

USER MANUAL

Bird Net to poles

REVISION 1

AKVA GROUP™
EGERSUND NET



SUMMARY

Bird nets to poles are installed over a fish farming net to prevent birds getting into the floater and from there into the fish farming net. They can also prevent fish from escaping from the fish farming net. Bird nets can be produced in various sizes and to various specifications.

They are manufactured from nylon, polyethylene or Dyneema® netting, and are specially designed for use with poles.

The bird net poles are manufactured from fibreglass with a high breaking strain and are available in various lengths and dimensions. A selection of designs and sizes of holders is available for mounting poles on the floater, depending on the type of floater.

The bird net poles are attached to the handrail supports on the floater, in clamps (chain holes) between the floater pipes or in fixings attached to the floater.

Pole-mounted bird nets can be supplied for both round and square floaters.

Bird nets to poles are manufactured in accordance with the requirements for extra equipment in Norwegian Standard 9415:2021 and the Nytek23 regulations.

When using pole-mounted bird nets, it is important to be aware of certain risks:

- The bird net must be suitable for the floater it is attached to. Avoid placing too great a strain on the poles, otherwise they may break and fall into the fish farming net.
- The bird net must not be installed on the fish farming net in any way that could place a strain on the netting or other fish farming net components.

Inspection and maintenance of pole-mounted bird nets is essential to ensure safe use and optimal service life.

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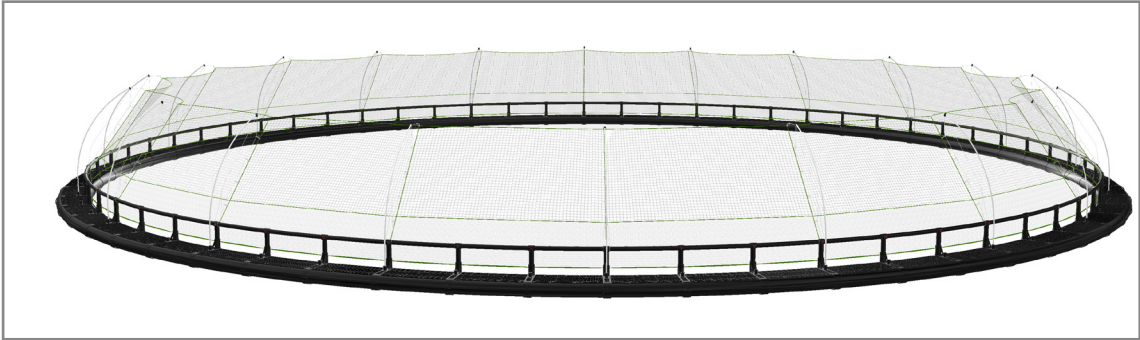
1 BIRD NETS AND THEIR COMPONENTS

1.1 Definitions

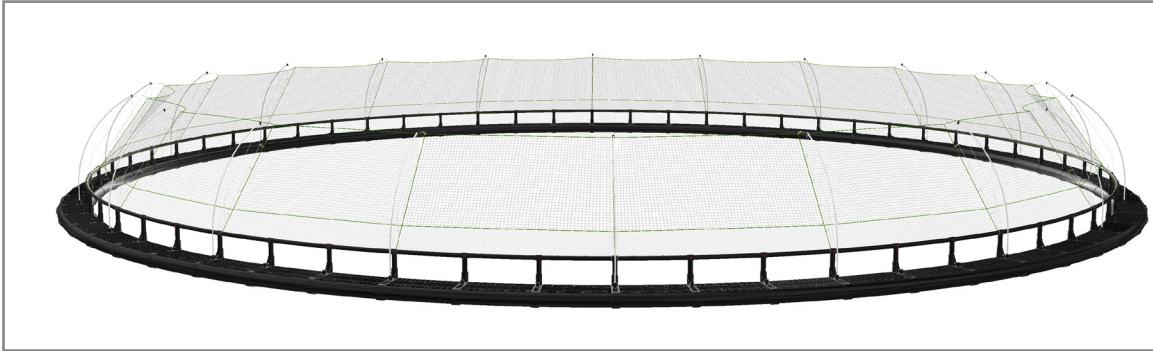
BIRD NET POLE	A fibreglass pole fitted in a pole holder. The holder can be installed on the handrail, in clamps (chain holes) or in fixed fastenings on the floater walkway. Bird nets are installed on the poles.
POLE HOLDER	A stand fastened to a floater handrail support. Bird net poles should be inserted into the holders before installing the bird net.
CLAMPS (CHAIN HOLES)	Holes in the walkway that can be used to install bird net poles. A holder should be inserted in the clamps/hole before installing the bird net.
JUMP SKIRT	Netting with smaller meshes in the lower part of the bird net skirt. Prevents birds from entering the floater or fish from escaping.
TOP PULLEY ON BIRD NET POLE	A wheel located on the top of a bird net pole. A rope to raise or lower the bird net passes through this.



