

VAKI

FEEDING SYSTEM

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Ráðstefna um sjókvíaeldistækni
Í Húsi atvinnulífsins þann 12. október
2012

VAKI FEEDING SYSTEM



VAKI has developed an automatic Feeding System in cooperation with fish farmers and delivered their solutions to many farms in Iceland and Scotland. The system is very easy to install and simple to use, and is specially designed for smaller farms.

How it works

Feeding operation is based on feed from the storage silo the silo empties into a feed dosing auger. The auger moves this feed into a funnel which make sure that the feed goes to airlock and then into the main transport pipe. Air blower blows air into the distribution valve where it is directed into the individual feed pipes and transferred to specific cages.



VAKI FEEDING SYSTEM



Advanced Software

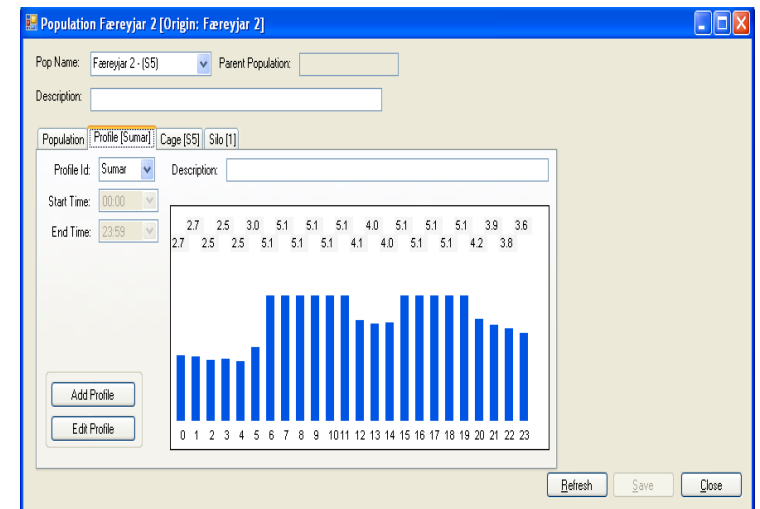
The system software controls feeding operation such as feed rates, meal times, feed types, etc.

Maximum Fish Growth

The VAKI Feeding System controls the quality of the feeding and thereby helps attain maximum fish growth and health. In other words the control sees to it that the fish utilizes a maximum of the nutrients in the feed for growth, while a minimum of nutrients are lost to the water. A more efficient uptake of nutrients in the fish doesn't only benefit the environment, but it also improves farm economy.

Full Control and Overview

The VAKI Feeding System gives full control and overview over the daily feeding.



FEEDING SYSTEM COMPONENTS



Components supplied by VAKI

- Revolver
- Airlock with funnel
- Blower
- PLC
- PC-software
- Sensors

Other Components

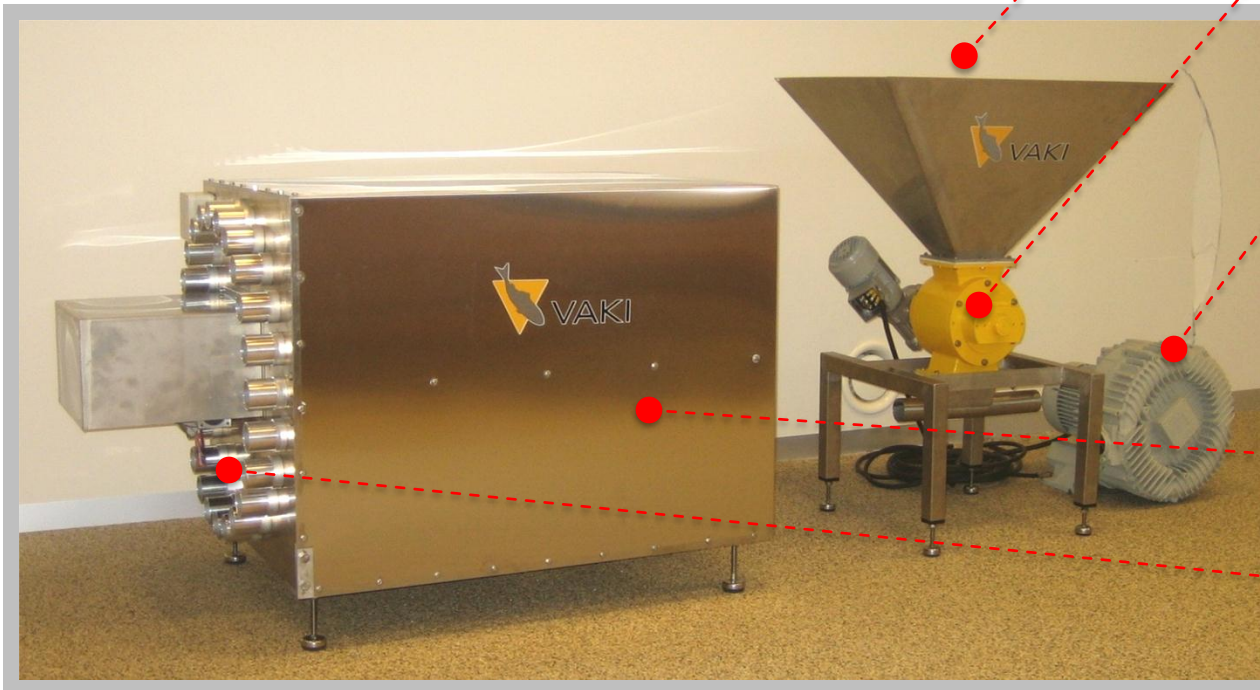
- Silo
- Pipes from silos
- Pipes to cages
- Pipes between components
- Cooler (optional)



