

USER MANUAL

Bird Nets for Hamster Wheels or Centre Floaters

REVISION 1

AKVAGROUPTM
EGERSUND NET

SUMMARY

Bird nets for hamster wheels or centre floaters are installed over a fish farming net to prevent birds getting into the floater and from there into the fish farming net, and to prevent fish from escaping. They can be produced in various sizes and to various specifications.

They are manufactured from nylon, polyethylene or Dyneema® netting, and are specially designed to be fitted over hamster wheels or centre floaters.

Hamster wheels and centre floaters are made in various sizes and from various materials, and the bird net must be designed to fit.

Bird nets for hamster wheels or centre floaters can be supplied for both round and square floaters.

Bird nets for hamster wheels or centre floaters are manufactured in accordance with the requirements for extra equipment in Norwegian Standard 9415:2021 and the Nytek23 regulations.

When using bird nets for hamster wheels or centre floaters, it is important to be aware of certain risks:

- The bird net must be suitable for the floater it is attached to. This is to prevent placing too great a strain on the floater or other components at the facility.
- 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.
- The hamster wheel or centre floater must be correctly installed on the floater, and must be dimensioned in accordance with the bird net and floater.

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

CONTENTS

1	BIRD NETS AND THEIR COMPONENTS.	4
1.1	Definitions	4
1.2	Bird net with specifications/construction	5
1.3	Hamster wheel	6
1.4	Centre floater	7
1.5	Assumptions and limitations	7
1.6	Modification, renovation and enlargement	7
1.7	Nonconformities and managing faults	7
2	INTERACTION WITH OTHER COMPONENTS.	8
2.1	Interaction with fish farming net	8
2.2	Interaction with floater	8
2.3	Interaction with hamster wheel or centre floater	8
3	INSTALLATION AND USE OF BIRD NET FOR HAMSTER WHEEL OR CENTRE FLOATER.	9
3.1	Checking documentation and checkpoints before installation and use	9
3.2	Installation and use	9
3.2.1	Removing bird net from floater	10
3.3	Special environmental conditions	10
3.3.1	Current conditions	10
3.3.2	Extreme weather	10
3.4	Risk assessment – critical points	11
4	INSPECTION AND MAINTENANCE	12
4.1	General	12
4.2	Inspection checklist	12
4.3	Inspection of bird nets at service facilities	13
4.4	Log	13
4.5	Disposal/recycling	13
5	TRANSPORTATION AND STORAGE	14
5.1	Transport and receipt of bird nets	14
5.2	Storage of bird nets for hamster wheels or centre floaters	14
6	MANUFACTURER AND PRODUCT IDENTIFICATION	15
6.1	Contact	15
6.2	Identification of bird nets for hamster wheels or centre floaters	16
6.3	Net-Reg	16
6.4	Explanation of symbols	16
7	REVISION HISTORY.	17
7.1	Change log	17

1 BIRD NETS AND THEIR COMPONENTS

The bird net for hamster wheels or centre floaters is usually made of nylon, polyethylene or Dyneema, and is tailored to the size of the floater. It is designed to be installed over a hamster wheel or centre floater in the centre of the floater. Hamster wheels and centre floaters are normally manufactured from PE (polyethylene).

A rope is affixed around the circumference of the bird net, to which rope ends are attached for fastening. In some cases an extra skirt, or jump skirt, is fitted to the bird net, which then hangs from the handrail and down to the walkway. This prevents birds from entering the fish farming net or fish escaping from it.

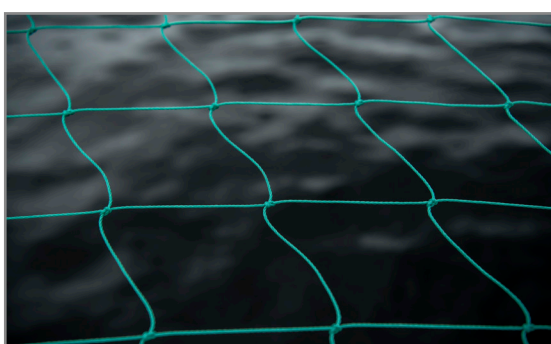
It is a good idea to install the circumferential rope about 1 m inside the floater handrail. This will facilitate access into the fish farming net to perform work operations, such as fish sampling.