1.2 Bird net with specifications/construction



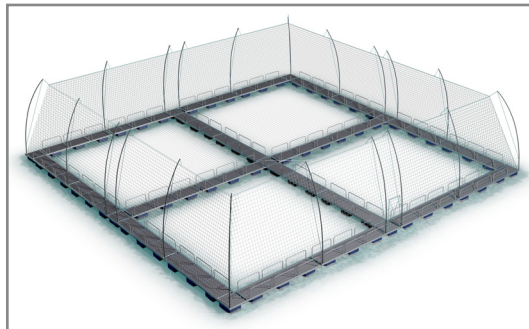
Bird net with jump skirt in the lower part of the skirt, below the handrail.
Can be made with smaller meshes, or with the same mesh size as the skirt



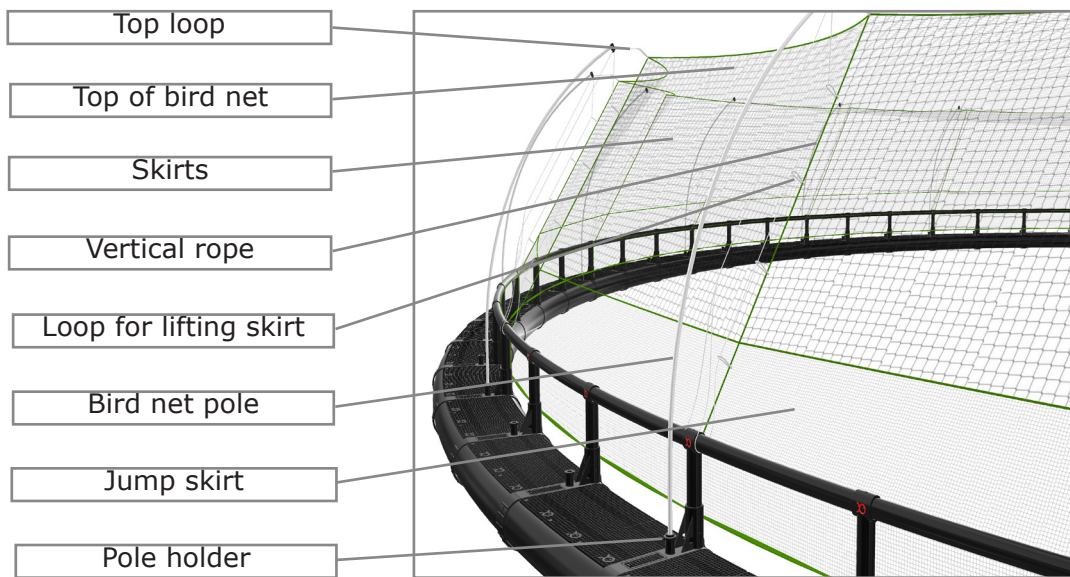
Bird net with jump skirt (smaller meshes) in the lower part of the skirt – stops at handrail