COMPONENTS

- Supplied by VAKI

VAKI feeding system is automatic feeding system designed for Fish Farms. The system utilizes one or more feed storage silos, which is useful when different sized feed is used.



Funnel

The auger moves the feed into a funnel which “guides” the feed to the airlock.

Air lock

Airlock transports the feed into the airflow./main transport pipe.

Blower

The feed is picked from the airlock by air from the blower and transports it through the feeding pipes to the cages.

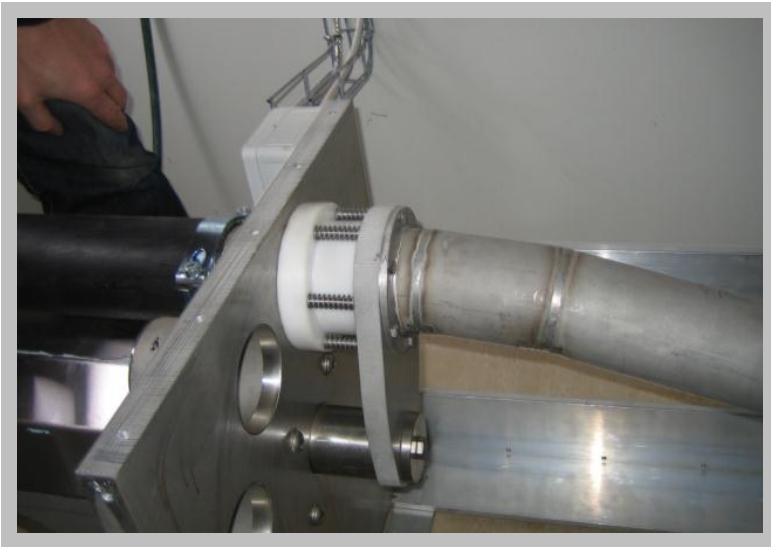
Revolver

The rotater controlled with encoder and PLC which Selects correct pipe.

Pipes

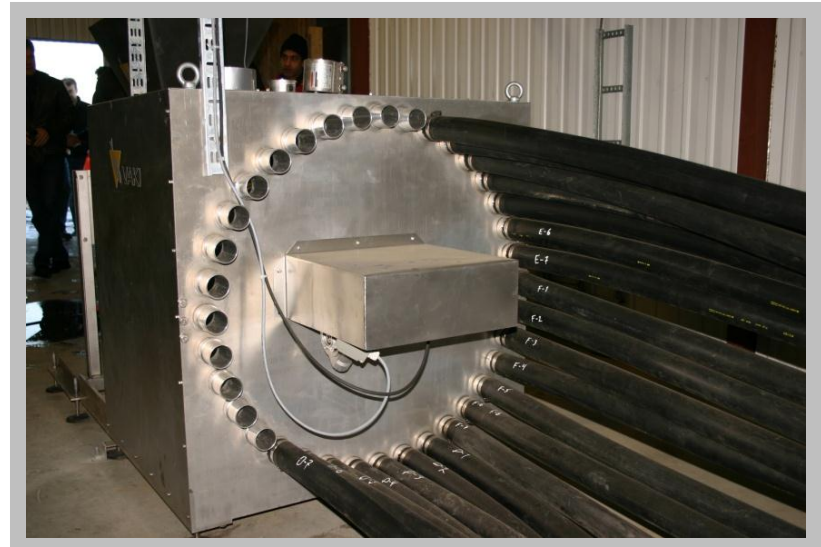
Pipes from cage are connected to Rotater.

