

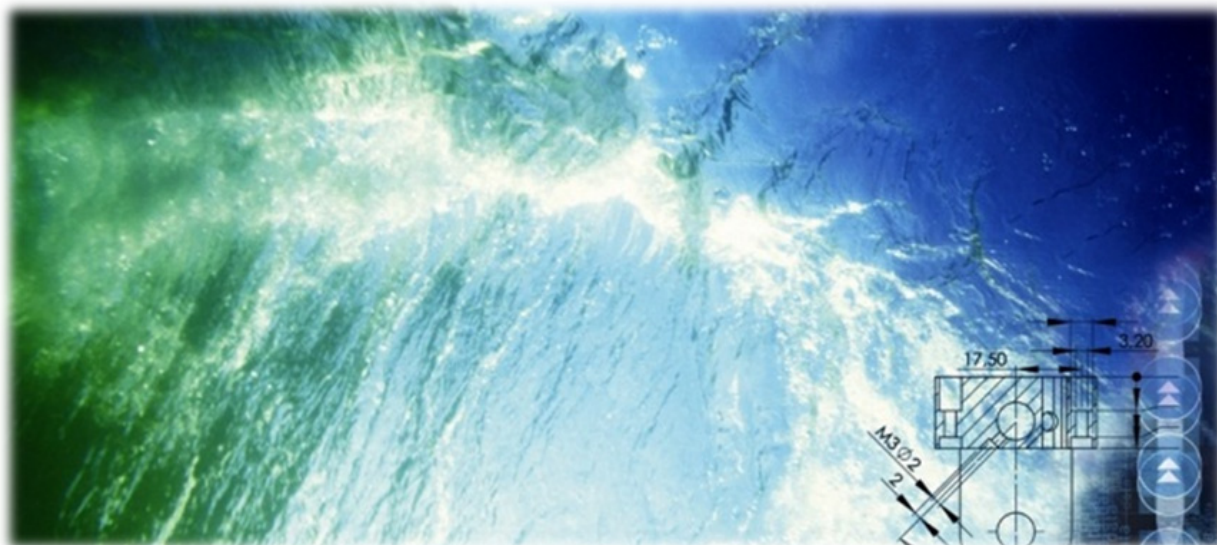
USER AND MAINTENANCE MANUAL

Feed Pipe Cleaner

Automatic, motorized and manual with handle

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For a thorough introduction of Your AKVA product, we ask that all users read this entire manual. If questions occur, contact us!

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1 Safety

Safety for the users of our equipment is top focus when AKVA group ASA develop new products and product manuals.

We therefore strongly recommend that everyone who uses the equipment, all who perform any type of repairs, service or other maintenance to the product, and all who work in areas where the product is installed, read this entire manual and at least this safety chapter.

This recommendation is based on both personnel safety as well as a desire to keep the products in order and avoid the risk of damages as a result of the safety instructions not being followed.

1.1 Safety symbols

The following safety symbols are used in this manual:



Information



Important information



Show caution, danger of damaging equipment and mild injuries to personnel



Warning, may cause personnel injuries



Use hearing protection when staying in engine rooms

1.1.1 Other symbols used in this manual



Go to or see page or chapter for further instructions or more information

1.2 Receiving new equipment

Make sure that all parts are delivered according to the service note. If the order is incomplete, anything is defect or anything else is wrong, please contact AKVA immediately.

1.3 Use ear protection

Ear protection is highly recommended all the time when staying in the engine room.

1.4 Motor safety

Engine user manual (ER Series Electric Actuator user manual http://www.valpes.fr/pdf/dt/er_premier.pdf) provides relevant information on engine safety, and describes a secure method of manually controlling the engine in case of power break down, if a sponge is jammed inside the actuator, or for any other reason needs to be run manually.

1.4.1 Using handle with Feed Pipe Cleaner Motorized

Handles should not be used with Feed Pipe Cleaner Motorized, as this causes danger of personnel injuries and damages to surrounding equipment.

