

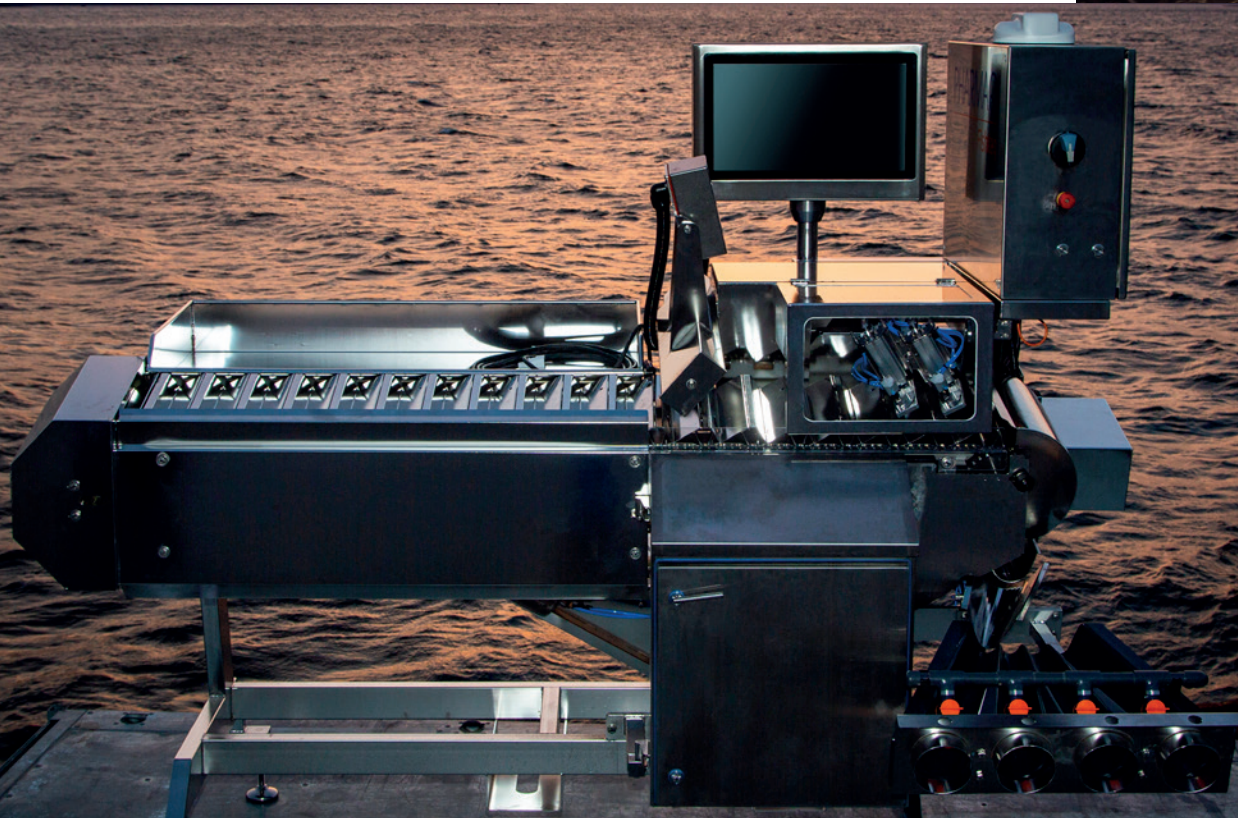
PHARMAQ  
Fishteq



PRECISION VACCINATION

# Advancing care for fish

NFT20 | NFT25 | NFT30



zoetis



# Contributing to a safe and sustainable food supply

## Proud contributor to safe and healthy seafood

Fish remains the most consumed animal source of protein worldwide. We firmly believe in further growth of the global aquaculture industry. A decline in the capture of wild fish and the increasing human global demand for food is creating a gap in the supply of seafood. This gap can be bridged by commercial aquaculture. Healthcare spending is expected to increase as productivity of fish farming becomes more efficient to address the rising global demand for protein.

Fish health management tools are key for a sustainable and profitable industrialization and growth in aquaculture. A broad range of tools and solutions are necessary to keep fish healthy throughout the life cycle. Investment in R&D creating innovations are key to success.

We have a continuous focus on bringing new and innovative products to the market, to support our customers in building a sustainable and profitable fish farming industry.