REVOLVER



Revolver is rotated by motor and is placed by encoder.

The PLC is programmed to stop the motor on correct pipes on correct time.



Typical sizes
(special sizes on request)

4 pipe
6 pipe
24 pipe
36 pipe

AIRLOCK WITH FUNNEL

Airlock

Takes the feed to the airflow without taking the air out. Airlock sizes 2 and 4 liters.

Funnel

Guides feed from silos to the airlock. On the top of the funnel is plastic plate to prevent the dust.

Sensor

There is a sensor on the funnel which stops the system if the funnel is full of feed.



BLOWER

Blowers blows air through the main pipe and transfer the feed from airlock to selected cage.
The blowers are selected for each system.

Blower size 5-30kW.



PLC



The operation of the system is controlled by Programmable Logic Controller (PLC).

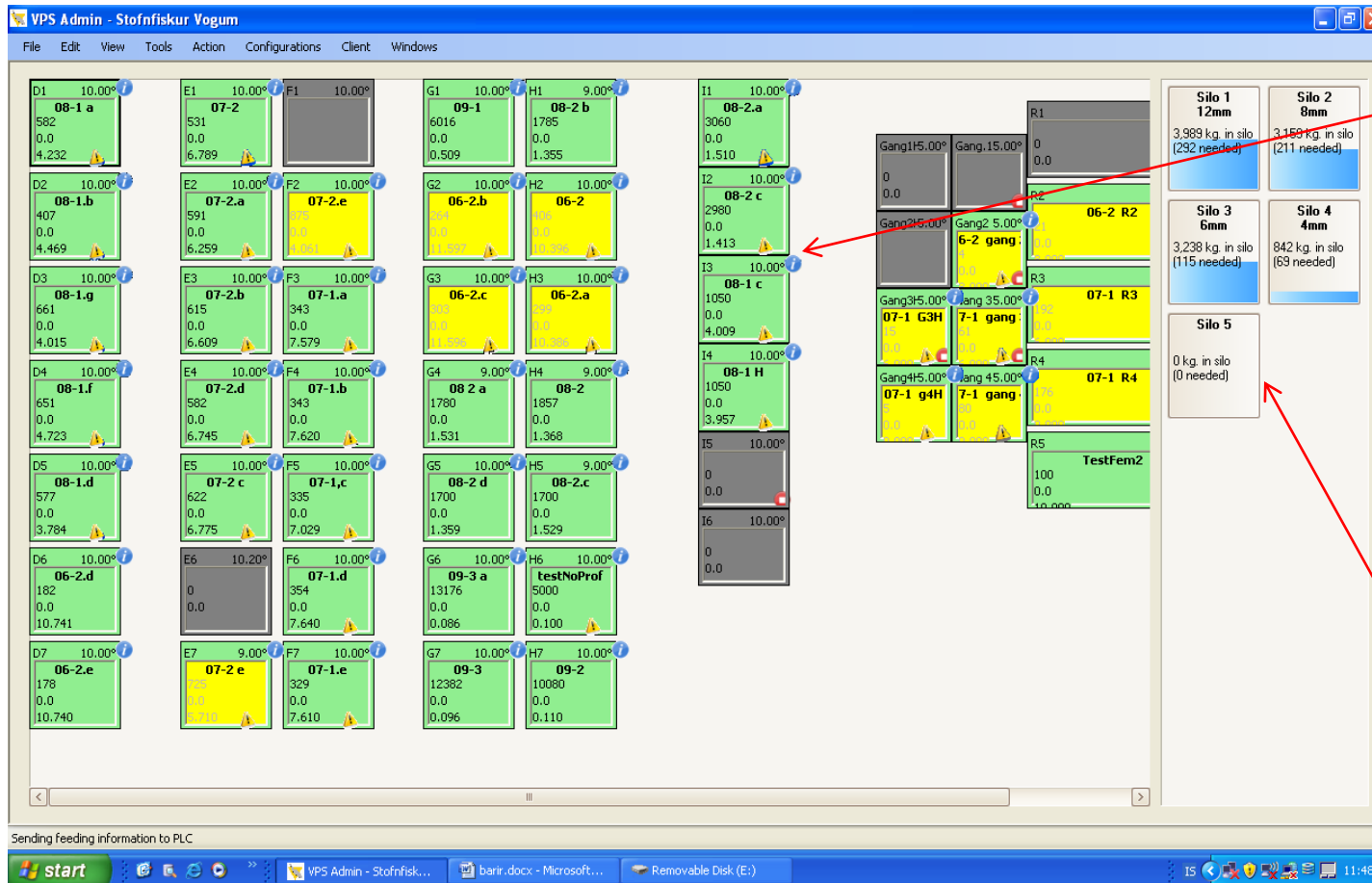
Programmed computer software is used to interface and program the feeding system. The system software controls feeding operation such as feed rates, meal times, feed types, etc. The operator can monitor, interface, reprogram or override the automatic operation of the system.