If absolutely necessary, the handle may be placed on Feed Pipe Cleaner Motorized, but only when motor power is cut off. Do not turn the power back on before removing the handle.

1.5 Stop feeding before cleaning

Send the plug through the feeding pipes without pellets, as pellets may interfere with the cleaning process, and in worst case, get stuck inside the pipes with the plug.

1.6 One sponge at a time

Never send more than one AKVA Cleaning Sponge through the feeding pipes at a time. Two or more sponges will reduce the air pressure enough to stop the sponges inside the pipes.

1.7 Incorrect use

Each Feed Pipe Cleaner Motorized has its own belonging service switch. Turn the switch off and secure it in locked position before commencing any maintenance, service or repairs, or before removing the sponge magazine.

2 Introduction

Thank you for choosing AKVA group ASA as supplier for your feed pipe cleaner. Do not hesitate contacting us if you need more information regarding installation, use and maintenance for this or any other AKVA product. Contact information is found in the back of this manual.

This manual is part of the equipment delivered with Feed Pipe Cleaner Motorized and Feed Pipe Cleaner with Handle. Take care of this manual for as long as Your AKVA equipment are in use, and make sure that all changes done to this equipment are being noted in the back of this manual.

The purpose of this manual is to enable the user to install, use and maintain both types of Feed Pipe Cleaners in a safe and economical way. This manual answers most day-to-day-questions regarding the feed pipe cleaning systems. AKVA group ASA does not guarantee that following instructions in this manual prevents all types of accidents or injuries when using the product or surrounding equipment. If anything unexpected should occur, please contact AKVA group with as much information regarding the happening, as soon as possible immediately.

If any necessary information is missing from this manual, please contact AKVA group for assistance and help to find a solution to any problems. Contact the AKVA service department, your subcontractor, your local AKVA office or our main office in Norway for assistance and help.

2.1 How to use this manual

This manual describes how to safely install, use and maintain the Feed Pipe Cleaner Motorized and Feed Pipe Cleaner with Handle. This entire manual must be read and understood by ALL participants in the installation process prior to the installation. The Table of Contents in the start of the manual have headlines that should work as links to their respective chapters in the .pdf-version of the manual.

Chapter 1 is the most important chapter of the manual, listing all safety precautions, warnings and other safety information that ensures safe maintenance. Everyone working with a feed pipe cleaner must read and understand the manual's contents prior to working with, around or on the system.

Chapter 2 provides general information on AKVA group, instructions to how to use this manual, as well as descriptions of the Feed Pipe Cleaners and the AKVA Cleaning Sponge,

Chapter 3 explains the cleaning method and instructs how to use of the various types of feed pipe cleaners, and chapter 4 lists instructions for maintenance registration, frequency overview and registration forms.

Five appendixes are found in the back of the manual: Index, with links to the rest of the manual in the .pdf-manual, a deviation form for all deviations with the system, note pages for new and extra information are also in the back of the manual, and contact information is found in the back of the manual. At last, is the Declaration of Incorporation.



This entire manual must be read, understood, and used as aid during installation, testing, use and maintenance

2.2 About AKVA group ASA

With four main brands, AKVA group ASA is a world leading supplier of technical aquaculture equipment. Since 1980 we have developed and produced fish farming equipment, both for cages at sea and for land based hatcheries. AKVA represents an industrial standard, which is assumed to be the key to the future. Research, project management, fast deliveries and customer follow-up have been our focus to ensure that we contribute to a positive development within the aquaculture industry. Our goal is to deliver the best possible and most cost efficient equipment in order to keep preserving sustainable fish farming.

We have a wide variety of products, for example: plastic and steel cages, high pressure washers, net washers, boats, feed barges, feeding systems, cameras, sensor systems, under water lighting, software for fish farming and recycling systems.

AKVA has a continuous development of products, and we continue to improve product safety, functions, range of use and reliability. All of our equipment is pre-installed, tested and delivered from our own production department. This means that our customers have total control over which components to choose from, grouping collocation, testing and deliveries. Our production staff consists of people with great expertise and engagement for producing the best possible products for you. Having our own production site gives you excellent service in case something should go wrong, or if you are in need of any assistance. Our service staff is available on the telephone or on location in order to assist you if necessary. Safety, both for users and equipment is our main focus when developing products and product manuals.