The lowest rope on the skirt should be a thin lead rope. This provides a little weight, and ensures that the net hangs down properly.

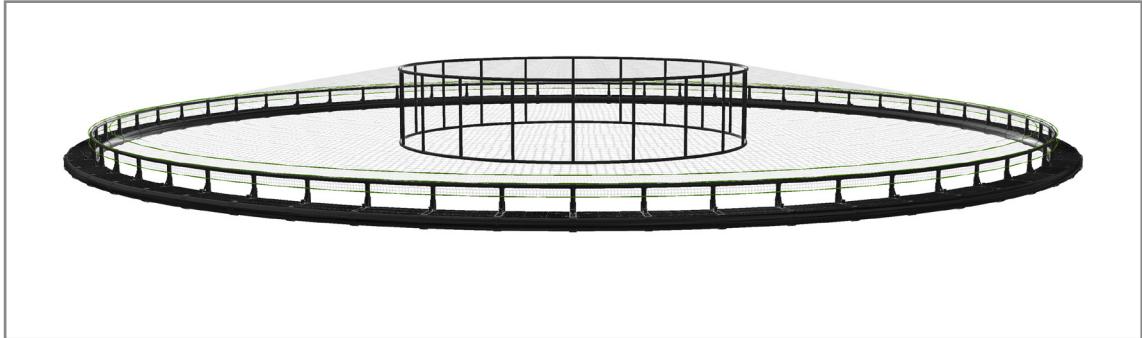
In some cases, a cross rope is added to the bird net for hamster wheels or centre floaters.

1.1 Definitions

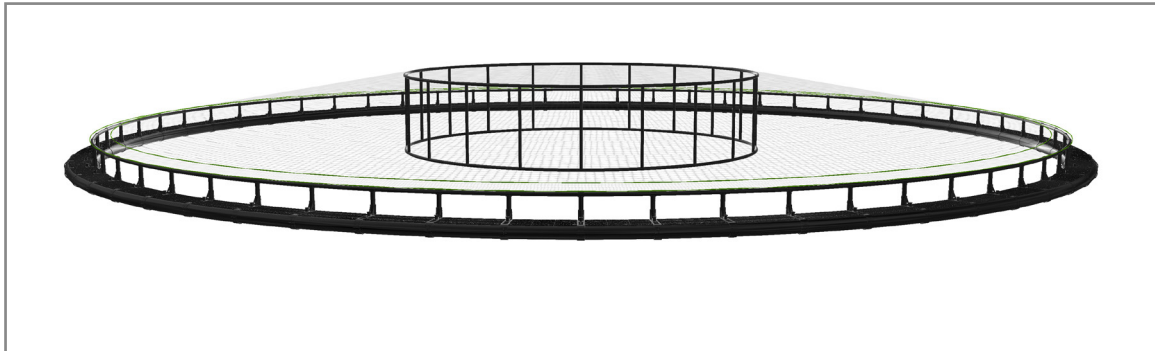
HAMSTER WHEEL	A wheel located in the centre of a floater. A bird net is installed above the wheel to keep it well away from the surface of the water, feed spreader and fish.
JUMP SKIRT	Netting with smaller meshes in the lower part of the bird net skirt. Prevents birds from entering the floater or fish from escaping.
CENTRE FLOATER	A floating support located in the centre of a floater. A bird net is installed above the centre floater to keep it well away from the surface of the water, feed spreader and fish.