PC SOFTWARE



The **Main Screen** shows the overview of the farm. Toolbar is collection of buttons at the top of a window just below the title bar. Cage images are drawn up on the left side of the window and the silo images are placed on the right side.



Cages are displayed with the cage name and population name. Other information displayed on the cages are: water temperature, total number of fish, total day feeding, fish weight and population Id. By dragging the mouse over the sign more information's are given.

Silos are displayed with; silo name, feed type, total feed in silo and total feed needed for today feeding.

PC SOFTWARE



Population

Population sheet collects and stores the total number of fish in cage, and connects to SGR chart and shows the daily feed.

The Feed Profile shows the feed distribution within day. The feeding profile shows percentage of total day feeding in each hour. The percentages are shown with numbers and described with columns.

ReportFeedGrowth

From: 16/07/2012 To: 30/07/2012 Run

Drag a column header here to group by that column

| Cage | Pop name | Pop descr. | Total fish start | Total | Avg weight start (kg) | Avg weight end (kg) | Total biomass start (kg) | Total biomass end (kg) | Total Feeding (kg) | Total Feeding pr fish (gr) | Given FCR | Calc FCR |
|------|------------|------------|------------------|---------|-----------------------|---------------------|--------------------------|------------------------|--------------------|----------------------------|-----------|----------|
| M4 | Færeyjar 1 | Færeyjar | 39,131 | 39,131 | 0.34 | 0.36 | 13,429... | 13,934... | 780.06 | 19.93 | 1.00 | 1.55 |
| M3 | Færeyjar 1 | Færeyjar | 69,347 | 69,347 | 0.39 | 0.40 | 27,100... | 27,828... | 1,072.78 | 15.47 | 1.00 | 1.47 |
| M8 | Færeyjar | | 68,823 | 68,823 | 0.28 | 0.29 | 19,497... | 19,841... | 152.81 | 2.22 | 1.00 | 0.44 |
| M7 | Færeyjar | | 60,544 | 60,544 | 0.30 | 0.30 | 17,951... | 18,278... | 157.45 | 2.60 | 1.00 | 0.48 |
| M10 | Fjardalax | Fjardalax | 172,301 | 172,301 | 0.20 | 0.20 | 34,511... | 34,890... | 0.00 | 0.00 | 1.09 | 0.00 |
| M2 | Fjardalax | Fjardalax | 87,995 | 87,995 | 0.18 | 0.18 | 15,953... | 16,129... | 0.00 | 0.00 | 1.00 | 0.00 |
| M1 | Fjardalax | Fjardalax | 86,541 | 86,541 | 0.16 | 0.16 | 13,993... | 14,149... | 0.00 | 0.00 | 1.00 | 0.00 |
| M4 | Færeyjar 2 | Færeyjar | 45,500 | 45,500 | 0.06 | 0.07 | 2,880.30 | 3,143.05 | 232.46 | 5.00 | 1.00 | 1.77 |

Excel Pdf Print Close

Population Færeyjar 2 [Origin: Færeyjar 2]

Pop Name: Færeyjar 2 - (S5) Parent Population:

Description:

Population Profile [Sumar] Cage [S5] Silo [1]

