



VMG Industries Inc.

Van Gaalen Fish Egg Sorter

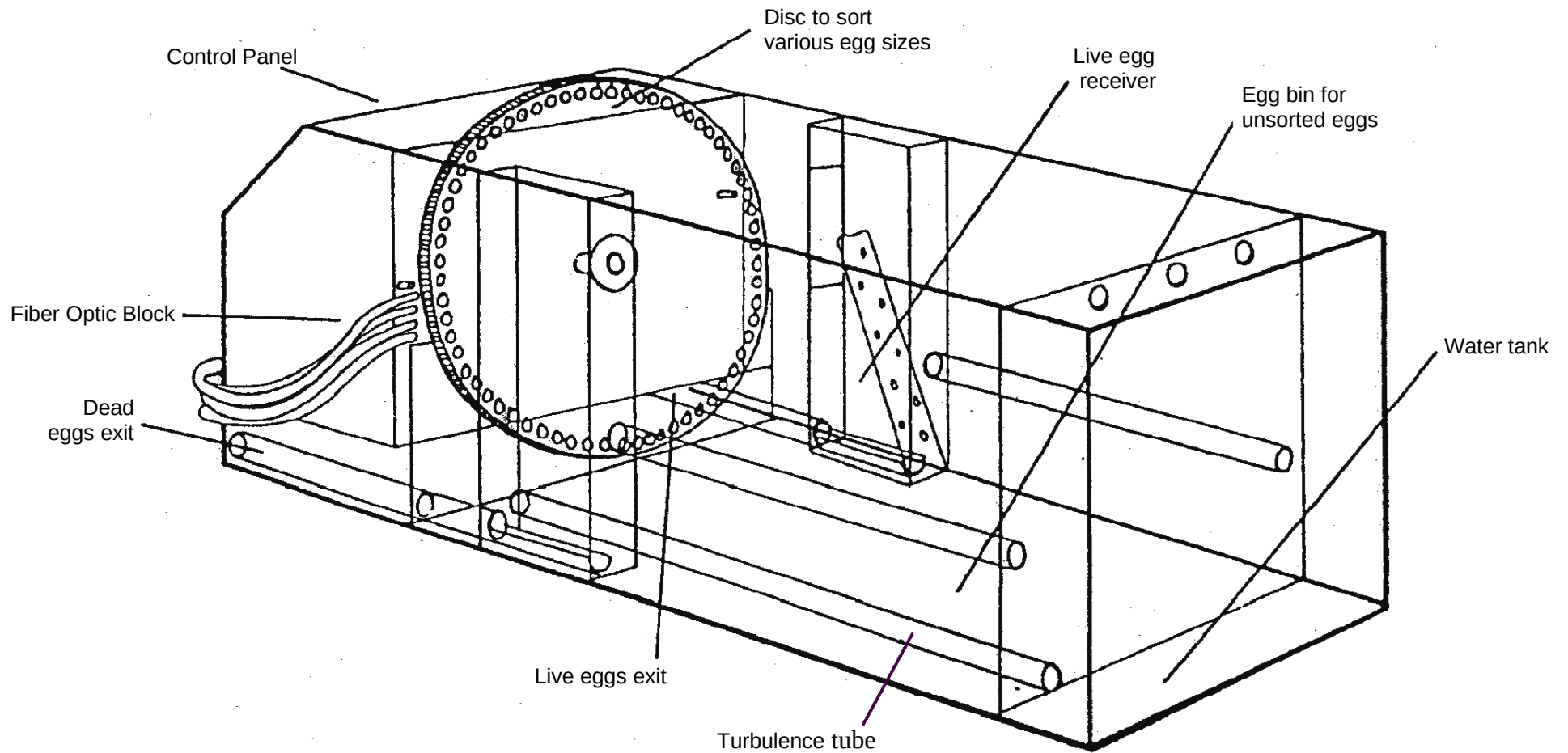


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The Van Gaalen Fish Egg Sorter

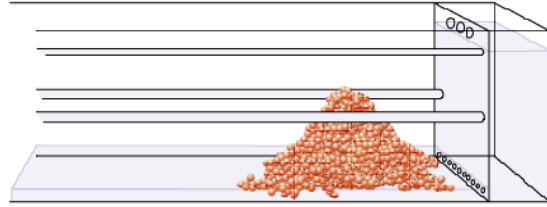
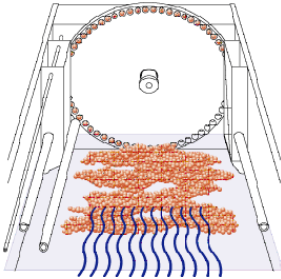