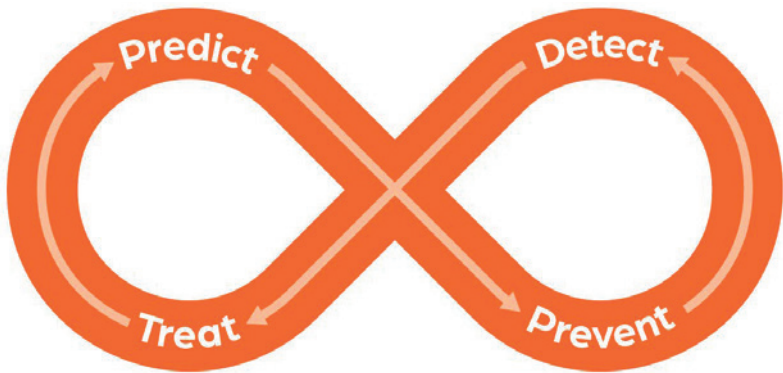
## Innovations with purpose

Our innovative drive is based on the aquaculture industry`s need to produce sustainable, safe and healthy seafood.

We are a dynamic and innovative organisation and take pride in supplying premium products and value added services to our global customers.

## Innovations across the continuum of care

We are committed to help fish farmers and veterinarians to keep fish stocks healthy. Our broad R&D capabilities place us in a unique position to serve their needs throughout the entire continuum of fish healthcare.



We can help to **Predict** challenges before they take effect; **Prevent** disease occurring; **Detect** challenges early and; **Treat** disease swiftly and effectively.

## Predict

We can apply targeted research and effective analyses to help veterinarians and producers predict and prepare for new challenges.

## Prevent

As the global leaders in vaccines, our innovative products help to safeguard fish health sustainably and safely, reducing the need for antibiotic and chemical use. Our range of specialist vaccination machinery delivers greater efficiency through precision vaccination, in-depth data collection and fish sorting, improving fish welfare and optimising vaccination success.

## Detect

Our enhanced analysis and advisory services provide valuable insights into disease status and fish health, allowing veterinarians and producers to respond swiftly and appropriately to immediate and imminent challenges.

## Treat

To respond to challenges throughout the lifecycle, we provide everything needed to restore fish health with effective, safe and sustainable therapeutics.





PHARMAQ Fishteq was established in 2006 and delivers technology for use in vaccination and sorting of fish. We are proud to offer innovative solutions that deliver precise vaccinations.

We sell reliable fish vaccination machines.

Jørn Ståle Pettersen  
Senior Manager, Production PHARMAQ Fishteq



“We vaccinate batches of 500,000 fish or more, and are confident that the NFT 30 provides excellent levels of uptime and high quality vaccinations. PHARMAQ Fishteq is responsible for the ongoing development of the equipment, which is positive for incremental improvements.”

Atle Jøsang  
Grieg Seafood



“PHARMAQ Fishteq provides a machine that delivers vaccine positioned correctly in an efficient manner. We have had a good experience both in terms of their follow up and using the machine, which means we can be confident about our vaccination work.”

Gunnar Ellingsen  
Lødingen Fisk AS



“By removing manual vaccination, we have removed the human element, which means the injection of the vaccine and its position are of a higher quality.”

Reidar Våge  
MOWI

# Our NFT models

All models vaccinate two fishes simultaneously

## NFT20

Single injection of one vaccine in the abdominal cavity.

## NFT25

Single injection of two different vaccines in the abdominal cavity. The vaccines can be of different formulations, oil or water based.

## NFT30

Single injection of one or two different vaccines in the abdominal cavity and one intramuscular injection with one vaccine. The vaccines can be of different formulations, oil or water based.

### Facts

- 9,000 fish per hour capacity
- Fish size  
length: 120 - 250 mm  
weight: 20 - 150 grams
- Dimensions  
Length: 2,360 mm  
Width: 1,272 mm  
Height: 1,860 mm
- Sorts the fish into three sizes, plus one channel for rejected/misplaced fish





# Key features

**NFT20** | **NFT25** | **NFT30**

**The features of the NFT machines have been developed on the basis of the needs of its users. The system delivers efficient, precise vaccinations and offers comprehensive quality control.**

## Sorting

The length of every fish is measured to an accuracy of 1 mm and the injection point on each fish is determined according to its size. The machine is built to vaccinate salmon, sea bass, trout and tilapia from 120 to 250 mm in length (20-150 grams). After vaccination, the fish can be sorted into three different sizes, plus one exit for rejected/misplaced fish. The parameters for sorting can be set easily by the operator via the touch screen.