Number of Fish: Total: 45,500 Female: Male: Unknown: 45,500

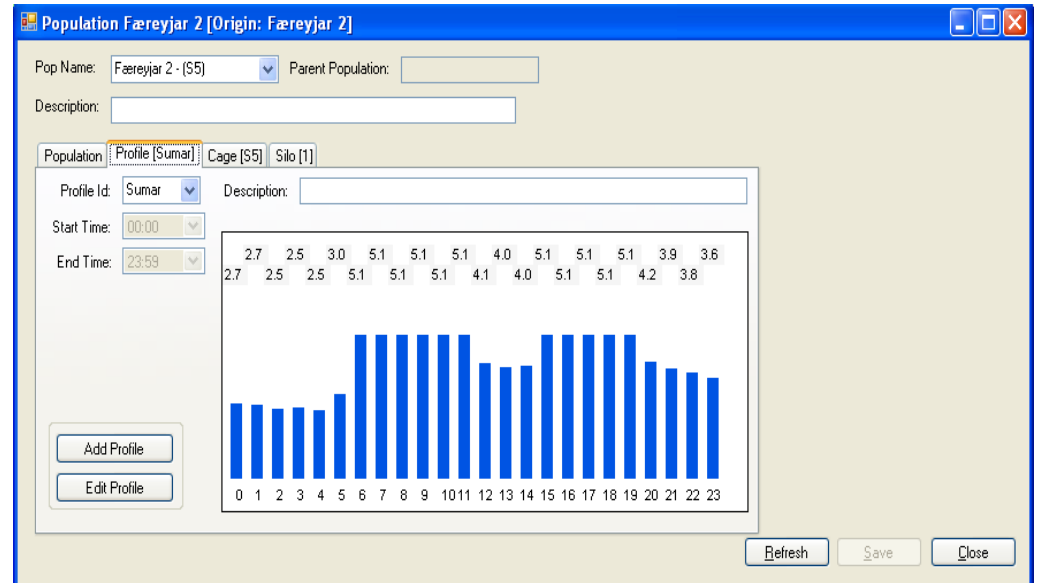
Auto Update: SGR SGRId: SGR Tafta FCR: 1.00 Correction factor: 0.61

Feeding Info: Yesterday: 15,398 (Gr.) Today: 9,109 (Gr.)

Average Weight: 0.0471 (Kg.) Total feed per day: 15.2949 (Kg.) Calc. Feeding

Active: Total biomass: 2143 (Kg.)

Refresh Save Close



PC SOFTWARE



The history of growth and feeding can be viewed in the Growth and feeding table. By choosing time period and selecting the table information in the select column for display.

Import to excel , farm control.

ReportFeedGrowth

From: 16/07/2012 To: 30/07/2012 Run

Drag a column header here to group by that column

| Cage | Pop name | Pop descr. | Total fish start | Total | Avg weight start (kg) | Avg weight end (kg) | Total biomass start (kg) | Total biomass end (kg) | Total feeding (kg) | Total feeding pr fish (gr) | Given FCR | Calc FCR |
|------|------------|------------|------------------|---------|-----------------------|---------------------|--------------------------|------------------------|--------------------|----------------------------|-----------|----------|
| M4 | Færeyjar 1 | Færeyjar | 39,131 | 39,131 | 0.34 | 0.36 | 13,429... | 13,934... | 780.06 | 19.93 | 1.00 | 1.55 |
| M3 | Færeyjar 1 | Færeyjar | 69,347 | 69,347 | 0.39 | 0.40 | 27,100... | 27,828... | 1,072.78 | 15.47 | 1.00 | 1.47 |
| M8 | Færeyjar | | 68,823 | 68,823 | 0.28 | 0.29 | 19,497... | 19,841... | 152.81 | 2.22 | 1.00 | 0.44 |
| M7 | Færeyjar | | 60,544 | 60,544 | 0.30 | 0.30 | 17,951... | 18,278... | 157.45 | 2.60 | 1.00 | 0.48 |
| M10 | Fjarðalax | Fjarðalax | 172,301 | 172,301 | 0.20 | 0.20 | 34,511... | 34,890... | 0.00 | 0.00 | 1.09 | 0.00 |
| M2 | Fjarðalax | Fjarðalax | 87,995 | 87,995 | 0.18 | 0.18 | 15,953... | 16,129... | 0.00 | 0.00 | 1.00 | 0.00 |
| M1 | Fjarðalax | Fjarðalax | 86,541 | 86,541 | 0.16 | 0.16 | 13,993... | 14,149... | 0.00 | 0.00 | 1.00 | 0.00 |
| S4 | Færeyjar 2 | | 46,860 | 46,860 | 0.06 | 0.07 | 2,980.30 | 3,163.05 | 323.46 | 6.90 | 1.00 | 1.77 |
| S3 | Færeyjar 2 | | 43,000 | 43,000 | 0.06 | 0.07 | 2,756.30 | 2,941.20 | 302.37 | 7.03 | 1.00 | 1.64 |
| S2 | Færeyjar 2 | | 50,140 | 50,140 | 0.05 | 0.06 | 2,587.22 | 2,762.71 | 282.37 | 5.63 | 1.00 | 1.61 |
| M5 | Færeyjar 1 | | 28,000 | 28,000 | 0.16 | 0.17 | 4,491.20 | 4,648.00 | 256.76 | 9.17 | 1.00 | 1.64 |
| S1 | Færeyjar 2 | | 44,018 | 44,018 | 0.05 | 0.05 | 2,183.29 | 2,302.14 | 181.67 | 4.13 | 1.00 | 1.53 |
| S5 | Færeyjar 2 | | 45,500 | 45,500 | 0.05 | 0.05 | 2,070.25 | 2,143.05 | 123.93 | 2.72 | 1.00 | 1.70 |
| S6 | Færeyjar 2 | | 47,500 | 47,500 | 0.04 | 0.04 | 1,795.50 | 1,866.75 | 104.97 | 2.21 | 1.00 | 1.47 |
| S7 | Færeyjar 2 | | 45,000 | 45,000 | 0.04 | 0.04 | 1,723.50 | 1,791.00 | 111.24 | 2.47 | 1.00 | 1.65 |
| S8 | Færeyjar 2 | | 0 | 52,000 | 0.03 | 0.03 | 0.00 | 1,768.00 | 0.41 | 0.01 | 1.00 | |

