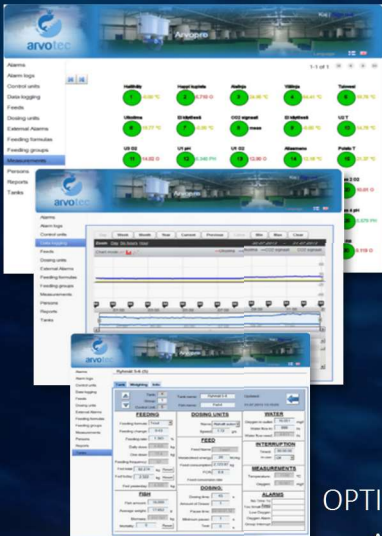# ARVO-TEC OY

PIPE FEEDING SYSTEM

PIPE FEEDING SYSTEM

FEEDING PROCESS MANAGEMENT VIA WEB BASED INTERFACE

ALL INFORMATION IN ONE DATABASE

REMOTE ACCESS

ACCESS YOUR FARMS ONLINE

OPTIONAL GSM ALARMS

LINK UP TO 30 CONTROL UNITS USING CABLE, RADIO OR LAN COMMUNICATION

CONTROLLERS FOR PIPE FEEDING SYSTEM, MEASUREMENTS AND ALARMS

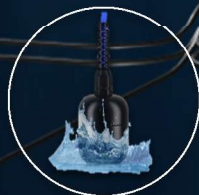CENTRALIZED SOLUTION FOR HIGH VOLUME FEEDING: UP TO 12TONS/DAY
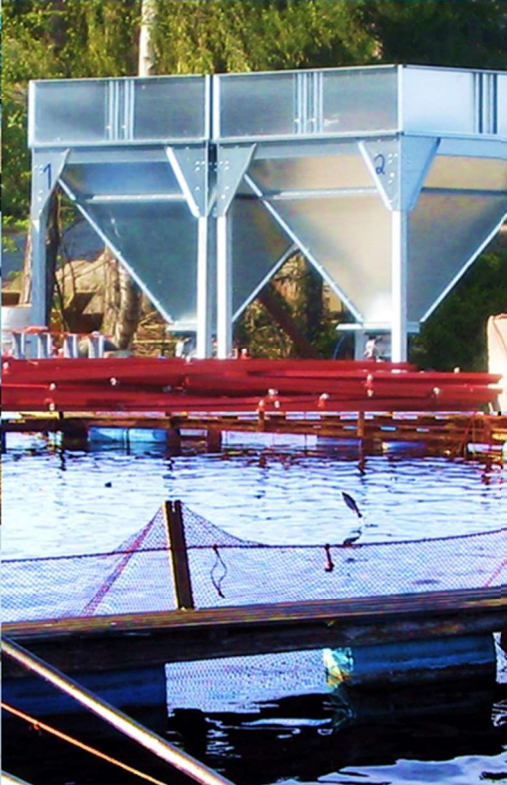
LIGHTWEIGHT AND MODULAR

SYSTEM OPERATES WITH LOW AIR PRESSURE: NO COOLING NEEDED

SINGLE PIPE PRINCIPLE MINIMIZES PIPE USAGE

EACH CONTROLLER HAS 8 ANALOG INPUTS FOR MEASUREMENTS AND DEVICES RESULTING IN MORE ACCURATE FEEDING AND IMPROVED WATER QUALITY

CONTENTS

ARVO-TEC PIPE FEEDING SYSTEM

The pipe feeding system is a centralized solution for high volume feeding to be used in offshore – and land based farming as well as RAS-facilities. Arvo-Tec pipe feeding system uses reliable and accurate methods to dose and feed with the precision that has become our trademark. The used technology is also gentle on the feed itself resulting in minimal damage to pellets.

The system uses comparably low air pressure to operate thus eliminating the air heating problem in the pipeline and cutting out the need for a cooling component before feed injection.

Each tank is controlled separately by Arvo-Tec control system. The control system is a comprehensive feeding, measurement and alarm system built around Arvo-Tec professional controller - WOLF.

