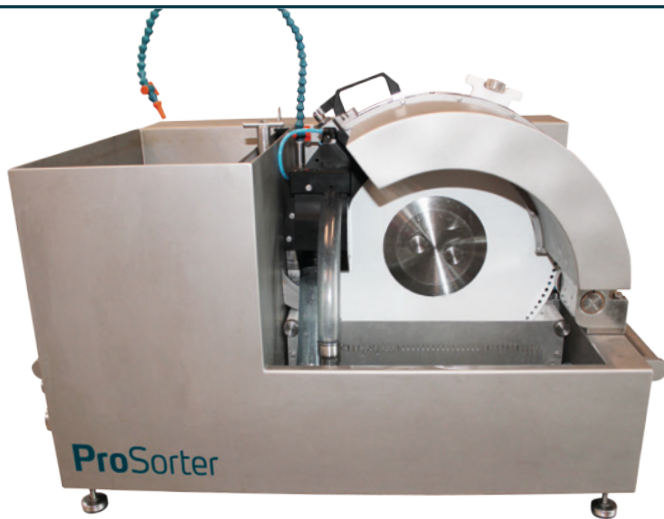**Pro**Sorter

ProSorter

Professionel salmonid egg sorting machine

The ProSorter

The Pro Sorter is a professional salmonid eggs sorting machine using the very latest digital image processing technology for removing all non-viable eggs from the original batch of eggs, resulting in a ready to incubate or pack product with no requirement for post sorting removal of glass eggs, pin eyed eggs and other non-viable eggs.

Digital image processing technology is becoming ever more sophisticated and reliable and is finding its way into quality control in many different industries including the livestock and food production. And time has now come to salmonid eyed egg production, resulting in what could be called third generation egg sorters.

The combination of state of the art vision technology and software, innovative technological solutions, and not the least comprehensive product knowledge, insight and respect, has resulted in an unmatched purpose built machine, setting new standards in salmonid egg sorting.

Main features and advantages of the ProSorter include:

- No manual sorting.
- Very gentle handling of the eggs. No post sorting mortality!
- Potential last minute grading, prior to packing or incubation for hatching.
- Very high accuracy in removing glass eggs, pin eyed eggs and unfertilised eggs from the selected eggs.
- Undersized and oversized eggs are rejected.
- Fast: 125.000 - 200.000 eggs / hour / machine sorted all the way to end user quality.
- The machine is self-adjusting and can be operated by anybody after few minutes introduction.
- Focus on cost efficiency: More affordable, faster and accurate than the competition.

- Software licences and future software updates included.
- Easy to clean and resistant to all the usual disinfectants and temperature up to 60°C.
- Handy and transportable.
- High capacity buffer tank.
- Automatic during - and post sorting rinsing of the eggs.
- Relevant and reliable statistics on egg size, size variation, quantities and split between the approved and non-approved eggs and more.
- Accurate split batches counts.
- Alarms on various functions and features of the machine.
- Several machines can be operated by one person doing something else at the same time!

No manual sorting

Even if existing photocell technology efficiently removes non-fertilised white eggs, it was still necessary to manually remove glass eggs, pin eyed eggs and other fertilised but non-viable eggs in the past, either with siphon or tweezers. This is no longer required, the **Pro**Sorter efficiently replaces and exceeds not only the classical photocell technology in egg sorting, but also the human eye when it comes to post sorting picking. Only eggs with eye size within a maximum predefined size deviation from the mean eye size are approved. No eyes, small eyes or dead areas under and oversized eggs lead to elimination.

Gentle to the eggs

Approved eggs are gently expelled from the machine by water only, no high pressure air or other potential harmful technique damaging otherwise viable eggs resulting in post sorting mortality and the requirement for manual picking. Eggs in the buffer tank are covered completely with constantly renewed water for full temperature control and oxygen supply. In addition to all the obvious benefits, this means potential last minute sorting because the eggs don't have to be "allowed to die" for final quality check before packing etc.

Self-adjusting

Egg size and eye size varies significantly with the actual fish species, year class of the broods stock and accumulated temperature units of the eggs. **Pro**Sorter will automatically adjust its digital image analysis to the particular batch of eggs by estimating the average egg size and eye size in the initial 400 eggs of the batch and adjusting the quality criteria according to this and some defaults on the acceptable altitudes from the mean this means that no particular expertise is required from the operator.