Excel Pdf Print Close

Option to write transfer files containing feeding info according to Norwegian Standard NS9403, e.g. Farm control.

OTHER COMPONENTS

- DIFFERENT TYPES OF SILOS



Many different siloes available for various setups.



OTHER COMPONENTS – PIPES FROM SILOS

Feed pipes in standard transparent or white milk.



OTHER COMPONENTS – PIPES TO CAGES



| Sizes diameter | Inside diameter |
|---------------------------|-----------------|
| 63 mm | 57mm |
| 90 mm | 80mm |
| Maximum pipelength 800m . | |

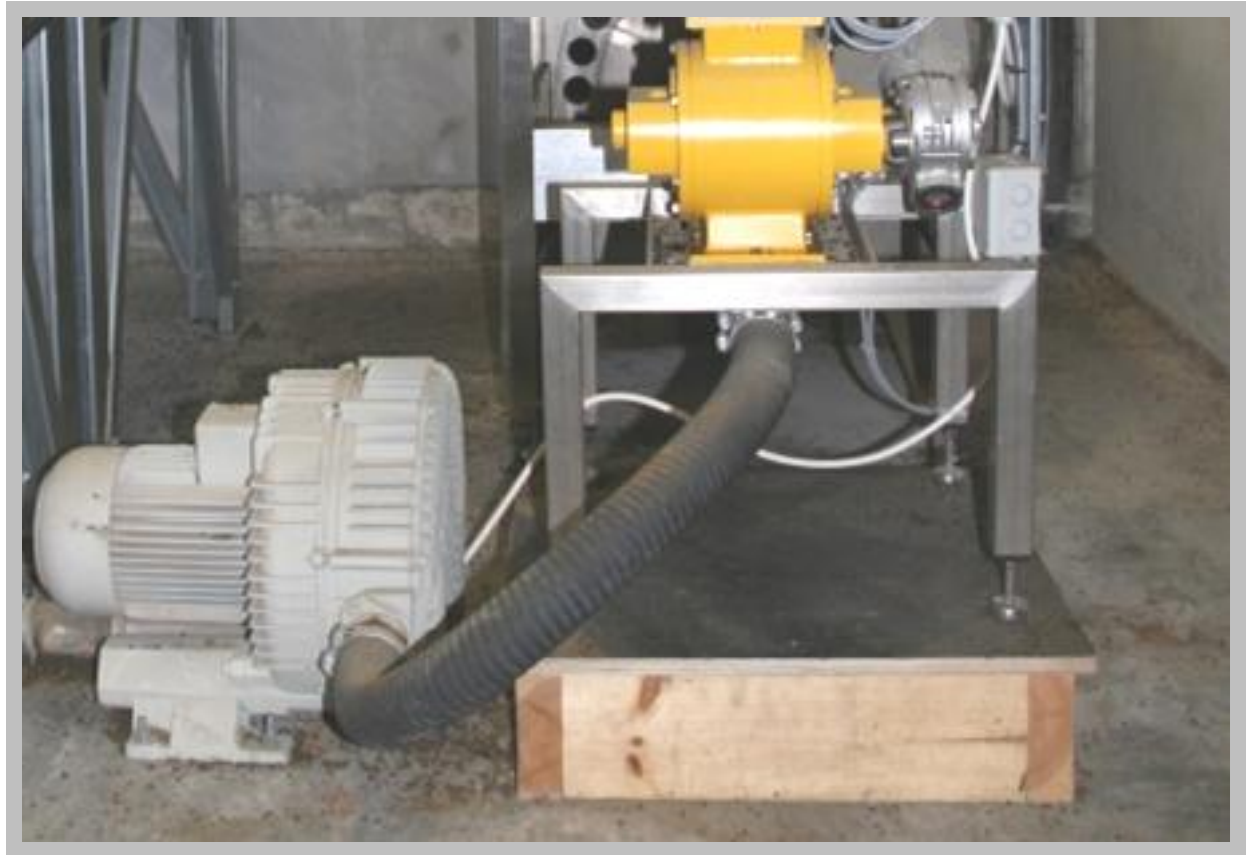


OTHER COMPONENTS – PIPES BETWEEN COMPONENTS

Important to select ventilation hose for hard conditions.

Temperature tolerance:
+80°C

CR lining and steel spiral.



COOLER (OPTIONAL)



