



User Manual

Air Spreader



User Manual

Air Spreader

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1 INTRODUCTION

This user manual describes the safety measures which shall be considered when using the air spreader, and how corresponding equipment is installed and maintained, including the management of waist.

Keep this user manual for as long as the equipment is in use or use of the equipment is intended.

Thank you for choosing Steinsvik as your supplier. Please contact us if you have any questions or if you think something is missing from this manual.

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2 SAFETY

Steinsvik recommends that any person who intends to use or maintain this product, work in the same area as this product is installed or used, reads this user manual thoroughly and especially this chapter on safety.

This recommendation is based on the safety of employees, to make sure the product can be used throughout its lifespan and reducing the risk of fish escaping.

The maintenance routine must be carried out as described in this user manual to avoid unnecessary damage to the product.

2.1 Symbols

Symbols used in this user manual are listed and described below:



Information



See page/chapter for more information



Caution – danger of damaging equipment and cause mild personal injury



Warning – may cause personal injury



Authorized personnel only

2.2 Personal safety



Only authorized personnel can perform electrical work (service/maintenance) on this equipment



Use personal protective equipment according to the regulations at the location

2.3 Safety for product and corresponding equipment

Treat the equipment as described in this user manual. The described components below are critical components. If instructions are not followed, there is a risk of harming or damaging the product or other equipment.

2.3.1 Air Spreader

The system is not to be initiated before the spreader is properly installed in the centre of the fish cage. The air spreader must not be in contact with corrosive materials such as normal steel (forklifts), etc. Deposits from such materials can cause spot corrosion on the spreader.

2.3.2 Rope

The spreader suspension must not be in contact with other equipment such as camera cables camera rope, other ropes and equipment in the cage. This prevents damaging the equipment in bad weather or damage caused by prolonged wear and tear.

2.4 Disinfection

All equipment that is to be moved to another location must be disinfected. Steinsvik recommends cleaning the air spreader with warm water after disinfection to prevent damages.

2.5 Delivery

All equipment that is delivered must be controlled according to the purchase order. Please contact Steinsvik immediately if errors occur.

3 DESCRIPTION

The air spreader is a modern spreader, with long lifetime and solid structure. Due to the ballast structure, it is very stable in the water, even at high sea. The air spreader is made for modern feeding facilities and is suitable for all sorts of pellets from 3 mm and higher.

3.1 Air Spreader

The air spreader has several advantages:

- Installing: The spreader is easily installed and placed in the cage.
- Its spreading radius is large.
- It handles the feed very gently.
- The construction is stable and solid and gives an even spreading of feed and high stability even in high sea.
- High quality bearing.
- Joints and pipes are specially designed to handle the feed in a gentle way and minimize the crushing of feed.
- Pipes in stainless steel: Stainless steel is a sustainable material and gives a long lifespan with no corrosion. The use of this material prevents the wear on pipes and the crushing of feed compared to pipes in aluminium. A tough ball bearing with low friction ensures that the spreader rotates freely and that the bearing is not packed with dust.

The spreader and corresponding equipment are easily installed and have a dedicated and user-friendly feeding software.

Table 1: Spreader specifications

Specifications	
Material	Stainless steel, Icorene 4-3545, rubber, PE
Weight	60 kg
Dimensions (BxHxØ)	1520 x 1364 x 1250 mm



Figure 1: Air spreader

3.2 Rope

Recommended ropes:

- Marina Maxi 3-strand fibre rope or similar
- Nylon rope 3-strand or similar

Rope specifications are listed in the table below:

Table 2: Rope specifications

	Marina Maxi	Nylon rope	Nylon rope	Nylon rope
Dimension [mm]	6	16	18	20
Floats in water	✓	x	x	x
Weight [kg/m]	0,025	0,165	0,21	0,26
Min. breaking load [kgF]	800	5 304	6 732	8 262
Strength in wet condition	Same strength in wet and dry condition	Approx. 10% strength reduction in wet condition	Approx. 10% strength reduction in wet condition	Approx. 10% strength reduction in wet condition
Colour	Yellow with blue threading	White with green threading	White with green threading	White with green threading

4 PREPARATION AND INSTALLATION

If desired, a technician from Steinsvik can be present when the equipment is installed to ensure proper and safe installation, and that the equipment works as intended.

4.1 Preparation



Execute a visual inspection of all equipment before installing and initiating.

Rope/feed tube: Rope and feed tube must be inspected to make sure it is not damaged.

Spreader: Make sure that the spreader has no damages before it is placed in the cage.



