

USER MANUAL

TOP NET

REVISION 4



AKVAGROUPTM
EGERSUND NET

THANK YOU FOR CHOOSING EGERSUND NET

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

Top nets are nets that are mounted over fish farming nets, to prevent birds from entering the floating collar. The nets are usually produced in polyethylene, nylon or dyneema netting.

Egersund Net is committed to producing high-quality, easy-to-use top 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 highly value every suggestion we receive, as it helps us deliver more effective and safer equipment. You are most welcome to contact us if you have any comments or suggestions for improvement.

The user manual for top nets is available on our website www.egersundnet.no, 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 9415:2009 and the NYTEK regulations. 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.

Warm regards,
Egersund Net

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1 INTRODUCTION

1.1 Symbol definitions



REQUIREMENT: This symbol is placed next to text describing requirements.



NOTE: This symbol is placed next to text describing potential incidents and other aspects that you should be aware of.



TIP: Describes tips and advice in connection with the installation and handling of a top net.



ESCAPE RISK: This symbol is placed next to text describing incidents and/or operations that may increase the risk of fish escaping.

1.2 Contact information

If you have any questions about top nets, please feel free to contact us. Delivery and visiting address:

Egersund Net AS

Svanavågveien 30

NO-4374 Egersund, Norway

Tel: +47 51 46 29 60

E-mail: post@egersundgroup.no www.egersundnet.no

1.3 Identification of top nets

Each top net has a unique production number. All information related to the production is recorded and archived with a reference to the production number. Each top net has one identification mark.

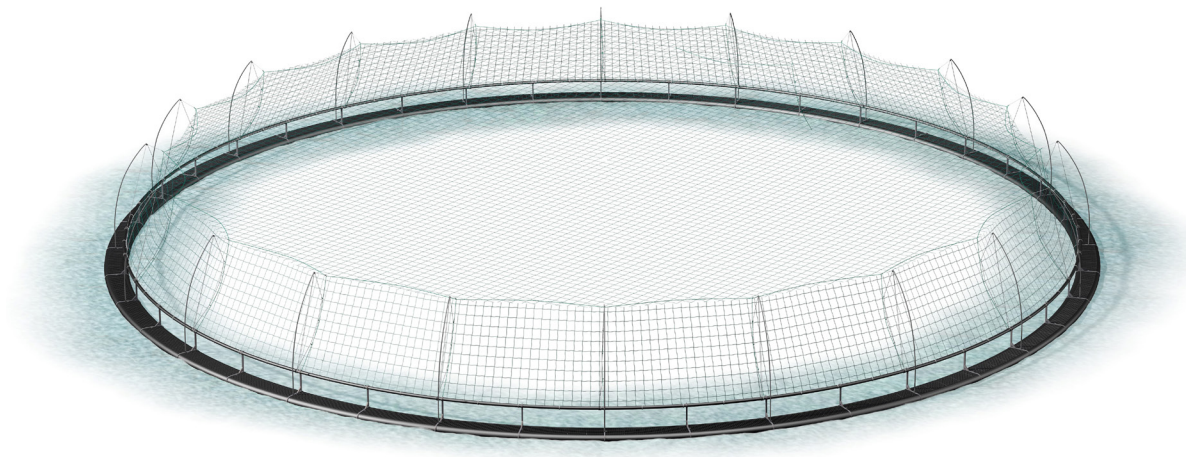
2 NETS FOR POLES

2.1 About the product

The top net is made of nylon, polyethylene or Dyneema, and is specially designed for use with poles.

The top net poles are made of fibreglass with a high tensile strength and are available in various lengths and dimensions. The brackets used to mount the poles on the floating collar come in various designs and sizes, depending on the type of collar.

The top net poles are mounted to the hand rails on the floating collar or in chain holes between the floating pipes.



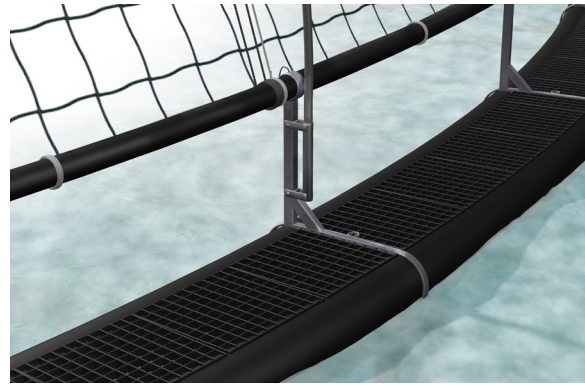
2.2 Installation

2.2.1 Bracket for hand rail

- The bracket is attached to the hand rail.
- Brackets are normally attached to every third hand rail, although this may vary depending on the circumference of the floating collar and the distance between the
- hand rails.
- The pole is inserted into the bracket.
The pole is now firmly attached to the hand rail.