Bird net with the same mesh size throughout the skirt – without jump skirt



Bird net to poles installed on square floater



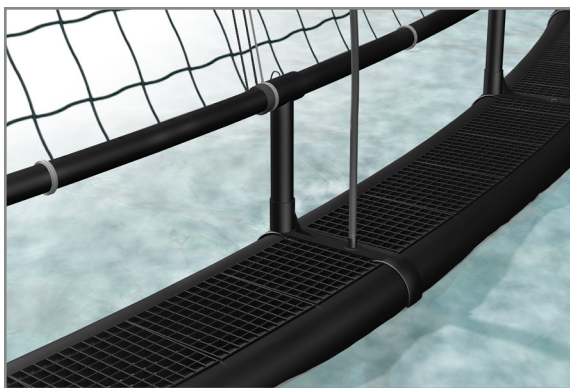
1.3 Bird net pole



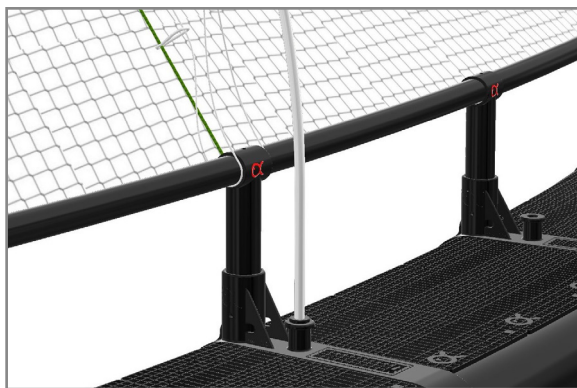
Bird net pole fitted to round handrail support



Bird net pole fitted to square handrail support



Bird net pole fitted in clamps/chain hole in walkway



Bird net pole fitted in fastening in walkway

The bird net poles are made from fibreglass, and the pole holders are made from polyurethane.

The poles are flexible, and follow the movements of the floater. This reduces wear on the bird net.

The bird net poles are supplied with two lengths of rope, to be used during installation and to raise and lower the net. The ropes pass through a pulley in the top of the pole. The poles are produced in various sizes, with different thicknesses and lengths.

They can be fitted to round or square handrail supports, or to clamps (chain holes) or fastenings fitted to floater walkways. The poles can be put loosely in pole holders, making it easy to install or remove them.

1.4 Assumptions and limitations



Bird nets from AKVA Group Egersund Net are made to prevent birds getting into floaters or to prevent fish escaping. They must not be used for any other purposes. The net must be suitable for its intended purpose. It is important to consider how the bird net to poles and other components in a complete system affect each other.

1.5 Modification, renovation and enlargement

Any modification or renovation of bird nets must be carried out in consultation with AKVA Group Egersund Net. AKVA Group Egersund Net should be contacted prior to any renovation or modification.

1.6 Nonconformities and managing faults

Any faults or defects discovered in the bird net must be reported immediately to our sales representative or to one of our service facilities. The type of fault or defect will determine what measures are to be taken:

- whether the fault or defect is to be rectified on site
- whether the bird net must be returned to the nearest service facility

2 INTERACTION WITH OTHER COMPONENTS

2.1 Interaction with fish farming net



A bird net to poles must be adapted to the fish farming net with which it is to be used. It is important to inspect the bird net before use to ensure it is not worn and that there are no sharp edges that could snag the netting of the fish farming net. You must also ensure that the bird net does not hang in a way that could cause wear to the fish farming net.

2.2 Interaction with floater



Bird net poles should be installed on the floater at regular intervals around its whole circumference. They can be fitted to handrail supports on the floater or in separate fittings or holders inserted in clamps on the walkway. It is important that the poles are installed in a way that will not cause unnecessary strain on the floater handrail supports. The bird net must not end up in the water, as fish may get stuck in it.

2.3 Interaction between bird net and poles



The bird net must be adapted to the bird net poles it is being installed on. The net must be made with the right number of loops and the correct measurements to suit the poles, to prevent excessive strain on the bird net and poles.