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Our process offers accuracy, speed, and reliability

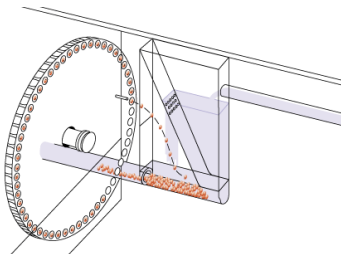
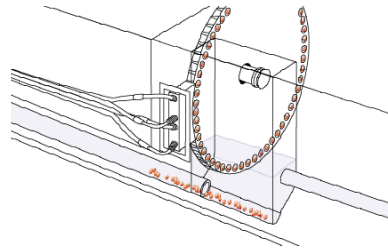
Here's how it works!

Eyed eggs are placed in the trough with water flowing through the bottom. Several pounds of eggs may be loaded at one time.



The water flushes the “eyed” eggs against the disc where they are captured in the tapered holes in the outside of the disc. Once the egg sorter is fitted with the disc matching the type of egg you are sorting (trout or salmon) it will sort any size egg inserted.

The eggs in the disc then pass an electronic scanning device which, using modulated infrared light, detects dead eggs.



Dead eggs are then ejected out one side of the sorter while the live eggs travel to the opposite side where a gentle flow of air ejects them into a curtain of water which carries them to a separate container - safe, sound, and ready for further incubation.

The counters then increment, providing accurate totals of both live and dead eggs sorted. Each time a dead egg is detected, an LED flashes giving you visual assurance that everything is working correctly.

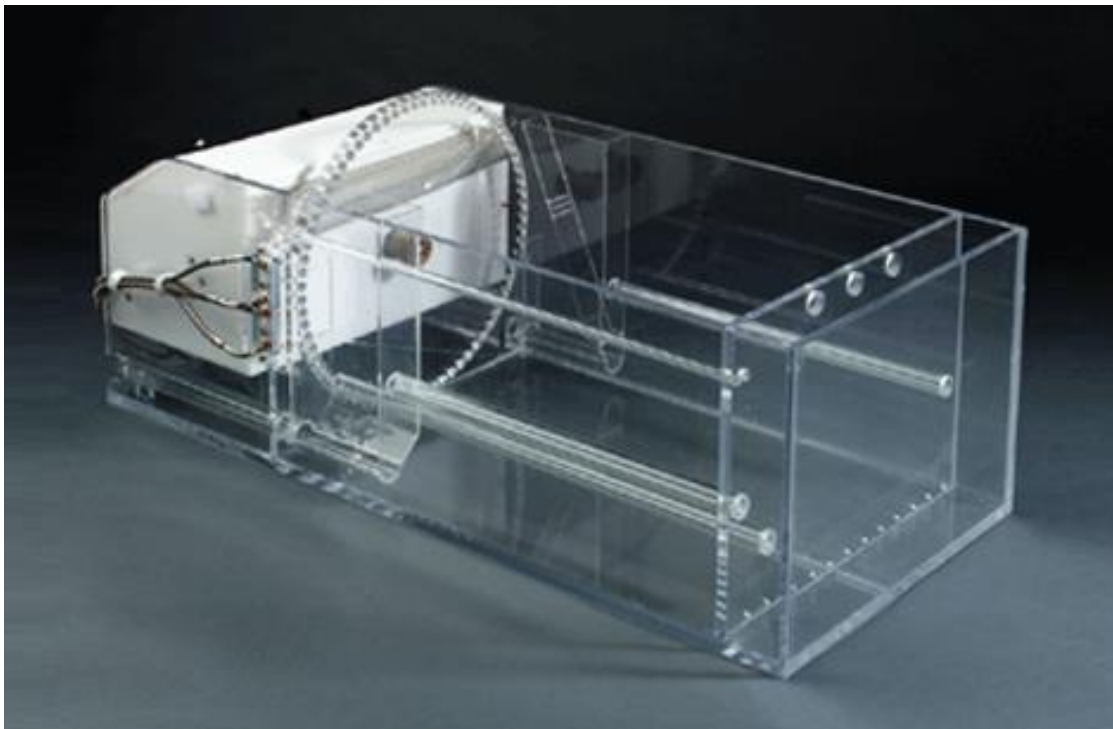


The processes used in the **Van Gaalen Fish Egg Sorter** provides a number of advantages: no need to change discs unless you change the type of egg to be sorted, the safety of 12 volt power supply, and reliability proven by our years of experience.