Bracket for round hand rail



Bracket for square hand rail

2.2.2 Bracket for chain hole



- The bracket is placed into the chain hole.
- Remember to use the right type of bracket for the diameter of chain hole, and the right type of bracket for the diameter of the pole.
- The pole is then inserted into the hole. The bracket is designed so that no additional attachment is necessary for the pole.



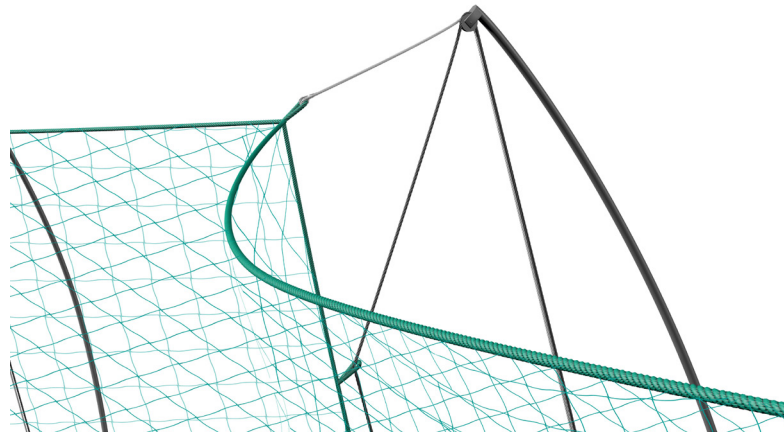
Bracket for mounting pole in chain hole



2.2.3 Installing the top net

- Top nets must only be installed when weather and current conditions permit.
- Before the operation begins, applicable procedures must be reviewed. The person responsible for the operation must have the proper expertise, and the various tasks must be assigned. The correct personal protective equipment must be worn, and approved lifting equipment must be used when using a crane.
- If there are fish in the floating collar when installing a top net, we recommend using a protective cover. This is a cover of netting that is placed on the water's surface in the floating collar to prevent fish from coming into contact with the top net. For more information, please see the user manual for protective covers.
- The top net has loops for attachment ropes. The number of loops depends on the number of poles to be used.
- The top net is attached to the attachment rope, which is mounted through the top pulley on the pole.
- To ensure that the poles are evenly loaded, tighten the top net diagonally.
- Once all the attachments are in place, retighten the entire top net.
- Once the top net has been properly tightened, the poles will bend inwards due to the load from the top net. This is completely normal, and the tension in the poles will ensure that the top net stays taut even when the floating collar moves.
- Vertical ropes can be fitted to the skirt. Nylon braided loops are fitted evenly distributed 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 top net, the top net sides (skirt) can be fastened tightly along the railing on the floating collar.
- If the top net pole is not directly above the attachment point, this can cause wear to the attachment rope.





Using a system to lift the skirts/sides makes operations inside the floating collar simpler. Raising the top net sides (the skirt) provides better access to check the fish, count lice etc. It is easy to remove some poles so that you can perform larger operations, such as the treating or collection of fish.

This system copes well with strong winds and bad weather, as it can follow the movements of the floating collar, thereby reducing wear to the top net.

Skirts can be fitted with two different mesh sizes, where the lower part of the skirt has finer mesh than the rest. This is called a jump net, and it acts as an extra safety device to prevent fish from being flushed out of pens, or birds from entering.



2.3 Risk assessment/special environmental conditions

- Make sure that the top net does not come into contact with the water's surface or fish in the net.
- Make sure that the top net does not come into contact with the feed spreader or other equipment in or on the floating collar.
- Note that constant movement of poles and top net may cause wear and tear to the attachment ropes.

2.4 Removing the top net from the floating collar

We recommend using a protective cover when removing the top net from the floating collar (see section 2.2.3).

2.5 Maintenance

The top net should be checked regularly when the pen net is being inspected. Any holes discovered in the top net must be repaired.