Contact Steinsvik if any components need service or if you need to order new parts.

4.2 Installing



Be cautious while lifting the spreader.



Make sure the equipment is secured properly before it is lowered into the cage.



Use personal protective equipment according to the regulations at the location.

4.2.1 Securing the nozzle

The nozzle is secured by the clamp, but as an extra precaution it can also be secured by using the two anchors on the nozzle and the rotor pipe. Secure the rotor with 6 mm Marina Maxi rope secured to each anchor with a bowline knot (see appendix 1 for knots). The rope should also go through the clamp as an extra security for the clamp – see picture below as a reference.



Figure 2: Nozzle secured with rope

4.2.2 Air Spreader and Ropes

Attach the feeding hose to the feed pipe (see figure below). Check that the rubber gasket is in place – if not, this can lead to wear and tear at the welding between the Stator pipe and the flange. Attach a rope to each of the four assembly attachments. Place the air spreader in the centre of the cage (see figure far below). All ropes are to be tightened to the spreader with 10 kN.

Figure

3:



Attachment of the feeding hose and the assembly attachment



Figure 4: The air spreader in the cage



Recommended knots are described in appendix 1.
All ropes, including splits, are to be controlled before use. Make sure the rope is not worn, damaged or moulded.

4.2.3 System Connection

The air spreader is the last link in a feeding system and is designed to spread the feed in the cage. If the spreader is purchased with the Steinsvik feeding system, it is controlled through a dedicated and user-friendly software called FeedStation where surveillance of silo, velocity, feed time etc. are easily accessible.

If the spreader is purchased as a single component it can be connected to the existing system.

5 MAINTENANCE AND SERVICE

5.1 Maintenance and service

The table below shows the maintenance intervals for the air spreader and corresponding equipment.

Table 3: Maintenance and service

Component	Every other week	Monthly	By dismantling/ storage	Every generation	If needed
Air spreader	Observe floating ability on a regular basis	Make sure that the attachment points is without cracks	Clean	Clean and disinfect	Clean with a soft cloth and mild soap Send to Steinsvik for service every other generation (approx. 44 months)
Rope	Check for fouling, wear and tear, pay special attention to the secondary safety barrier on the nozzle	Make sure all ropes are fixed properly, both to the equipment and in the cage	Clean	Replace with new ropes	Remove fouling, replace worn or damaged ropes
Ballast	Check for fouling, especially in the spring and summer		Clean	Clean and disinfect	Clean
Pipe	Check for fouling, especially around the joint	Check fixing		Clean and disinfect	Clean
Float		Check for leaks, cracks and holes		Clean and disinfect	Inspect and clean
Rotor pipe and flange		Dismantle rotor pipe and clean underneath the flange. Apply a thin layer of grease (intended to be in contact with the feed) on the V-ring	Clean and check that the rotor pipe is rotating easily	Control the rotor pipe, it should rotate easily, clean and disinfect	Clean
Bearing				Check if bearing/bearing house is ok	Send to Steinsvik for service

5.2 Service

Damaged equipment or equipment that needs service is to be sent to Steinsvik.

As shown in the table, it is recommended that the air spreader is sent to Steinsvik for service every other generation or sooner if needed. There are no fixed prices on service because it depends on what parts that needs to be replaced and the work that needs to be done. Bearing and bearing housing can be replaced by customer after purchasing this at Steinsvik.

6 TROUBLESHOOTING

Basic troubleshooting is described in the table below.



Only authorized personnel can perform troubleshooting and the tasks described below.

Table 4: Troubleshooting

Component	Error	Cause	Action
Rotor pipe	Not rotating freely, seems stiff	Bearing is defect	Replace bearing
Air spreader	Lies low in the water	Possible leak, crack or hole in the float	Pick up the float, check it and send it for service at Steinsvik if needed
Rotor pipe	The amount of feed leaving the pipe is less than expected	Feed residue and dust is packing up	Dismantle rotor pipe and clean underneath the flange. Apply a thin layer of grease (see table for maintenance and service)
Secondary safety barrier for nozzle	Missing or suffers from wear	Wear, wrong material	Replace

7 STORAGE



The equipment must be stored dry and is not to be exposed to frost or icing. Maintenance that is needed when dismantling is described in the table for maintenance and service.

7.1 Air spreader

Remove the spreader from the cage, untie ropes and disconnect feed tubes. Keep any loose parts. Dismantle, clean and disinfect the spreader before putting it in a dry place for storage.

7.2 Rope

Clean the ropes and flush with clean water to remove fouling. Check for wear points and order new, if necessary.