The Van Gaalen Fish Egg Sorter



Control Box End of Fish Egg Sorter



Water Inlet End of Fish Egg Sorter

The Van Gaalen Fish Egg Sorter

Your **Van Gaalen Fish Egg Sorter** will provide many years of trouble free, accurate service. Your sorter has been carefully adjusted and calibrated before being shipped to you. If you find that anything other than minor adjustments are needed, please call Technical Support at +1 (303) 682-8890 for assistance.

Nomenclature

Control Box End

The **white control box** with switches and other controls is at the front of the egg sorter. The four small silver cables extending from the bottom of the control box along the right side are the **fiber optic bundle** that carries the light from the sensors inside the control box to the edge of the disc.

Water Inlet End

The **water inlet** is a small compartment at the rear end of the egg sorter. It is approximately 2 inches (50 mm) wide and has 3 holes near the top of the partition that separates it from the main compartment. Near the bottom is a series of smaller holes.

Switches and Counters

There are two switches on the control panel. The one on the left (that shows the rays emitting from the sensor) is the **sensor switch**. The one on the right side (that shows the round disc) is the **motor switch**.

The counter on the left side (that shows a fish without the diagonal line) is the **live egg counter**. The counter on the right side (that shows a fish crossed by a diagonal line) is the **dead egg counter**.

The counters can be reset to zero by pressing the black button.

There are two holes on the control box, one below each switch. The hole on the left under the live egg counter is for adjusting the **live egg sensor**. The hole on the right under the dead egg counter is for adjusting the **dead egg sensor**. In each hole you will see a small screw and three colored LEDs. The green LED indicates that the sensor has power. The red and yellow LEDs will pulse simultaneously when an egg is sensed.

How the Sorter Operates

Water is introduced into the water inlet with a faucet or siphon. The water level should be maintained at or near the bottom of the three large overflow holes.

Water flows through the small holes in the bottom of the compartment towards the bottom of the disc and through the 3 tubes.

The compartment immediately adjacent to the fiber optic bundle is the receiver that catches the dead eggs. The water flow carries the eggs against the disc and surface tension holds the eggs in the holes of the disc. As the disc rotates the eggs are carried up past the two sensors.

The lower two fiber optics correspond to the dead egg sensor. The dead eggs reflect light, an air valve opens, and a small burst of air ejects the egg out of the disc and into the dead egg receiver. The egg will be flushed down this compartment and through the tube beneath the control box. The red LED on the front of the control box will flash, indicating a dead egg has been detected.

The good eggs continue in the disc upwards and pass the second fiber optic bundle which counts the good eggs. They are carried over the top of the wheel to the far side where they are ejected into the good egg receiver. They drop down to the bottom and are flushed out the other tube beneath the control box.

Purpose of the Tubes

The plastic **turbulence tube** extends from the inlet water compartment along the bottom to the disc. It adds turbulence to keep the eggs from jamming up into a pile. The tube above it furnishes water to the dead egg receiver to flush the dead eggs out. The tube on the other side furnishes water to the live egg receiver. The sloping piece of plastic with several holes in it in the live egg receiver provides a water screen for the live eggs to fall against.

The small tube near the top of the bad egg receiver furnishes water to the edge of the disc near the fiber optic bundles. This guarantees that a small amount of water is fed to the edge of the disc and provides a “meniscus shield”. This gives the sensor a consistent material to see through. A small film of water will form between the edge of the disc and the end of the sensor. You may have to drip a little bit of water on the top sensor to get this film of water established.

Setup and Adjustment

Your sorter has been carefully adjusted and calibrated before being shipped to you. It should require very little on-site adjusting. These procedures are used to set up the sorter and are provided to you in case further adjustment is needed.

If you find that anything other than minor adjustments are needed, please call Technical Support at +1 (303) 682-8890 for assistance.

Disc Selection and Installation

There are four types of discs. The holes are tapered and will accommodate a wide range of egg sizes without changing discs.

Be sure that you have the appropriate disc for the egg species you are sorting properly installed. Your invoice will tell you which disc(s) you received. The ideal location for the egg is the middle of the hole. If the holes are too small eggs may drop out of the holes prior to being sorted. If the holes are too big the egg will go too far into the cone and you may have to adjust the fiber optics.

The four available discs are:

- **Trout** – 1/4-inch (6.35 mm) holes. This will accommodate most trout eggs.
- **Trout Special** – 1/8-inch (3.175 mm) holes. For very small trout eggs.
- **Salmon** – 1/2-inch (12.7 mm) holes. This will accommodate most salmon eggs.
- **Salmon Special** – 3/8-inch (9.525 mm) holes. For very small salmon eggs.