If it is necessary to carry out substantial repairs to a top net, it can be brought in for service at any Egersund Net service facility. This also applies if the top net is to be discarded. It will then be handled in accordance with Egersund Net's waste management procedures.

The lifespan of a top net depends on the way it is used and maintained/inspected.

2.6 Check list

The following points should be included in the weekly inspection of the facility, as well as after severe storms or other unforeseen events that may have damaged the top net and/or attachments:

Checklist item	What to inspect
Bracket for hand rail	Check that the bracket is firmly attached to the hand rail and that the pole is not loose
Bracket for chain hole	Check that the bracket is securely in place in the chain hole
Attachment rope for the top net	If possible, check for wear and tear to the attachment rope for the top net. Check that the attachment rope is tied tightly
Top net/skirt	Check that the top net's skirt is attached to the railing and that the top net is intact. Retighten if necessary
Load on railing	Check that the railing is not too heavily laden from the poles and top net. Pay particular attention if the top net is exposed to very heavy loads, for example as a result of icing



3 TOP NETS WITH HAMSTER WHEEL

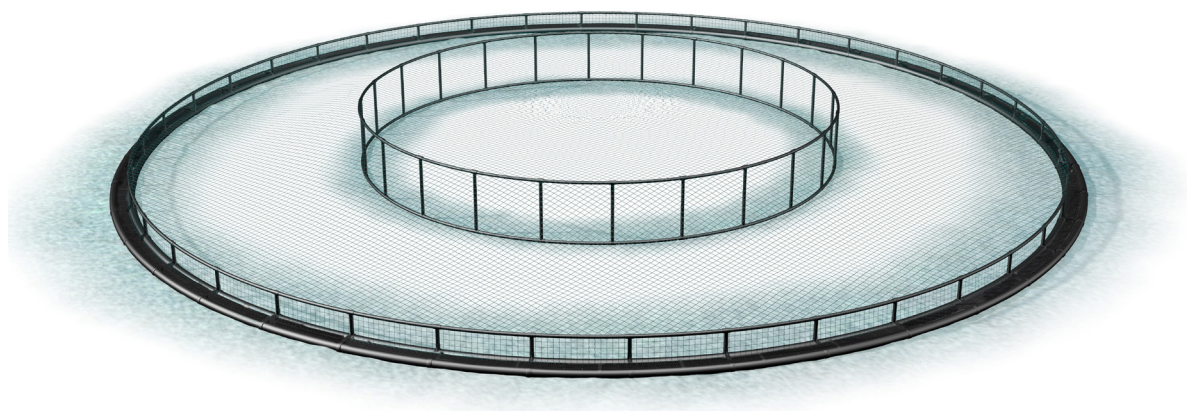
3.1 About the product

The top net is made of nylon, polyethylene or Dyneema, and is tailored to the size of the floating collar. It is designed to be installed over a hamster wheel in the centre of the floating collar.

A rope is mounted along the perimeter of the top net with ropes for attachment. In some cases, an extra skirt is fitted to the top net, which then hangs from the railing and down towards the walkway to prevent birds from entering between the top net and the railing.



- It may be a good idea to have the perimeter rope mounted approximately 1 m inside the handrail, in order to provide easy access for work operations, for example sampling fish.
- If a skirt is fitted to the top net, it must fall over the railing and down towards the walkway. It can be helpful to mount a lead-line rope along the skirt so that there is some weight to it when it hangs down.
- Top nets can be fitted with cross ropes that go straight across the net.



3.2 Installation

- Top nets must only be installed when weather and current conditions permit.
- Before the operation begins, applicable procedures must be reviewed. 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 approved lifting equipment must be used when using a crane.
- The top net must be raised above the hamster wheel. Start by tightening the corners so that the top net is evenly distributed around the entire floating collar.
- Attach the attachment ropes mounted to the perimeter rope to the handrail every 2m
- The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.



3.3 Risk assessment/special environmental conditions

- Make sure that the top net does not come into contact with the water's surface or fish in the floating collar.
- Make sure that the top net does not come into contact with the feed spreader or other equipment in or on the floating collar, to prevent holes and wear to the top net.
- Be aware that constant movement due to waves and currents can cause wear and tear to the attachments and to the points of contact between the top net and the hamster wheel.

3.4 Maintenance

The top net should be checked regularly when the pen net is being inspected. Any holes discovered in the top net must be repaired.