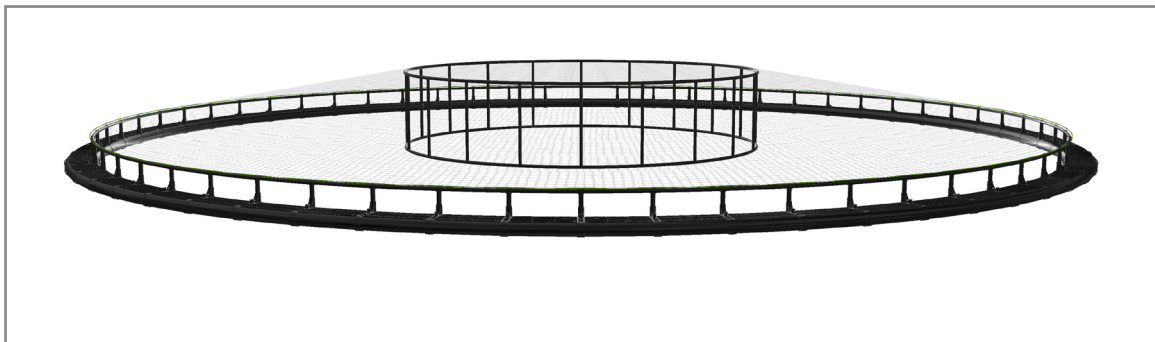
1.2 Bird net with specifications/construction



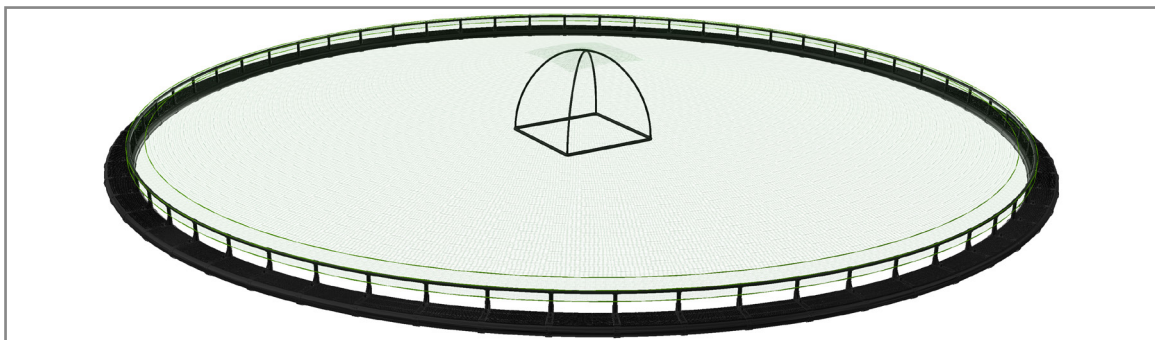
Bird net with overflow net in the lower part of the skirt, below the handrail. Can be made with a smaller meshes, or with the same mesh size as the skirt