3 INSTALLATION AND USE OF BIRD NETS TO POLES

3.1 Checking documentation and checkpoints before installation and use



Before using the bird net, ensure that the user manual is available. Check the net for any damage. Visible damage to the product is a sign that something has happened to the bird net during transport or storage. In some cases, particularly close inspection of the net will be required.

Bird nets must only be installed when weather and current conditions permit.

Applicable procedures must be reviewed before the start of the operation. The operations manager or personnel with the appropriate experience and competence must be responsible for the operation, and the various tasks must be assigned. The correct personal protective equipment must be worn, and the right type of lifting equipment must be used when using a crane. Extra equipment that could snag on the bird net must be removed or secured. The operation must be monitored.

3.2 Installation

3.2.1 Installation of poles on floater handrail supports

- Attach pole holder to handrail support, as far down as possible.
- The dimensions of the pole holder must be suitable for the dimensions/thickness of the bird net pole.
- If the handrail supports are round (as is the case with Polarcirkel floaters), the fastening screws must be screwed through the handrail support.



Components for pole holder for round handrail supports

- Insert bird net pole loosely in holder.

- If the handrail supports are square, fit the holder components together and tighten the nuts supplied.



Components for pole holder for square handrail supports

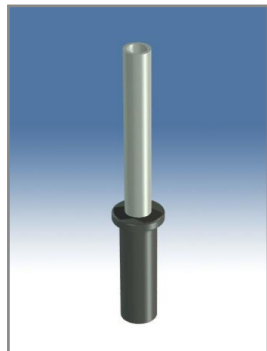
- Insert bird net pole loosely in holder.

3.2.2 Installation of poles in clamps in walkway

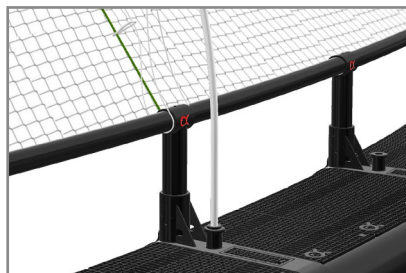
In some cases, the bird net poles are placed in holders positioned in clamps (chain holes) on the floater. Remember to use the right type of holder for the diameter of the clamps, and the right type of holder for the diameter of the bird net pole. Insert bird net pole loosely in holder.



NB: Insert the pole carefully into the holder – do not drop it in, as this could loosen the base of the holder.



3.2.3 Installation of poles in fastenings attached to floater



On some floaters, suitable fastenings are fitted in the walkway, and the poles can be inserted loosely into the fixing. If using a pole of a smaller diameter, an adapter can be placed in the holder to keep the pole in place.

3.2.4 Top pulley

- There is a pulley fitted to the top of each bird net pole. A rope to install, raise or lower the bird net passes through it. 8 mm cross-braided polyester rope is used to fasten the bird net, and 8 mm Ulstron rope is used to raise or lower the skirt/side.



3.2.5 Installation and use of bird net to poles

- ! If there are fish in the fish farming net when installing the bird net, we recommend using a protective cover. This is a cover of netting placed on the water's surface in the floater that prevents fish from coming into contact with the bird net. For more information, please see the User Manual for Protective Cover.
 - The bird net has loops for attaching fastening ropes. The number of loops depends on the number of poles to be used.
 - The bird net is attached to the fastening rope, which is fitted through the top pulley on the pole.
 - To ensure that the poles are evenly loaded, tighten the bird net diagonally.
 - Once all the fastenings are in place, retighten the entire bird net.
 - ! Once the bird net has been properly tightened, the poles will bend inwards due to the load from the bird net. This is completely normal, and the tension in the poles will ensure that the bird net stays taut even when the floater moves.
 - There may be vertical ropes on the skirt. Braided nylon loops are fitted at regular intervals on these ropes in order to be able to lift up the side or skirt of the net.
 - To prevent birds from getting under the bird net, the bird net sides (skirt) can be fastened tightly along the handrail on the floater.
 - The fastening points in the bird net and on the bird net pole must be positioned next to each other, to ensure that the fastening rope is not subjected to unnecessary wear.
- Using a system to lift the skirts/sides simplifies operations inside the floater. Raising the bird net sides (the skirt) provides better access for checking fish, counting lice etc. It is easy to remove some poles in order to conduct larger operations, such as treating and delivering fish.