## Use existing infrastructure

With NFT machines, you can use your existing solutions for pumping, anaesthesia and internal distribution. We can also assist you in designing a complete anaesthesia and vaccination system if you wish. The output module is designed for a standard 110 mm tube and can be deployed using either natural fall distribution or further pumping.

## Module based

NFT machines can be connected in pairs to increase capacity. Only a few minor adjustments to the feeding table are necessary and we have developed a feeding table to join the two machines. This provides a capacity of 18,000 fish per hour.

## Mobile and easy to set up

The NFT machines can easily be transported for temporary use both indoors as well as on mobile platforms. The machine features lifting points for forklifts, and fits in a van of 1.7 metre in height. Rigging and assembly is straightforward, requiring only the machine to be connected to water, compressed air and electricity. The compressed air must be dry and clean.

## Easy to operate

We recommend two operators per machine, but the NFT can also be operated by a single, experienced user. The vaccine is stored in a cabinet during vaccination. The machines are suitable for vaccine doses from 0.025 to 0.1 ml. The machines use high quality Unimed 0.7 x 15 mm cannulas which can be easily changed by the operator. For the DNA unit / intramuscular injection 0.5 x 9 mm cannulas are used (NFT 30 only).

## Norwegian quality

The NFT machines have been developed following 20 years of experience in the aquaculture industry. The machines are manufactured from acid-proof steel, and are built to provide high levels of uptime plus a long lifespan - with few wearing parts. The NFTs are produced in Helgeland, a hub of activity and expertise in fish and aquaculture.

The machines are assembled at our head office in Nesna, and have been endorsed by a number of well known fish farming companies including Mowi, Grieg Seafood and SalmoNor.

## Precise vaccination

The NFTs are equipped with machine vision. Every fish is photographed and the machine adjusts the injection site with a precision of 0.3 mm for precise position and depth of the vaccine dose.

All data is logged by the system (number of fish and size sorting). All logged data can be sent from the machine via email or added to a database.