Cost efficient

Although the **Pro**Sorter is a high quality machine based on the foremost vision hardware and software, ingenious mechanical solutions and cost efficient serial production has made the machine price competitive not only compared to the competition but in particular compared to the alternative manual sorting. The fully automatic nature of the machine means that the operator is not tied to the machine, and the **Pro**Sorter will pay for itself in saved labour cost. No future software licences or costly software updates.
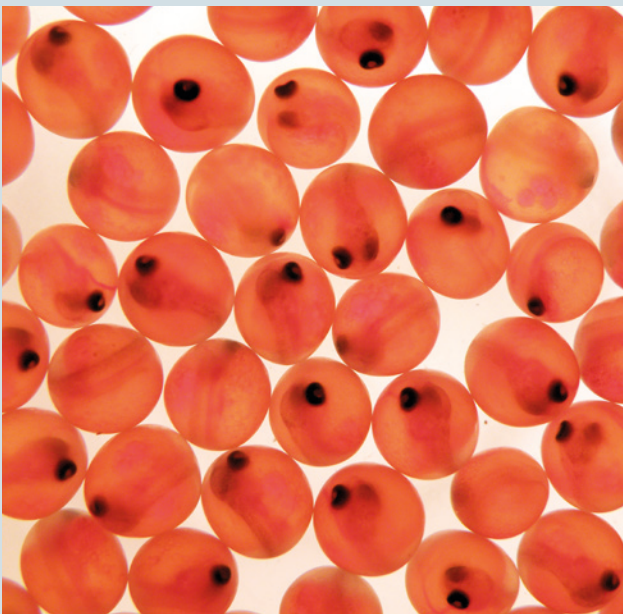
Practical

Easy cleaning and efficient disinfection of the **Pro**Sorter was considered all through the design process. The machine is drained effortless and completely from surplus eggs and water. Despite the compact design of the machine, the pre-sorting buffer tank is the largest and most practical of any salmonid egg sorter in the market, with > 20 l capacity and designed to match a standard incubation tray being tipped into the tank.

More than just an egg sorter

During the process of trapping the eggs in the rotating disc, presenting the eggs to the 4 cameras and expelling the approved eggs, egg shells and other unwanted debris are rinsed efficiently from the eggs, resulting in a clean and presentable final product.

In addition to precise enumeration of egg numbers and the type of rejected eggs, accurate statistics on average egg size, eye size and standard deviation on these parameters are generated for each batch. Also split batches of predefined egg numbers can be generated from each original batch of eggs.
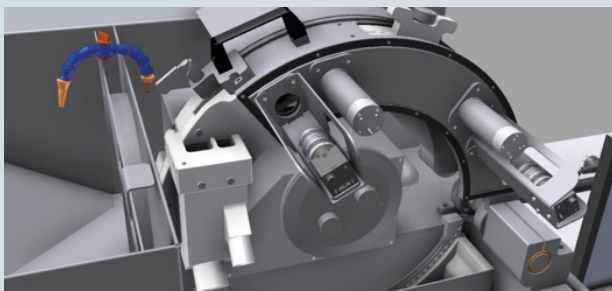
Process surveillance & alarm function

Statistics and running software feedback is actively used to monitor the entire sorting process.   The operator is warned about empty buffer tank, finalized split batches and any deviation in the split between approved and non-approved eggs etc.

In conclusion the Pro Sorter **is a true high tech solution to a bottle neck real life biological challenge in salmonid egg production.**
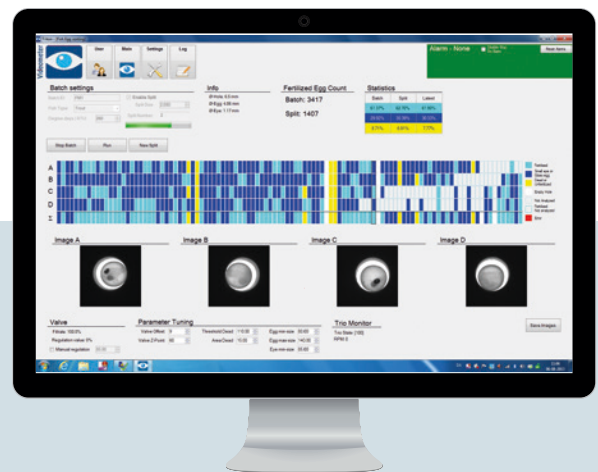
ProSorter **- Technical specifications**

Table model Dimension	Specifications
Length	970 mm
Depth	700 mm
Height	615 mm
Height with open camera arm	800 mm
Depth with open power cabinet	1135 mm
Height adjustment +/-	15 mm
Net. weight	100 kg
Capacity	
Accuracy	< 1 % (< 0,1 %) Error
Capacity	> 125.000 eggs sorted / hour
Egg size	4,5 mm - 8,5 mm
Vision	
Cameras	4 x Flea 3 USB camera
Resolution	17um pr pixel
Software	Proven Videometer-inline inspection platform
Power supply	
Voltage	220V - 50 Hz / 240V - 60 Hz
Current	2100 - 2400 W
Fuse	10A
Frequency	50 Hz
Water supply	
Inlet	G 3/4"
Pressure	Min. 1,5 bar
Air supply	
Inlet	G 1/4 "
Pressure	2 - 8 bar
Other technical data	
Operation / interface	PC included / self adjusting
Transportable	Yes
Primary material	Stainless steel & POM

Agent:

ProSorter

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