This system copes well with strong winds and bad weather, as it is able to follow the movements of the floater, thereby reducing wear to the bird net.

Skirts can be fitted with two different mesh sizes, with the lower part of the skirt having smaller meshes than the rest. This is referred to as a jump skirt, and acts as an extra measure to prevent birds entering and fish being "washed out" of the floater. The skirt should ideally be long enough to hang below the floater handrail. Skirts can also be produced for attachment to the handrail.

3.2.6 Removing bird net from floater

When the bird net is to be removed from the floater, we recommend using a protective cover; see section 3.2.5 and User Manual for Protective Cover.

The bird net is lowered from poles using fitted ropes, then cut loose. Doing this carefully will result in less damage to the net. If there are fish in the floater, it is important to ensure that they do not get stuck in the bird net.

3.3 Special environmental conditions

3.3.1 Current conditions

In the event of strong currents, it is even more important to inspect the bird net and poles. Strong currents can cause the floater to deform, thereby also deforming the bird net and poles. The interaction between the fish farming net and the floater must be carefully observed to ensure that the bird net and poles are not exposed to undue stresses.

3.3.2 Extreme weather

Do not install or adjust bird nets to poles in extreme weather.

3.4 Risk assessment – critical points

Bird nets must only be used for their intended purpose. Nevertheless, there are some critical factors that could cause a bird net to damage a fish farming net:

- Damage to or sharp edges on bird net components, such as plastic stiffeners on loops.
- Contact between bird net and fish farming net can cause undue stresses – for example, if the net is not correctly installed at the time of ponding or following other operations, this can result in wear to the fish farming net.
- If a rope on a pole snaps, it must be replaced, after first lifting the pole out of its holder.
- Ensure that poles do not fall into the fish farming net.



In the event of any of the above, operations must be halted until the matter has been resolved and the risk has been averted.

Ensuring that personnel who handle bird nets and are responsible for daily inspections are aware of the above issues will often reduce the risk of accidents and escapes.

4 INSPECTION AND MAINTENANCE

4.1 General

It is vital to inspect bird nets to poles to ensure optimal performance. Regular inspections also help to extend the nets' service life. Inspections will reveal any abnormal situations and help prevent birds entering floaters and getting into fish farming nets, or fish escaping. The person in charge of inspecting the net must be familiar with bird nets to poles and have the requisite fish-farming experience to be able to identify any abnormal situations. All inspections and maintenance must be logged.

The product does not normally contain any user-replaceable parts. Please contact one of AKVA Group Egersund Net's service facilities if you are uncertain about what is permitted in terms of servicing and replacement of parts by the fish farmer.

4.2 Inspection checklist

The purpose of inspections is to identify any damage and weaknesses as early as possible. You must incorporate these checks into your regular operating procedures. If you suspect that the bird net has become damaged, you must carefully examine it immediately.

The following points should be checked during inspection:



Checklist item	What to inspect
Wear and tear	Check that the netting, ropes and loops are not worn, otherwise components could get caught in the netting
Poles	Check that the poles are not damaged, otherwise they could get caught in the netting

4.3 Inspection of bird nets at service facilities

Bird nets can be returned to a certified service facility.

Here, the net will be inspected and any necessary repairs made. Any damaged or clearly weakened components will be replaced. This includes netting, ropes and loops.

4.4 Log

All inspections and maintenance of a bird net must be logged.

The log must describe the following as a minimum:

- The action taken (type of inspection, cleaning, maintenance or repair) with reference to a plan and procedure
- The result of the action taken
- The necessary follow-up as a conclusion to the action taken
- Date
- Person/facility performing the work
- Signature

4.5 Disposal/recycling

If the bird net is no longer to be used, it can be returned to any AKVA Group Egersund Net service facility, where it will be processed in accordance with our waste management procedures.