# Technical data

High capacity • Precise • Reliable

## Construction:



**Capacity**  
9,000 fish per hour



**Size of fish**  
120 – 250 mm  
(20 – 150 grams)



**Dry weight**  
350 kg



Mechanical &  
water-based cleaning of  
cannulas between each  
vaccination



Manufactured in  
acid-proof steel

## Computer system:



National instruments  
Machine Vision



Adjustable vaccine  
pressure



Vaccine pressure  
control and alarm  
for errors



Measurement of  
correct position and  
location of fish



Computer controlled  
injection point and  
depth



Notification if cannula  
needs to be changed



Dose Accuracy:  
+/- 2%



Logging of all data



Notification when  
vaccine containers need  
to be changed

## Connections:



**Water connection**  
Minimum 3 bar  
1/2 inch hose nipple



**Power connection**  
Requires 230 V / 1 ph  
16 A / 50 Hz



**Air connection**  
Single Set Up: Minimum 318 l/min 6-10 bar  
Double Set up: Minimum 600 l/min 6-10 bar



Sorts into three  
different fish sizes.  
Plus rejects/misplaced



110 mm outlet



Festo air units



Wifi or cabled  
internet required





# Micro-Matic® syringes

For fish vaccination

## Micro-Matic® single syringes

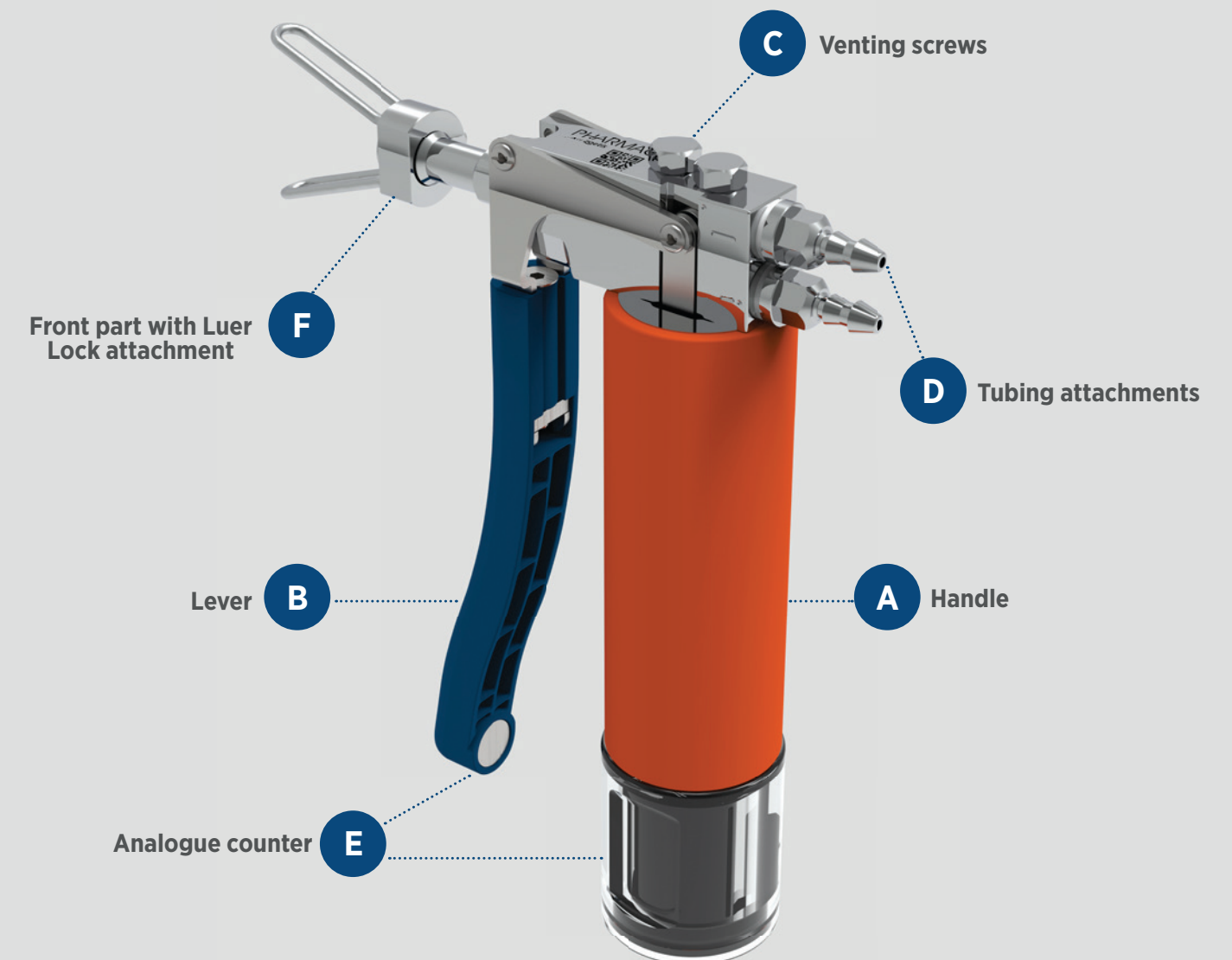
Dose sizes 0.05 ml and 0.1 ml:

- The 0.05 ml Micro-Matic® syringes can be supplied with an interchangeable 0.025 ml piston.
- Corrosion resistant materials.
- Analogue fish counter by lever magnet.

## Micro-Matic® double syringes

The Micro-Matic® double syringes comes in three different dose size models:

- 0.05 ml + 0.05 ml.
- 0.05 ml + 0.1 ml.
- 0.1 ml + 0.1 ml.
- The 0.05 ml Micro-Matic® syringes can be supplied with an interchangeable 0.025 ml piston.
- Corrosion resistant materials.
- Analogue fish counter by lever magnet.
- Both guns can be used for oil and water-based vaccines/adjuvants.
- Dose can be easily adjusted +/- 10%.
- The dose accuracy is documented to deviate less than 3%.
- Micro-Matic® injectors are equipped with needle guard for safety, and a service kit that includes gaskets, springs, valves and screws for maintenance.
- Micro-Matic® syringes are easy to prime and quick to calibrate and operate.
- Every gun is delivered with certificate that every HSW Micro-Matic® syringe is produced in accordance with ISO 9001: 2008 and ISO 13485:2012.





# We make aquaculture progress.



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