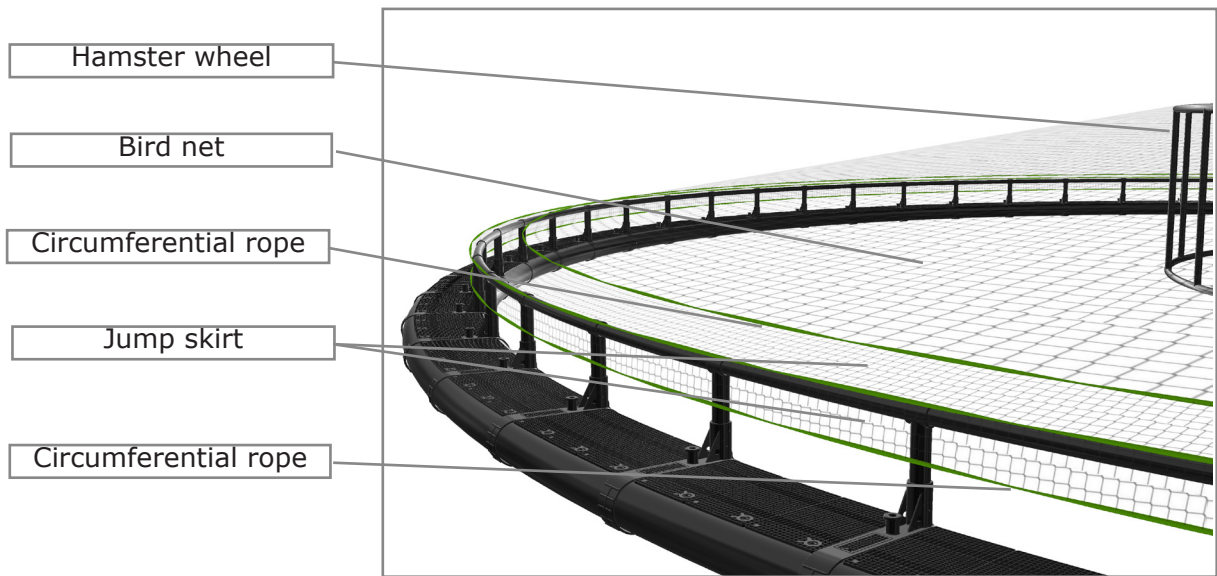
Bird net installed above hamster wheel, with overflow net (smaller meshes) in the lower part of the skirt – stops at handrail



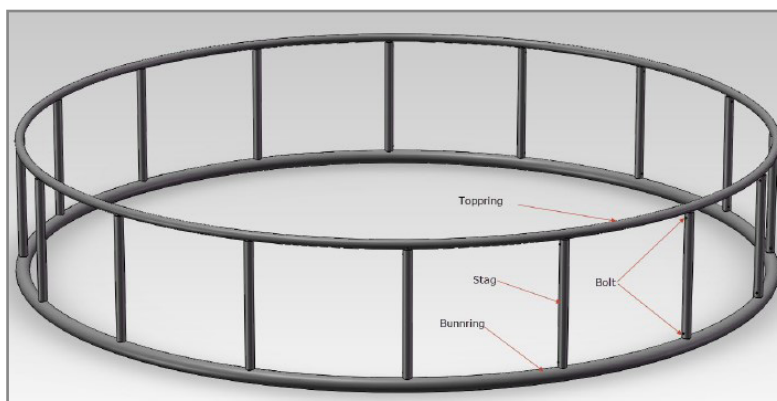
Bird net installed above hamster wheel, with the same mesh size as the whole skirt



Bird net installed above centre floater, here shown with jump skirt



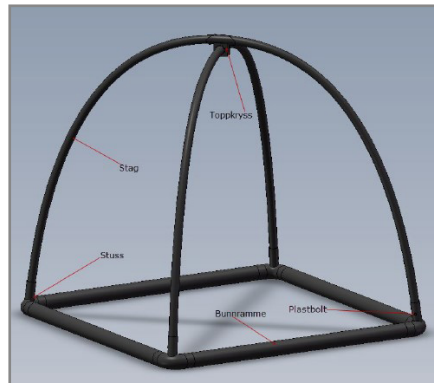
1.3 Hamster wheel



Hamster wheels are normally made from PE (polyethylene) and are available in various sizes. The height and diameter vary as required. It is important that there are no sharp edges, as the bird net may rest on the hamster wheel.

In some cases, a bird net may be installed over just the hamster wheel and not the rest of the floater. This mainly happens towards the end of a production cycle, once the fish have grown large. It prevents birds from accessing the feed inside the floater.

1.4 Centre floater



Centre floaters are normally made from PE (polyethylene) and are available in various sizes. The height and diameter vary as required. It is important for there to be no sharp edges, as the bird net may rest on the centre floater.

1.5 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 and other components in a complete system affect each other.

1.6 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.