5 TRANSPORTATION AND STORAGE

5.1 Transport and receipt of bird nets

AKVA Group Egersund Net recommends packing bird nets in a bag. When you receive a bird net, you must check the packaging for any damage. Visible damage to the packaging is a sign that something has happened to the bird net during transport. In such cases, you must inspect the net before use and notify AKVA Group Egersund Net and the carrier. Bird nets must always be checked before and after installation. This requirement also applies even if they arrive directly from the manufacturer or a service facility.

5.2 Storage of bird nets to poles

Bird nets must be stored in such a manner that they are not exposed to any external forces that could damage their components. Similarly, work involving strong heat, such as welding, must never be performed near the net. When you receive a net, it is your responsibility to ensure that it is stored properly.

Storage in a bag or box is considered the best way to store a bird net. If a bird net is packed in a bag fitted with loops, it is important to check the capacity of the loops before performing any lifting. Bird nets must not be dragged on the ground, as this can damage them.



If you intend to store a bird net, you should clean it before packing it up. Otherwise, contaminants such as feed residues could corrode and weaken the netting.

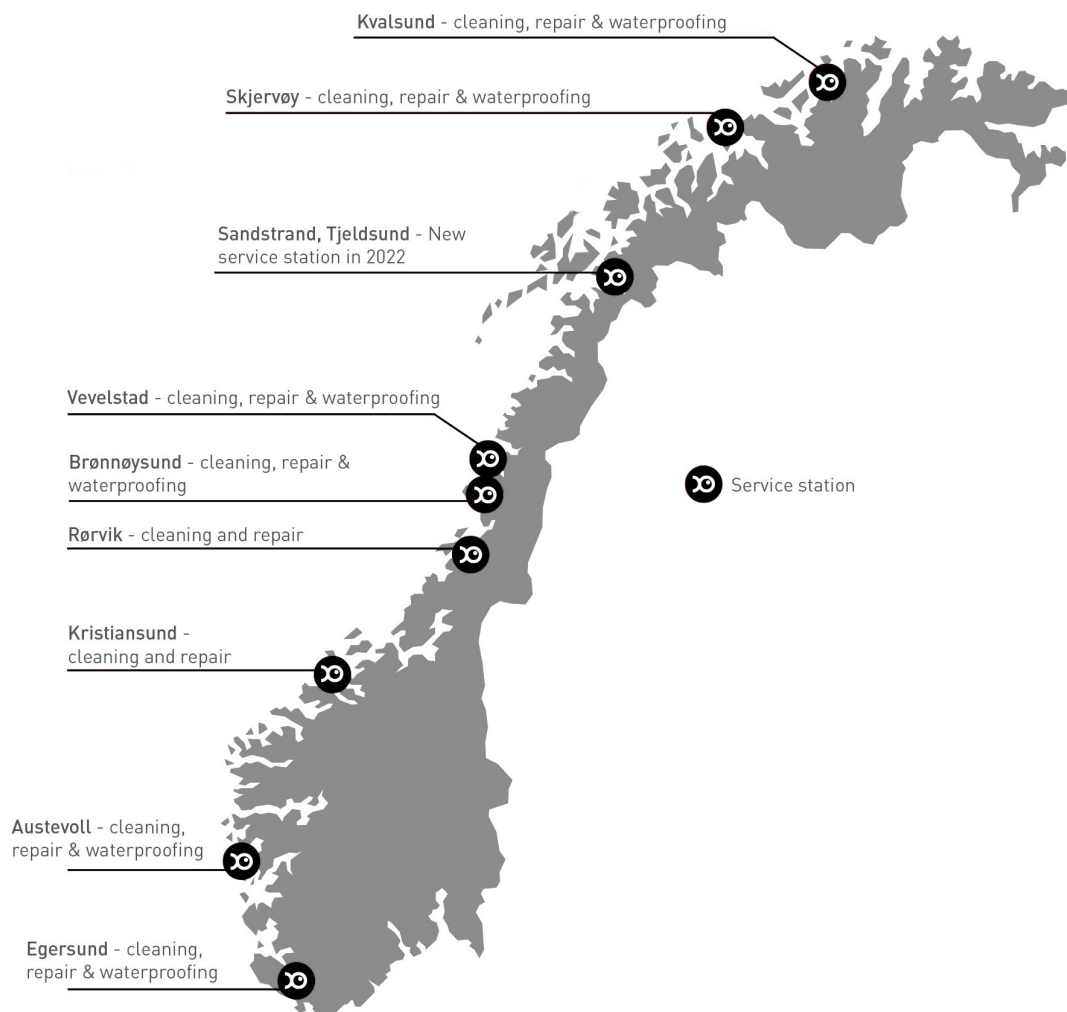
6 MANUFACTURER AND PRODUCT IDENTIFICATION

