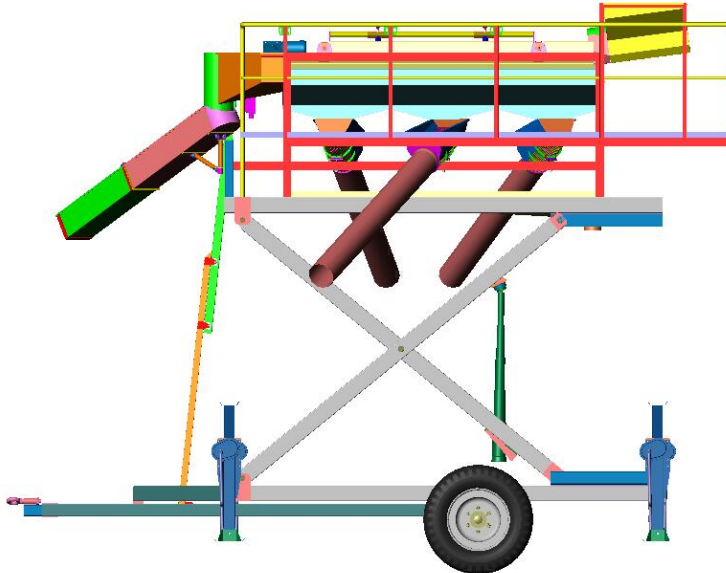


## Technical Specifications – Fish Grader



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### General Description

1. Main construction consists of two pairs of stainless steel adjustable sorting belts mounted above a collecting bed with four outlets. Fish grading size can be determined by the adjustment of the distance between the belts of each pair. The adjustment is done by rotating a lever which drives a tapered shaft system. Each belt is independently driven by an electric or hydraulic motor. Each pair of motors is controlled by a regulating unit. The system includes a water pump for safer fish movement. The electrical consumption of the complete unit is 3 kW.

The grader is constructed of a number of elements:

1. **Main construction + main frame (optional SS) + working platforms + hand rail + sliding ladder + central wheel axle (double tyre optional) + tow ring.**
2. **Hydraulic Piston powered scissors for height adjustment.**
3. **Stabilizing jacks levelling and locking.**

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4. **Twin hopper for fish distribution + collecting bed for fish size separation.**
5. **Four 10” independently rotating outlets + P.V.C. pipes for fish delivery (automatic fish counter system optional).**
6. **Upper water spray system.**
7. **Fish grading shield**
8. **Electric motors + motor shield.**
9. **Electric control panel**
10. **Hydraulic system (optional)**

### **1. Main Construction**

The main construction serves to support the machine, as a base for its transportation and to support it on-site. It is constructed of:

1. Main wheels and wheel locks- for moving from place to place
2. Central axle - which serves as an axis when moving the machine manually
3. Working platform - for personnel access and control
4. Sliding ladder - to adjust to the different operation heights
5. Stabilizing jacks - to stabilize and level the machine while placing it on-site
6. Tow ring - for transport



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## **2. Hydraulic Piston powered scissors for height adjustment**

1. The pistons are powered by a hydraulic pump normally situated on the accompanying screw elevator - for adjusting the height of the grader for optimal efficiency

## **3. Stabilizing jacks levelling and locking**

1. The stabilizing jacks – for locking the main frame in level position while grading

## **4. Twin hopper for fish distribution + collecting bed for fish size separation**



1. twin hopper – receives the fish and distributes them between the two sorting belts
2. collecting bed – receives the fish from the sorting belts and distributes them according to size into the outlet pipes

## **5. Four 10” independently rotating outlets + P.V.C. pipes for fish delivery (automatic fish counter system optional).**

1. Rotating outlets – for positioning the outlet towards the preferred location
2. P.V.C. pipes – for delivering the fish to the preferred location
3. Automatic fish counter – for data gathering

## **6. Upper water spray system**

1. Spray system – for lubricating the sorting belt system and for safe fish movement

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## **7. Fish grading shield**

1. Grading shield – to insure fish wellbeing while grading

## **8. Electric motors + motor shield**

1. Electric motors – for driving the sorting belts
2. Motor shield – for damage and spray protection of the electrical motors

## **9. Electric control panel**

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1. Electric control panel – for controlling all electric elements of the entire machine

### **10. Hydraulic system (optional)**

1. hydraulic system – for hydraulically driving the sorting belts, some times preferred by the customer as a result of specific needs