1.7 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 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



The bird net should be attached to the floater at regular intervals around the whole circumference of the floater. It is important that the bird net is installed in a way that will not cause unnecessary strain on the floater.

The bird net must not be allowed to hang in the water, as fish may get stuck in it.

2.3 Interaction with hamster wheel or centre floater



The bird net will be in constant contact with the hamster wheel or centre floater. Therefore, there is a risk of the bird net becoming worn or snagged.

If a centre floater is used, it may be beneficial to have a section of reinforcement net in the centre of the bird net.

3 INSTALLATION AND USE OF BIRD NET FOR HAMSTER WHEEL OR CENTRE FLOATER



3.1 Checking documentation and checkpoints before installation and use


Before using the bird net, ensure that the user manual is available. Check the netting 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 netting 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 and use

-  • The hamster wheel or centre floater is fitted in the centre of the floater. The fastenings to the floater must be equally distributed around the circumference of the hamster wheel or centre floater, so as not to cause undue strain on the floater. A rope for attaching to the floater is fastened at the bottom of the hamster wheel or centre floater, and is attached to the floater's floating pipes or bracket stubs – not to the handrail, as this could result in undue stresses. The fastening rope should be slightly slack.
- Lift the net over the hamster wheel or centre floater. Start by fastening the “corners” so that the bird net is equally distributed around the entire floater.
- The net can then be attached to the floater handrail using fastening ropes.
- The bird net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the bird net is made of nylon.
-  • 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 an overspill net, and it 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.
- The rope around the circumference of the bird net should be fitted slightly inside the circumference of the floater. This will make it easier to retighten the bird net and to move it to the side for operations.

- If the bird net has a reinforced section in the centre, check that this is positioned above the centre floater.
-  • Make sure that the bird net does not come into contact with the surface of the water.
- Make sure that the bird net does not come into contact with the feed spreader or other extra equipment in or on the floater, to prevent holes and wear to the bird net.
- If operations are to be performed inside the floater, such as counting lice or treating fish, a section of the bird net can be detached from the handrail and pulled into the floater. Once the operation is complete, the bird net must be reattached to the floater handrail.
- Be aware that constant wave action may cause wear and tear to fastenings and at the contact point between the bird net and the hamster wheel or centre floater.

3.2.1 Removing bird net from floater



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

The bird net can be cut loose and released into the protective cover. 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 hamster wheel or centre floater. Strong currents can cause the floater to deform, thereby also deforming the bird net. The interaction between the fish farming net and the floater must be carefully observed to ensure that the bird net is not exposed to undue stresses.

3.3.2 Extreme weather



Do not install or adjust bird nets 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:

- Contact between bird net and floater 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 damage to bird net components or the fish farming net.
- Loose screws or broken components on the hamster wheel or centre floater could cause damage to the bird net's netting or the fish farming net.



- If the hamster wheel or centre floater is insufficiently fastened and comes loose, it could come into contact with the fish farming net. This may cause damage and could constitute a potential escape risk.

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 for hamster wheels or centre floaters 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. The person in charge of inspecting the net must be familiar with bird nets for hamster wheels or centre floaters 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
Components	Check that there are no loose screws or any damage to components of the hamster wheel or centre floater
Floater	Check that the bird net and floater are not exposed to heavy strains
Fastening	Check that the bird net is securely fastened to the floater

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 a 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 netting before use and notify AKVA Group Egersund Net and the carrier. Bird nets must always be checked before and after use. This requirement also applies even if they arrive directly from the manufacturer or a service facility.

5.2 Storage of bird nets for hamster wheels or centre floaters

Bird nets must be stored in a way that prevents exposure 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.