6.1 Contact

If you have any questions about bird nets, please contact our head office or your nearest service facility.

HEAD OFFICE

AKVA Group Egersund Net AS
Svanavågveien 30, 4373 Egersund, Norway
Telephone: +47 51 46 29
Email: post@egersundgroup.no
www.akvagroup.com



6.2 Identification of pole-mounted bird nets

Each bird net has a unique production number. All production-related information and maintenance history is registered and stored with a reference to the production number. Identification marks and production numbers are attached to ropes fitted around the circumference of the bird net skirt.

6.3 Net-Reg

The Net-Reg customer portal is a user-friendly equipment log permitting the maintenance of checklists and documentation of all your equipment, including bird nets to poles. This tool gives you a complete overview of the locations and status of your equipment. It can be used to produce documentation for each piece of equipment for internal and external audits.

6.4 Explanation of symbols



REQUIREMENT: Placed beside text describing requirements.



NB: Placed beside text describing potential incidents and other aspects that you should be aware of.



TIP: Placed beside tips and advice relating to installing and handling a bird net to pole.



ESCAPE RISK: Placed beside text describing events and/or operations that may increase the risk of fish escaping.

7 REVISION HISTORY

7.1 Change log

Some chapters in this user manual were previously published as part of the User Manual for Top Nets – revision 4, November 2021. The changes included here are based on this previous edition of the user manual.

The table below lists changes in the latest revision of the user manual.

Rev. no.	Date	Scope	Reference
1	1 December 2023	User manual updated in accordance with Norwegian Standard 9415:2021 and the Nytek23 regulations	All
1	1 December 2023	Updated section on installation and use of bird net and poles	Section 3
1	1 December 2023	New risks included	Section 3.2
1	1 December 2023	New photos and illustrations	All

THANK YOU FOR CHOOSING AKVA GROUP EGRSUND NET

Our mission is to deliver solutions and services that optimise production and contribute to sustainable, cost-effective and safe fish farm operation. We place great emphasis on fish welfare, operational performance and profitability for our customers in everything we do.

Bird nets are installed over a fish farming net to prevent birds getting into the floater and to prevent fish escaping. They are normally made from nylon, polyethylene or Dyneema netting.

Bird nets for poles are fitted to poles installed on floaters.

AKVA Group Egersund Net is committed to producing high-quality, easy-to-use bird nets, and in this user manual we describe how you should handle our bird nets.

We keep our manuals as user-friendly as possible. To achieve this, we rely on your feedback and on our collaboration with you as a user of our products. We value every suggestion we receive very highly, as these help us deliver more effective and safer equipment. You are most welcome to contact us if you have any comments or suggestions for improvement.

This User Manual for Bird Nets for poles is available on our website, www.akvagroup.com, and on our online equipment log, Net-Reg, at www.net-reg.no.

Together, we can help ensure that fish farming is an eco-friendly, sustainable and growing industry that produces safe and healthy seafood for the global market.

This user manual is designed to meet the requirements of Norwegian Standard 9415:2021 and the Nytek23 regulations. AKVA Group Egersund Net reserves all rights to this user manual and its contents. Reproduction and distribution to third parties without our clearly expressed prior approval are not permitted. We reserve the right to correct any errors in the text or illustrations.

Best regards
AKVA Group Egersund Net



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