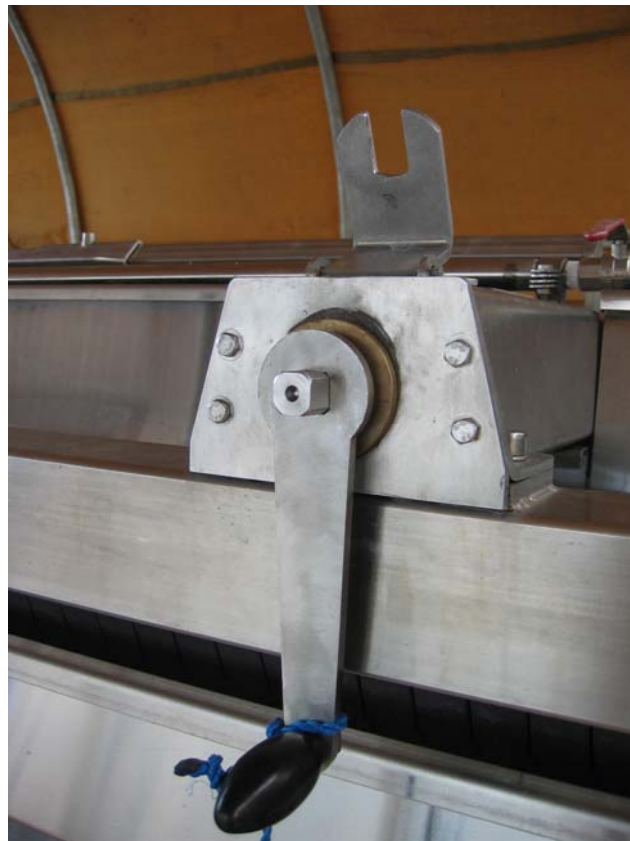
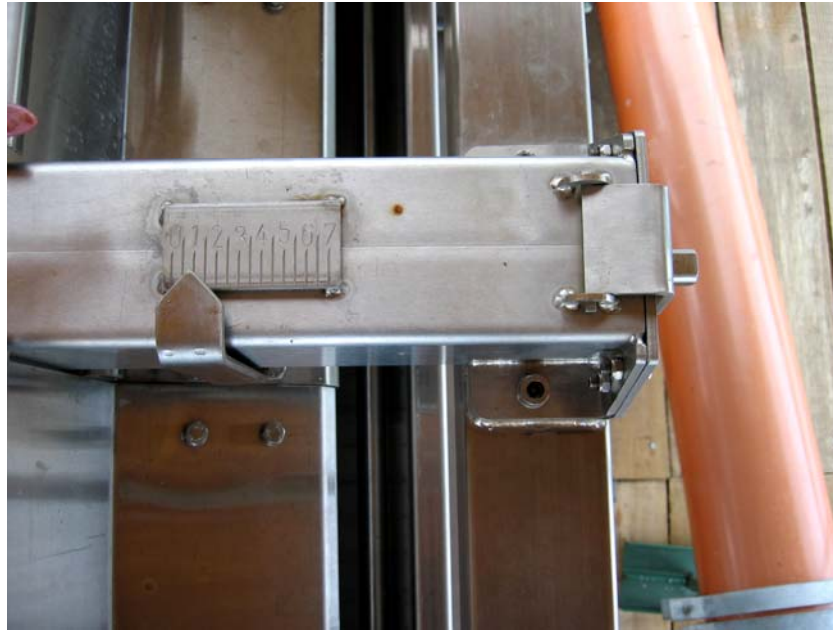
### **Operation Instructions**

- 1. Positioning of the grader**
- 2. Selecting the different grading sizes**
- 3. Starting the machine and routine work**

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## **1. Positioning of the grader**

The following should be taken into account when positioning the grader:

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1. The slope of the embankment near the pool
  2. Off-loading area
  3. Height of off-loading
- After selecting the site, the grader should be placed as close as possible to the worksite, hook up the electricity and lower the jacks to level the machine to the working position. Make sure the wheels are locked and secured using the provided wheel locks.
  - Lift up the grader using the hydraulic scissors to working height, make sure that the lock-tooth located at the scissors base is nestled in the **proper groove**.
  - Check the water pump and insure that the water is distributed evenly across the belts and that there are no obstructions in the water outlets.
  - Position the pipe outlets in the desired location, insure that the pipe has at least 15% down-slope and is not too high above the receiving water level to prevent fish bruising, and is not submerged in it to insure that the fish exit safely from the pipe.
  - Lock in place by attaching the pipe chains to the grader frame chain-locks.

## **2. Selecting the different grading sizes**

- Selecting the different grading sizes is accomplished by turning the levers counterclockwise or clockwise in order to adjust the distances between the sorting belt resulting in a V shaped channel where the small fish are dropped first from the resulting gap, the bigger fish continue along the belt until the gap equals the fish size.
- This adjustment can be done at any moment while grading to better define size groups in real-time.

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### **3. Starting the machine and routine work**

- In order to start the machine make sure that points **1. & 2.** have been carried out properly.
- Make sure that the machine is clear of personnel and that all moving parts are free.
- Turn on the water pump.
- Push the start buttons for both the right and left grading lines.
- Adjust the different grading sizes using the appropriate levers.
- Insure that the fish are not stuck along the grading lines.
- Inspect the fish exiting the grader for any bruising.
- When finishing the grading process, insure that no fish remain in the machine.

### **4.Preparing the machine for transfer from site to site**

- At work's end, make sure that the grader is empty of fish. The machine should never be moved when the scissors are not in the lower lock position. To lower the scissors, unlock the lock-tooth and carefully lower the grader back in to rest position.
- Disconnect the outlet pipes and secure them for transport.
- Disconnect the hydraulic system to disengage the machine and allow free movement.
- Disconnect any external power supply
- Disconnect any external water supply
- Hook the machine to the towing vehicle if it is not already done.

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- Once the machine is secured and disconnected from any external sources, remove the wheel locks and relocate.

## **General maintenance**

1. Grease all pins every 21 days.
2. Grease central axle every 21 days.
3. Grease the belt sprockets every 21 days.
4. Grease all the pistons in the base and edge every 30 days.
5. Grease the lifting piston's conduit every 21 days.

### **Once every seven days:**

1. Major cleaning includes motor and construction.
2. Check for cracks in the main frame and all related assemblies.
3. Check bearings for any defects.
4. Check the sorting belts for any defects.
5. Check tyre pressure, maintain at 30 PSI.

Recommendations:

Keep on hand 4 units of sprockets for the sorting belts.

For any questions or problems, please contact Aqua-Maof

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