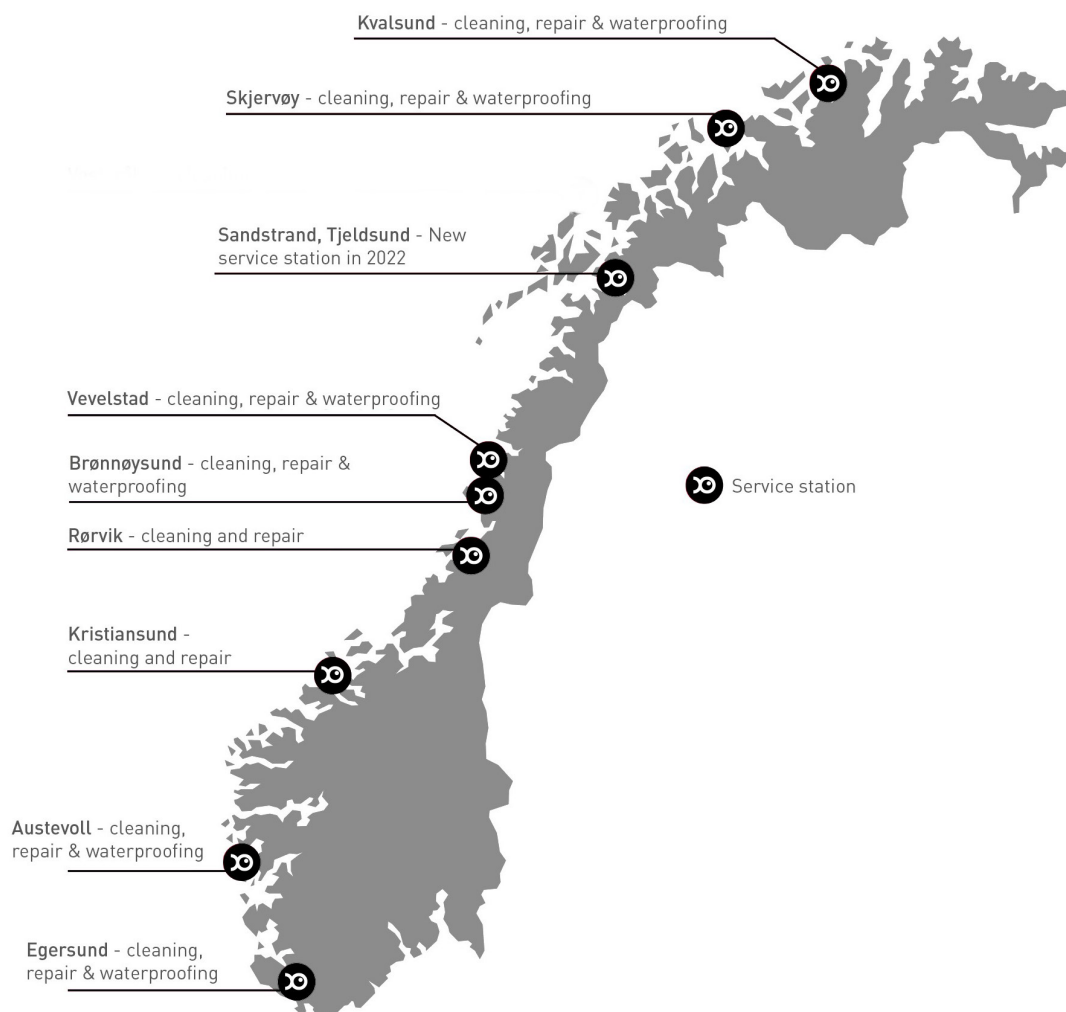
6 MANUFACTURER AND PRODUCT IDENTIFICATION

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 00
Email: post@egersundgroup.no
www.akvagroup.com



6.2 Identification of bird nets for hamster wheels or centre floaters

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 for hamster wheels or centre floaters. 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 for hamster wheels or centre floaters.



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 for hamster wheels and centre floaters	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 hamster wheels or centre floaters are installed above hamster wheels or centre floaters fitted to the centre of 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 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 Hamster Wheels or Centre Floaters 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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