2.3 About Feed Pipe Cleaner

Feed Pipe Cleaner is always installed before the first doser in the feed line.



Feed Pipe Cleaner is only installed by AKVA service personnel



Feed Pipe Cleaner Automatic is only installed by and or approved by local authorized electrician

Feed Pipe Cleaners have a connection pipe in the bottom, that is connected directly to the feeding pipe after the air monitoring device, and before the first doser in the feedline. All Feed Pipe Cleaners are only installed by AKVA service personnel.

The main principle is to carry cleaning sponges from a magazine, one at a time, through a sluice, and in to the feeding pipe. Blower air makes the sponge travel through the entire feeding pipe, where it brings with it condense, as well as remnants and dust from pellets.



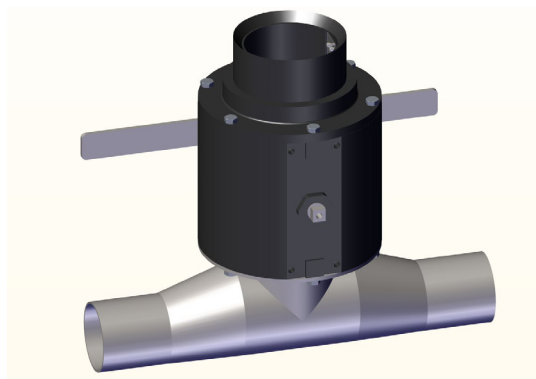
Inside the Feed Pipe Cleaner box, is a bowl that rotates according to handle or motor movements.

In the motorized Feed Pipe Cleaner, the bowl returns automatically, and in the manual variant, the handle has to be returned to the starting point for when collecting new sponge.

The magazine is an around 7 foot (2 meter) long spiral hose (may be customized when required). The hose end is attached to the top of the Feed Pipe Cleaner, and the sponges are inserted when needed.

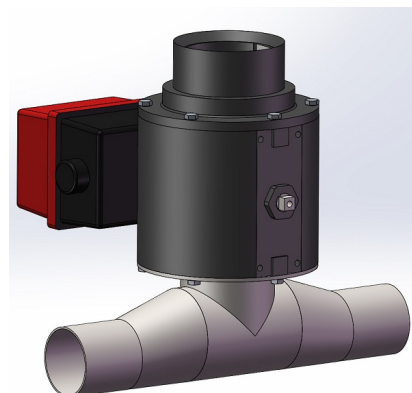
Two Feed Pipe Cleaner variations:

Manual with handle (without motor)



Item no.: 10001018

Motorized (without handle)



Item no.: 10001020

2.4 The Sponge

The cleaning sponge is named AKVA Cleaning Sponge, and will hereafter be named "the sponge" in this manual. The sponge is inserted into the feeding system via the Feed Pipe Cleaner, either by turning the handle 180 degrees, clicking the green button, or with AKVAconnect. Use of the Feed Pipe Cleaner variants are described in chapter 3. When the sponge has entered the feed pipes, it is run through the pipes with pressure air from the feed line blower.

Only one sponge through the feeding system at a time. Two or more sponges in one pipeline will cause severe air pressure reduction, and the sponges will stop inside the pipes, and thereby clogging the system. When the light is on, a sponge is inside the pipes. When the sponge has left the pipes, the green light is turned off to indicate that it now is ready for a second sponge if necessary



AKVA group ASA can only guarantee for cleaning feed pipes with the AKVA Cleaning Sponges in the Akvasmart Feed Pipe Cleaners. We can not guarantee that any other sponge types will work with our Feed Pipe Cleaners, nor can we guarantee that our sponges will work with any other cleaning systems

3 Use: The cleaning process



Ear protection is mandatory when commencing any work in the machine room, or rooms in which blower or doser is located



Never send more than one sponge through each feed line at a time, more sponges will clog the pipes



Turn the feeding off (or set to manual and off) during the entire cleaning process



Run sponges through all feed pipes at all cleanings. Set correct destination for selectors in AkvaControl or similar feeding software



Recommendation: Send one sponge through the system before feeding commences and one sponge after the feeding is finished for the day



If the sponges are dirtier than usually after being sent through the system, use more sponges per cleaning, however only one at a time



Collect the sponges from the water at the same time as other tasks are to be performed at or by the cages to save time



For using Feed Pipe Cleaner with AKVAconnect (automatic control), see AKVAconnect user manual.