The rope can be coiled in a figure 8 shape to avoid twisting in both directions. Place the rope over the line axis every round to avoid tension.

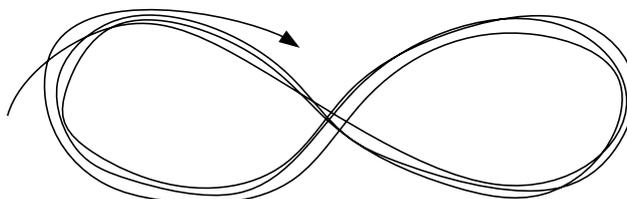


Figure 5: Figure 8-shape coil



All ropes, including splits, are to be controlled before storage. Make sure the rope is not worn, damaged or moulded.

8 WASTE MANAGEMENT

Waste management for the different components is described in the table below.

Table 5: Waste management



Baseplate, fasteners, nuts



Ropes



Gaskets, float

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 Clove Hitch 17

 Bowline Knot 17

Appendix 2: Spare Parts 18

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Appendix 1: Knots

Clove Hitch

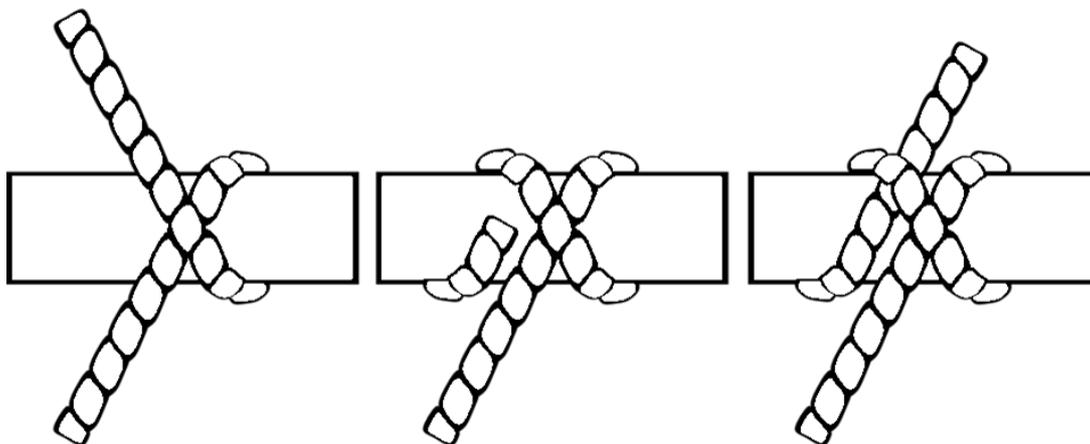


Figure 6 Clove Hitch

Bowline Knot

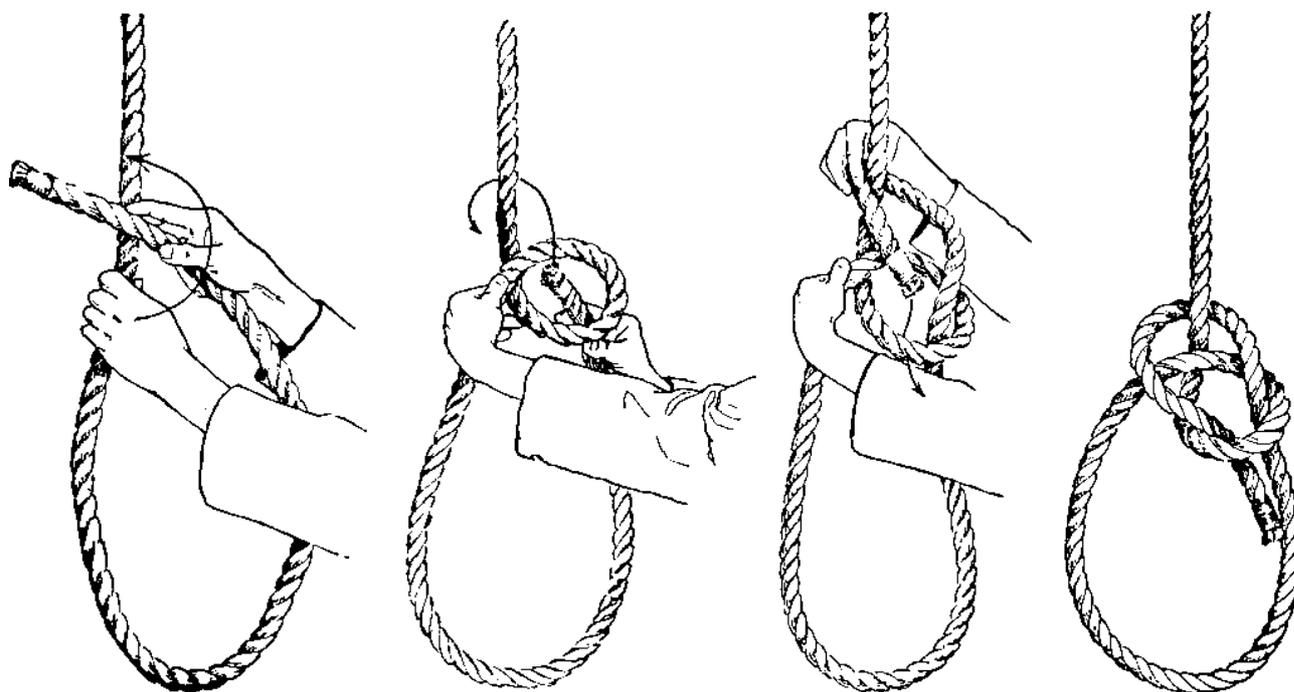
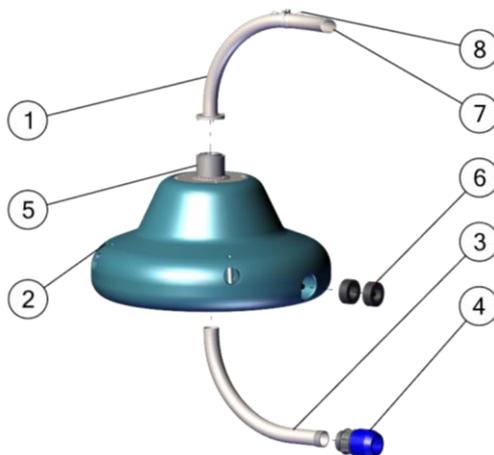