SIMPLE WATER COOLER



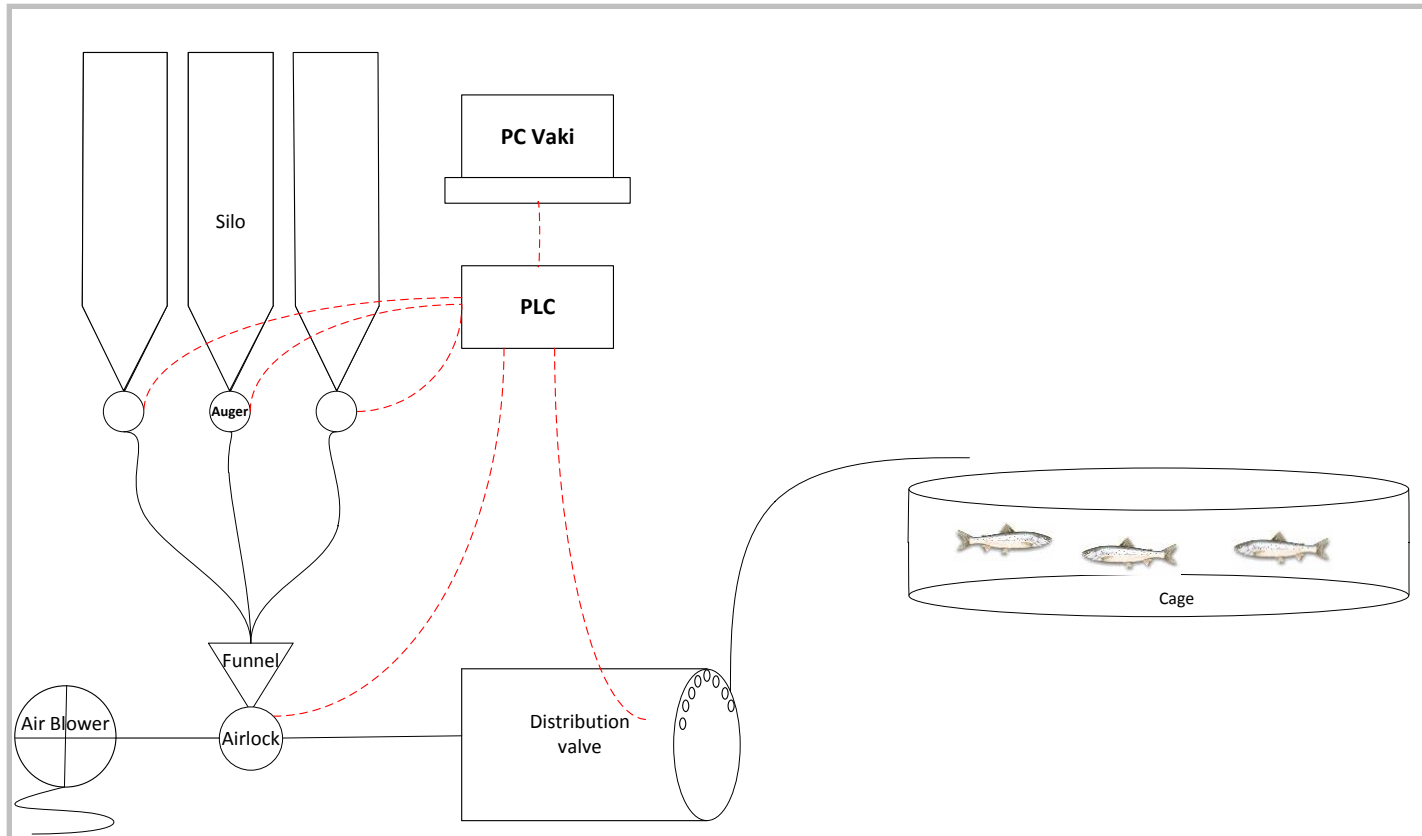
AIR COOLED WITH WATER COOLER



AIR FLOW COOLED WITH AIR COOLER



BASIC FEEDING SYSTEM

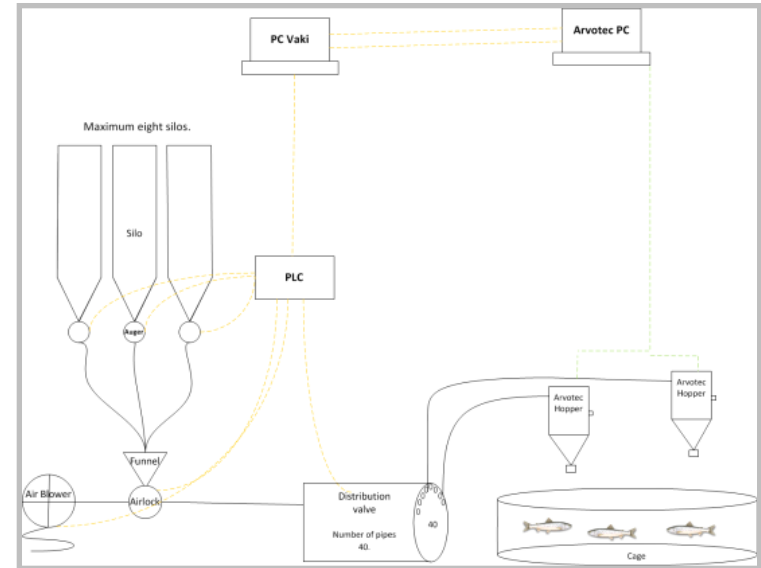


HOPPER SYSTEM

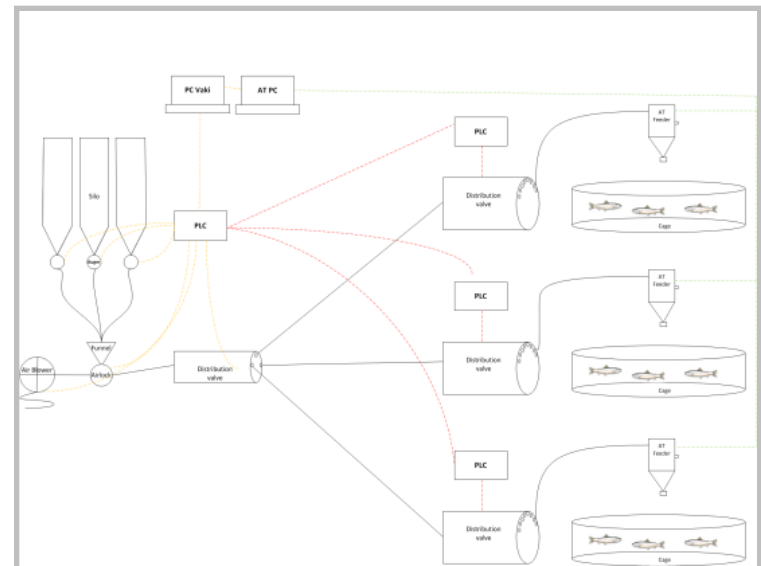


The feeding system can be set up as refilling system for smaller feeding hoppers.

Both as single revolver system and multi slave system.



Single revolver hopper system



Multi slave revolver hopper system

PLUG AND START

VAKI Feeding System is installed in containers.

We assemble all the parts to the feeding system at our headquarters, to customer request and deliver at site.