3.1 Explaining the method

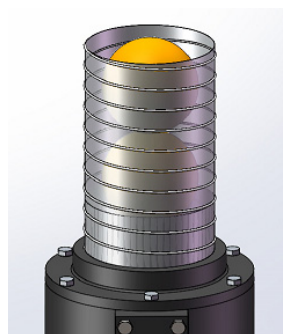
Set all blowers to between 20 and 30 m/s for ideal air velocity for cleaning the pipes with AKVA Cleaning Sponge. 20m/s is the ideal air pressure for a 400m long feed line, longer lines will need higher air velocity, however, sponge cleaning in shorter lines will work greatly with 20 m/s air velocity.

As the sponge is carried through the feed pipes, it will bring along both condense and pellet dust from inside the feeding pipes.

We recommend sending one sponge through each of the feeding pipes before starting the daily feeding, and one per pipe after the daily feeding is done.

If the sponges seem filthier than regularly, this may indicate that there is a need for more sponges to be sent through the system. So send multiple sponges through the system when necessary, though only one sponge per feed line at a time.

The sponges are stored inside the magazine tube and are injected into the feeding pipe one at a time as a green button is pressed down or the handle is turned .

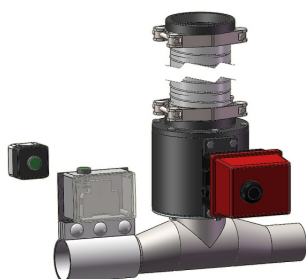


3.2 Feed Pipe Cleaner Motorized - Automatic control



See user manual for AKVAconnect for control and use of Feed Pipe Cleaner Motorized - Automatic control.

3.3 Feed Pipe Cleaner Motorized - Manual control



The green buttons are placed next to the Motorized Feed Pipe Cleaner and in the control room, and are marked with what they do, and of which feed line they control the cleaning.

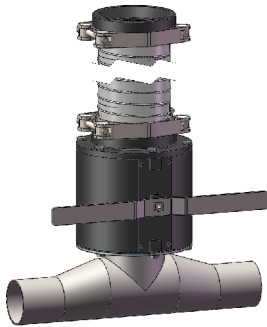
Procedure instructions

(same instructions for both of the green buttons)

- 1 Make sure that no pellets enters the feed pipes during the cleaning process:
 - a *Morning cleaning*: start the blower, set the feeding to manual or postpone the start of the feeding
 - b *Evening cleaning*: the feeding is done, keep the blower running
- 2 Set the air pressure for all blowers to around 20 m/s
- 3 Press one of the green buttons to inject a sponge into the pipe line. The button will light up as it is pressed down
- 4 When the light is turned off, it indicates that the sponge is out of the pipes. Start the feeding after the morning cleaning is done.



3.4 Feed Pipe Cleaner with handle



We recommend using the flow guard display and revise air velocity increasing as the sponge leaves the pipe. This assures that the sponge has left the pipe and is relevant when using Feed Pipe Cleaner with handle.

Note the air velocity with and without sponge inside the system and the desired air velocity used on the Feed Pipe Cleaner for each feed line. This way, all users can see when the sponge is inside and not.



These values goes only for when using more than one sponge per cleansing, and will not be necessary when using one sponge

The handle can be turned 180 degrees from right to left or from left to right. It can not be turned 360 degrees.