If it is necessary to carry out substantial repairs to a top net, it can be brought in for service at any Egersund Net service facility. This also applies if the top net is to be discarded. It will then be handled in accordance with Egersund Net's waste management procedures.

The lifespan of a top net depends on the way it is used and maintained/inspected.

3.5 Check list

A checklist should be drawn up for the components that must be included in the regular inspections of the facility, as well as after severe storms or other unforeseen events that may have damaged the equipment.

Checklist item	What to inspect
Attachment point to top net	Check for wear damage to the attachment rope to the top net. Ensure the attachment is secure
Contact points between the top net and hamster wheel	Sjekk at taknettet ikke er påført store slitasjeskader/hull
Retightening	The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.



4 TOP NET WITH CENTRE FLOAT

4.1 About the product

The top net is made of nylon, polyethylene or Dyneema, and is tailored to the size of the floating collar. It is designed to be installed over a float in the centre of the floating collar. A rope is mounted along the perimeter of the top net with ropes for attachment. In some cases, an extra skirt is fitted to the top net, which then hangs from the railing and down towards the walkway to prevent birds from entering between the top net and the railing.



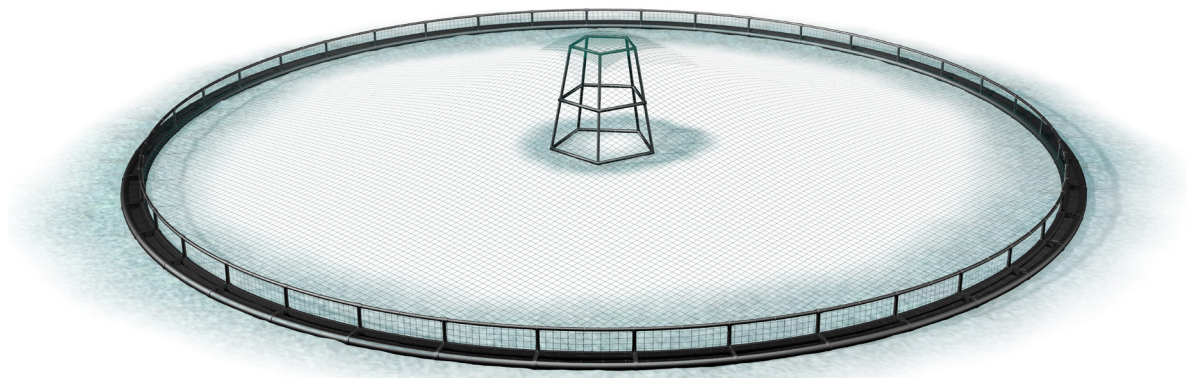
- It may be a good idea to have the perimeter rope mounted approximately 1 m inside the hand rail, in order to provide easy access for work operations, for example sampling fish.

- If a skirt is fitted to the top net, it must fall over the railing and down towards the walkway. It can be helpful to mount a lead-line rope along the skirt so that there is some weight to it when it hangs down.



- Top nets can be fitted with cross ropes that go straight across the net.

- Top nets designed for centre floats/towers will have a reinforced area in the centre to reduce wear. This area must face down to the centre float.



4.2 Installation

- Top nets must only be installed when weather and current conditions permit.
- Before the operation begins, applicable procedures must be reviewed. 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 approved lifting equipment must be used when using a crane.
- The top net must be raised above the centre support. Start by tightening the corners so that the top net is evenly distributed around the entire floating collar.
- Attach the attachment ropes mounted to the perimeter rope to the handrail every 2m
- The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.



4.3 Risk assessment/special environmental conditions

- Make sure that the top net does not come into contact with the water's surface or fish in the net.
- Make sure that the top net does not come into contact with the feed spreader or other equipment in or on the floating collar, to prevent holes and wear to the top net.
- Be aware that constant movement due to waves and currents can cause wear and tear to the attachments and to the points of contact between the top net and the centre support.

4.4 Maintenance

The top net should be checked regularly when the pen net is being inspected. Any holes discovered in the top net must be repaired.

If it is necessary to carry out substantial repairs to a top net, it can be brought in for service at any Egersund Net service facility. This also applies if the top net is to be discarded. It will then be handled in accordance with Egersund Net's waste management procedures.

The lifespan of a top net depends on the way it is used and maintained/inspected.

4.5 Check list

A checklist should be drawn up for the components that must be included in the regular inspections of the facility, as well as after severe storms or other unforeseen events that may have damaged the equipment.

Checklist item	What to inspect
Attachment point to top net	Check for wear damage to the attachment rope to the top net. Ensure the attachment is secure
Contact points between top net and centre support	Check that the top net is not exposed to major wear damage or holes
Retightening	The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.

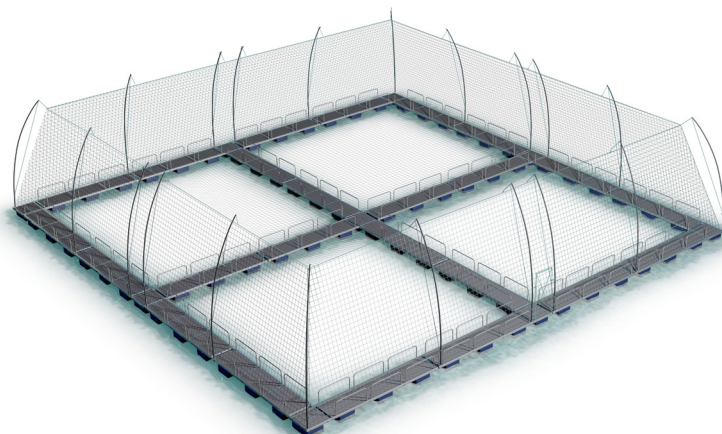
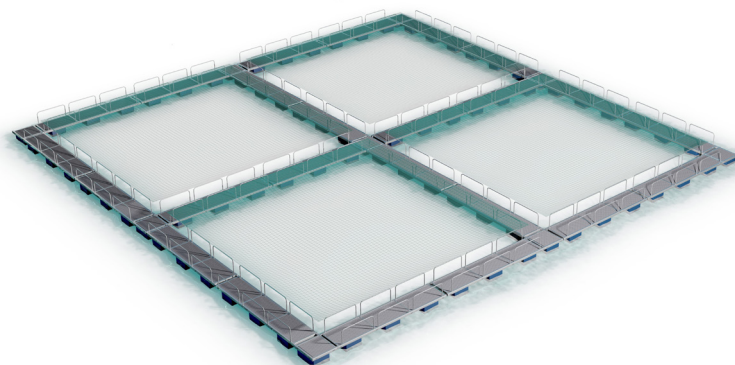


5 TOP NETS FOR SQUARE FLOATING COLLAR

5.1 About the product

Top nets designed for square floating collars can be installed over a single cage in an aquaculture facility, or over multiple cages (see illustrations below). They can be fitted flat over the floating collar, or they can be used with poles (see section 2).

The top net is made of nylon, polyethylene or Dyneema, and there is usually a rope fitted along the edge/perimeter.



5.2 Installation

- Top nets must only be installed when weather and current conditions permit.
- Before the operation begins, applicable procedures must be reviewed. The person responsible for the operation must have the proper expertise, and the various tasks must be assigned. The correct personal protective equipment must be worn, and approved lifting equipment must be used when using a crane.
- Start by tightening the corners so that the top net is evenly distributed around the entire floating collar.
- Attachment ropes fitted to the perimeter rope on the net are fastened to railings at regular intervals.
- The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.



5.3 Risk assessment/special environmental conditions

- Make sure that the top net does not come into contact with the water's surface or fish in the floating collar.
- Make sure that the top net does not come into contact with the feed spreader or other equipment in or on the floating collar, to prevent holes and wear to the top net.
- Be aware that constant movement due to waves and currents can cause wear and tear to the attachments and to the points of contact between the top net and the floating collar.

5.4 Maintenance

The top net should be checked regularly when the pen net is being inspected. Any holes discovered in the top net must be repaired.

If it is necessary to carry out substantial repairs to a top net, it can be brought in for service at any Egersund Net service centre. This also applies if the top net is to be discarded. It will then be handled in accordance with Egersund Net's waste management procedures. The lifespan of a top net depends on the way it is used and maintained/inspected.

5.5 Check list

A checklist should be drawn up for the components that must be included in the regular inspections of the facility, as well as after severe storms or other unforeseen events that may have damaged the equipment.

Sjekkpunkt	Kontroll
Attachment point for top net	Check for wear damage to the attachment rope to the top net. Ensure the attachment is secure
Contact points between top net and floating collar	Check that the top net is not exposed to major wear damage or holes
Retightening	The top net must be retightened after installation to prevent it from sagging or stretching. This is especially important if the top net is made of nylon.





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