A brass shaft extends from the control box towards the center of the egg sorter. There is a screw holding two washers in place on the shaft. Remove this screw and one washer; place the disc on the shaft with the largest opening of the perimeter holes away from the control box and towards the water inlet end. Replace the outer washer and the screw and snug it up.

Water Supply

Adjust the water flow so that water rises to the level of the three holes at the top of the water tank. You will need between 3 and 5 gallons per minute (between 11 and 19 liters per minute) water supply.

The machine operates on gravity water flow. Prop the water inlet end of the sorter up approximately 1½ inch (38 mm). Typically, a piece of 2x4 lumber laid flat will achieve good water flow through all the tubes.

Adjust the diverter (which clips over the edge of the water tank) to control the flow through the turbulence tube. Too much water flow will inhibit the egg pickup. Insufficient water flow will cause eggs to accumulate in the pickup area below the disc. Only one egg should go into each hole.

At the end of the sorting period you may want less turbulence in the water. If so, use the diverter to stop the flow of water into the egg compartment. This should allow the bottom layer of eggs to enter the disc.

Air Supply

Below the white control box there is a ¼ inch (6.35 mm) hose barb for the air supply. Attach most any supply of air and regulate it to about 10 psi (70 kpa) or less.

Too much air pressure may cause the egg sorter to eject all eggs on the dead egg side. Air pressure should be adjusted as low as possible.

It is highly recommended to use an inline two-stage filter water/oil separator to protect the air valve from contamination. A dirty air valve can slow the reaction and disrupt the timing of the dead egg expulsion.

Adjust Fiber Optics and Sensors

*These instructions are for new sensors that have been in use since 2015. If you have an older yellow sensor, please contact **Technical Support** at +1 (303) 682-8890 for assistance in adjusting your sensor. Note that these procedures are used for a new machine on initial setup. Existing machines should need only minor adjustments.*

Caution! When making sensor adjustments, be very careful not to damage the adjustment screw!

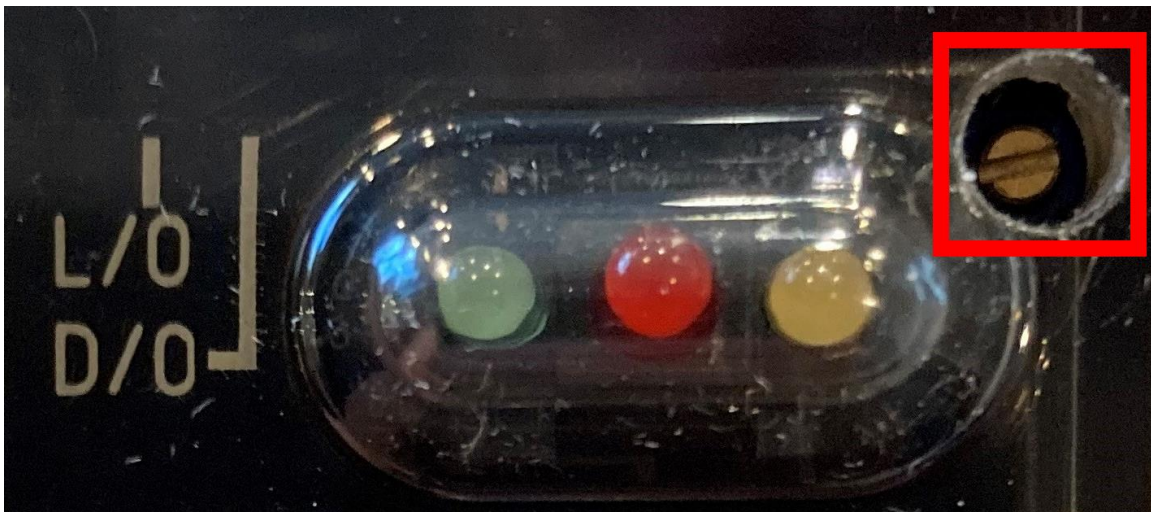
The live and dead sensor adjustments are made through these two access holes in the front of the control box body.



If sensor adjustment is needed, be extremely careful to place the tip of the screwdriver accurately in the sensor adjustment screw head slot before turning.

Adjustment should be done gently. No force is needed to turn the screw. Adjustments should typically be 1/4 to 1 turn.

Note that the adjustment screw is fragile. Improper placement of the screwdriver can result in breaking the adjustment module, which requires a replacement sensor.



Hand pick 3 dead eggs and 3 live eggs. Place them in the disc, dead eggs first, then live eggs. Leave at least 3 empty holes between each egg. Turn the motor and sensor switches on. Let the machine run for several minutes to allow component warm-up. The water and air should be off during the adjustment process.

The four stainless steel cables house the fiber optic bundles that carry the light to and from the sensors. The top and bottom screw holes of the fiber optic block are slotted to allow adjustment. To adjust the fiber optics, loosen the top and bottom screws and move the fiber optic block slowly right or left until it is aligned with the *center of the eggs*. Be sure the ends of the fiber optic bundles are firmly seated in the holder. *This last adjustment is very important. It is the first thing you should check if your egg sorter is not working properly.*

The position of the fiber optics and the sensitivity of the sensors work together to achieve optimum signal. Note that if you move the fiber optic block you will probably need to readjust the sensors and vice versa. If you change discs you may need to adjust the position of the fiber optics and/or the sensitivity of the sensors.

Adjust the dead egg sensor first. The adjustment is very sensitive and a small (1 or 2 degrees) amount of adjustment will change the results. Turn the dead egg sensor adjusting screw counterclockwise until only the green power LED is lit. Then turn the screw clockwise slowly until the red and yellow LEDs start pulsing. The sensor will see the white color of the dead eggs first. Adjust the sensitivity until a stable count of 3 dead eggs is achieved.

Now adjust the live egg sensor. Turn the live egg sensor adjustment screw counterclockwise until only the green LED is lit. Then turn the screw clockwise slowly until the red and yellow LEDs start pulsing. The sensor sees the white color of the dead eggs first. As you increase sensitivity it will then see the darker color of the live eggs. Adjust sensitivity until a stable count of 6 is shown on the live egg counter. *Note that during adjustment the live egg sensor will be counting both the live and dead eggs since the air is not running and dead eggs are not being ejected before reaching the live egg sensor.*

Adjust Air Jets

Turn the air and water on and add eggs to the reservoir.

It may be necessary to adjust the air jets (the small copper exhaust tubes just behind the disc) slightly.

The live egg exhaust tube blows all the time, In normal use, it should not require adjustment.

The dead egg sensor blows only to eject a dead egg when triggered by the dead egg sensor. If live eggs are being ejected into the dead egg receiver, you may need to adjust the dead egg exhaust tube. Bend the tube up or down until only the dead eggs are ejected into the dead egg receiver. Only small adjustments should be required.

Prepare/Shock Eggs First

The eggs must be thoroughly shocked or bumped before sorting. It is best to do this and let them sit for several hours so that they will turn definitely white. In some cases, an egg will turn white on only one side. If the egg happens to be lodged in the hole in such a manner that the white side is away from the sensor, it will not eject it as a dead egg but will eject it as a live egg. Observe the dead eggs ejected on the live side to see if this may be the case.

During Operation

Occasionally reassess accuracy during operation. If you see dead eggs in the live side, fine-tune the dead egg sensor sensitivity. You can do minor adjustments while the sorter is running.

Summary

This should complete the adjustment of your **Van Gaalen Fish Egg Sorter**. From time to time it may be necessary to adjust either or both sensors. Initially, we suggest that you place a screen under the dead egg ejection tube so the eggs can be observed for accuracy. When adjusted properly, the **Van Gaalen Fish Egg Sorter** should remove 98-99% of the dead eggs.

After the machine is adjusted, an entire Heath Tray or up to 10 pounds (4.5 kg) of eggs can be put into this compartment at one time. Overloading the hopper may cause eggs to double up in the holes.

End of Season Care

At the end of the season, clean and dry the sorter. Check both ends of the fiber optic bundles. If they are cloudy, clean them with fine steel wool.

Store the sorter in a dry place when not being used.

Technical details

Weight: 44 lbs (20 kg)

Dimensions: 11 inches x 14 inches x 32 inches (28 cm x 36 cm x 81 cm)

Materials: Clear and white acrylic plastic

Egg Capacity: 5 gallons (18.9 liters)

Fiber optics and modulated infrared lights scan the eggs to assure you of the highest level of accuracy

Capable of processing 100,000 eggs per hour

Full One Year Warranty on the Van Gaalen Fish Egg Sorter

Any defect in material or workmanship that occurs during the first year from date of purchase will be repaired at no cost.

If repair is not possible, the full purchase price (excluding shipping and handling) will be refunded.

Limited Warranty on Labor for the Second Year

During the second year from the date of purchase, any labor required to repair your egg sorter will be provided at no cost. You will be responsible for purchasing any necessary parts. If it is necessary to ship the sorter to VMG Industries you will pay shipping to us and we will pay return shipping.

How to Get Service

Contact our Technical Support at +1 (303) 682-8890 or send an email to info@vmgindustries.com. Include the details of your issue and contact information in the body of your email.