Procedure:

- 1 Make sure that no pellets enters the feed pipes during the cleaning process:
 - a *Morning cleaning*: start the blower, set the feeding to manual or postpone the start of the feeding
 - b *Evening cleaning*: the feeding is done, keep the blower running
- 2 Set the air pressure for all blowers to around 20 m/s
- 3 Turn the handle around 180degrees, from left to right, or from right to left
- 4 If more than one sponge is being sent trough, it is important to wait the default measured amount of time to be sure that the first sponge has left the feed pipe.

4 Maintenance

Clean the outside of the Motorized Feed Pipe Cleaner as often as possible, preferably when cleaning the dosers outside.

Use a mild detergent and a soft cloth to clean all surfaces of the Feed Pipe Cleaner to remove dust, grease and other dirt.

4.1 Cleaning the AKVA Cleaning Sponge



We recommend leaving the sponges in the cages for a while after they are sent through the feeding pipes. The water has a cleansing effect and will simplify the later cleaning process



It is always much easier to clean the sponges directly after taking them out of the water, before pellet dust dry into the sponge material



Never send dirty, used or unwashed sponges through the feeding pipes



When sponges are removed from the cage after use, clean out feed residues and grease immediately. If the sponges are left moist and dirty over time, fungus and mould will grow in them. If they are sent through the feeding pipes without being perfectly cleaned or containing residues from fungus or mould, this may infect the feed, risking contamination of the fish.

4.1.1 Procedure for cleaning the sponge

The sponges must be cleaned immediately after they are taken out of the cage, before the dirt dries into the material, risking both bacterial and fungal growth and moulding. The sponge's porous surface collects pellet dust and grease, and these will be cleaned off with a mild degreasing soap.

- 1 Leave the sponges in a bucket or a container with warm soap water and leave them for some minutes letting the degreaser work
- 2 Move them around so that all sides touch the soap water
- 3 Squeeze the sponges carefully until they get their original colour back
- 4 Change washing water a few times if necessary to clean sponges properly
- 5 Rinse the sponges well with warm water to remove all soap remnants. This is important to prevent soap inside the feeding pipes and the feed
- 6 Leave the sponges to dry before using them again. They should be as dry as possible to carry as much condensation and feed residues as possible from the feeding pipes.

4.2 Registration of maintenance



*Make copies of this form before filling anything in
Sign your initials after the task is performed*

Date	Parameter	Running hours	Next maintenance	Sign.

Appendix A - Index

A

air pressure 6, 11, 13-15

air velocity 13, 15

B

blower 10-15

C

cage 12, 16, 17

condensation 10, 13, 17

D

doser 10, 12, 16

E

ear protection 5, 12

F

feeding 6, 12-15

feed line 10-15

flow guard 15

P

porous surface 17

S

service personnel 10

service switch 6

soap 17

Appendix B - Deviation form



Make copies of this form before filling anything in

Deviation control nr.:	
-------------------------------	--

Unit:	Producer:	Prod.no.:	Purchase year:

Deviation description:

--

Follow up proposition:

--

Date and signature, declarer:

--

Follow up directed:

--

Status:

--

New action for deviation no.:

--

Date and signature, follow up:

--

Appendix D - Contact information

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N-4340 Bryne

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DECLARATION OF INCORPORATION**Manufacturer:** **AKVA group ASA - Bryne (Head Office)**

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N-4349 Bryne, Norway

Tel.: +47 51 77 85 00

Home page: www.akvagroup.com**Type:** Feed Pipe Cleaner Motorized**Model:** 10001020**Serial number:** _____**Production year:** 20____**AKVA group ASA declares:**

- that the partly completed machinery named above, is intended for incorporation or assembly with other machines according to our specifications. The partly completed machinery named above may not be operated before the machine system it is being incorporated in, or is a part of, has been assessed and declared to conform to the Machinery Directive, 2006/42/EC

- that the system named above conforms with the following EC directives:
 - LVD 2014/35/EU
 - EMC-directive 2014/30/EU

Authorized/name, position: Jan Inge Tjølsen, Manager HW R&D**Date:**

22.06.2016

Place:

Bryne

Signature: