the agricultural industry. We accomplish this goal by providing farmers with technology that improves their operations and their lives. Farmers all over the world are taking advantage of the DewPoint 6210 hay steamer. We have now released the Dewpoint 331 for small square bale and round bale markets.

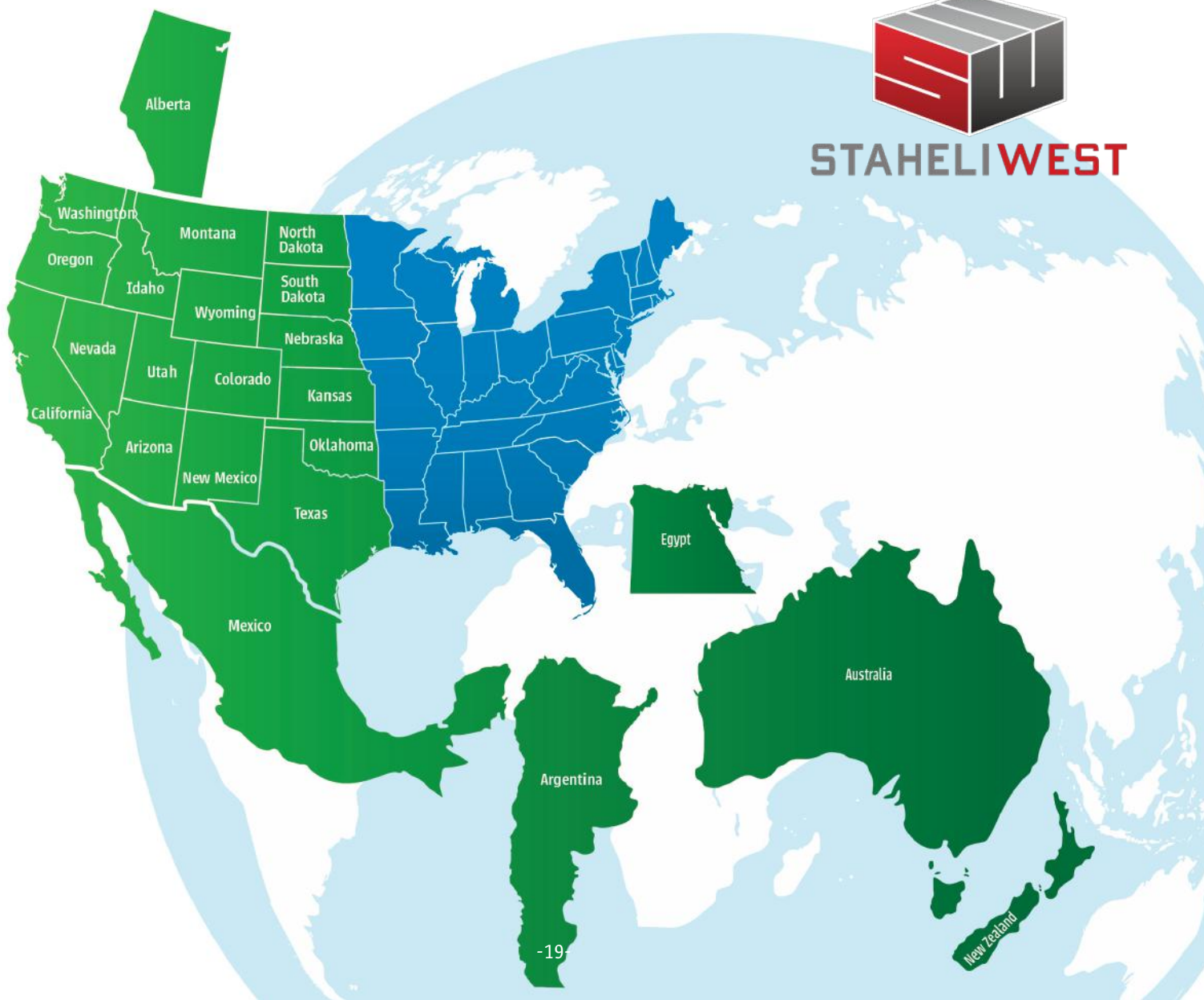
Our wonderful team of dealerships that sell and service the DewPoint 6210 will also handle the Dewpoint 331 in local areas. We have dealers located across the Western U.S., Mexico, Argentina, and Australia.

Please contact us if you have any questions or need help locating a dealer.

Call today **435-586-8002**



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Machine Specs

Dimensions

- Overall Width: 8.5 ft; 2.59 m
- Overall Length: 14.6 ft; 4.47 m
- Overall Height: 9 ft; 2.74 m

Approximate Weight

- Dry Weight: 7,300 lbs; 3,300 kg
- Fully Loaded with Fuel & Water: 16,000 lbs; 7,250 kg

Fluid Capacities

- Diesel Fuel: 120 Gallons (450 Liters)
Expected run time: 5-10 hours
- Boiler Water: 250 Gallons (950 Liters)
Supply Water: 500 Gallons (1900 Liters)
Expected run time: 2.5-5 hours

OUTPUT

- One Load of Fuel: 80-160 Tons of Hay or
70-140 Metric Tons of Hay per Load
- One Load of Water: 40-80 Tons of Hay or
35-70 metric Tons of Hay per Load

Water
Supply

Boiler
Water



Diesel
Fuel



You can see the difference

The DewPoint 331 will change the way you put up hay.



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Cedar City, UT 84721

435-586-8002



@staheliwest