Figure 7 Bowline Knot

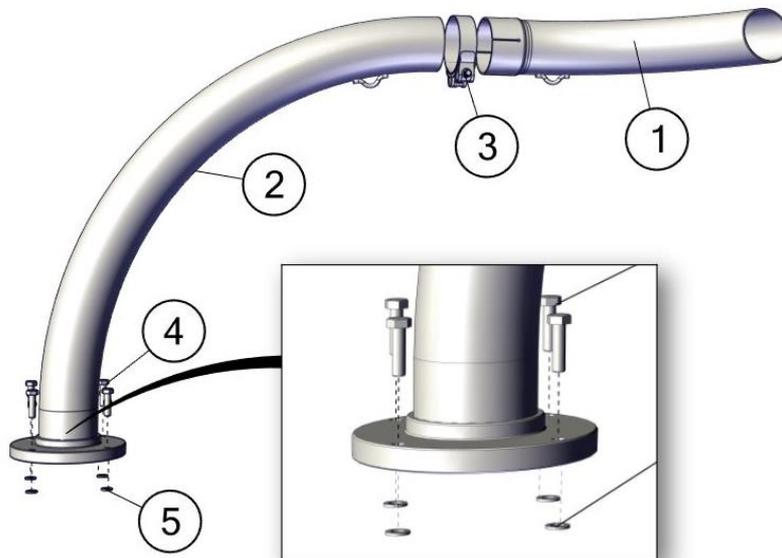
Appendix 2: Spare Parts

**Air Spreader
#411872**



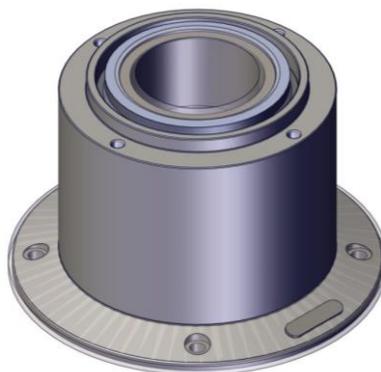
Position	Description	Product No.	Qty
1	Rotor pipe	411888	1
2	Float	410363	1
3	Stator	411875	1
4	Magnum 3" Ø90	407908	1
5	Bearing house	411892	1
6	Rubber packing	417981	2
7	Spreader outlet nozzle stainless	409294	1
8	Fastener for secondary safety barrier		2

Rotor pipe and nozzle



Position	Description	Product No.	Qty
1	Spreader outlet nozzle stainless	409294	1
2	Rotor pipe	411888	1
3	HPJ clamp w/screw	417978	1
4	M8x30 hex bolt		4
5	Spring washer DIN128 A8		4

**Bearing
#430250**



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