The system takes environmental parameters like oxygen and temperature into account and calculates fish growth based on a mathematical energy demand model. All parameters can also be adjusted manually. The system can for example be set to feed in shorter and more intense cycles or to spread the daily dose over as evenly as possible through the whole feeding period.

The system is also designed to work out at sea. The system can placed on a barge with a generator. WOLF has inbuilt automatic, adjustable generator controls.

The feed silos will ideally be placed in a feed storage area where they can be refilled easily. From there the system uses a powerful blower to propel the feed down a single 75 mm PE pipe to revolvers and onwards up to ~300 metres away. This single pipe principle reduces the required pipe amount minimizing possible pipe related problems.

The pipe feeding system as a whole is lightweight and modular. Easy to handle and easy to transport, each system can be built to support 1-4 different feeds. Easily expandable up to 28 tanks with a single blower and controller. Add further systems for larger farms.
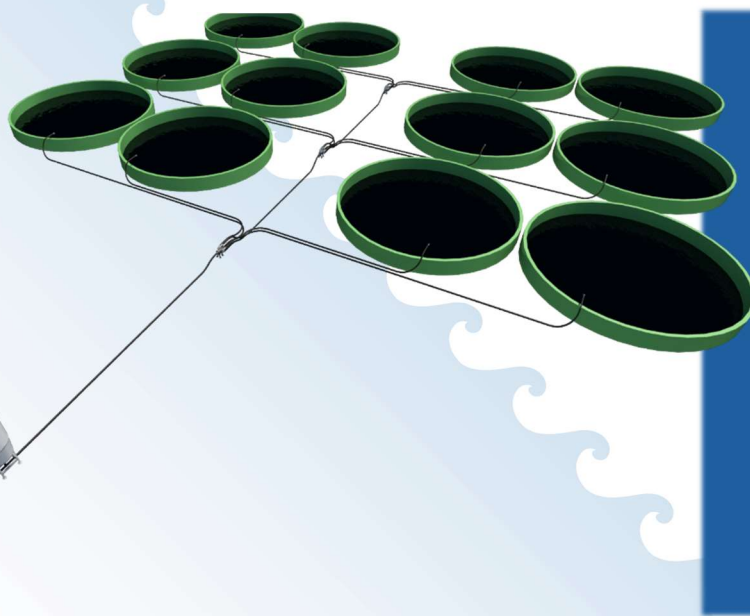
TECHNICAL SPECIFICATIONS

- 1-4 Feeds per system
- Up to 28 tanks per system. Add additional systems for larger sites
- 3x400 VAC - 5,5kW blower
- 75mm Ø PE pipe
- Maximum pipe length 300m
- Feeding capacity 170 g/s, 12t/d
- Arvo-Tec control system with advanced aquaculture functions

DOSER & BLOWER

NAME	CODE	ADDITIONAL INFO

Blower 5,5 kW 3-phase   7000

Soft starter 5,5 kW   7026

- Powerful 3-phase sidechannel blower for creating airflow in the pipeline

- Totally maintenance-free

- 1 per system

- Soft starter can be added to eliminate the electric current surge of the motor during start-up, expanding the lifespan of the system and enabling the use of a smaller generator.
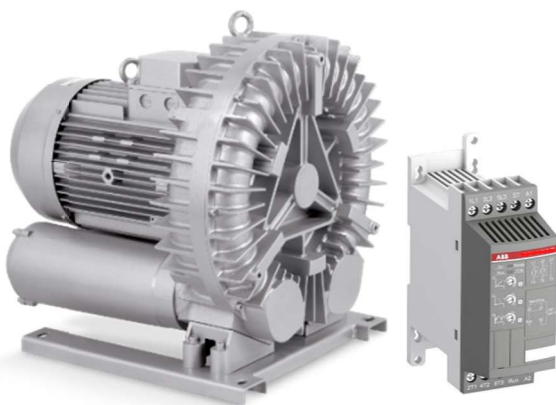
Feed injector/airlock 27 RPM 3-phase   7025
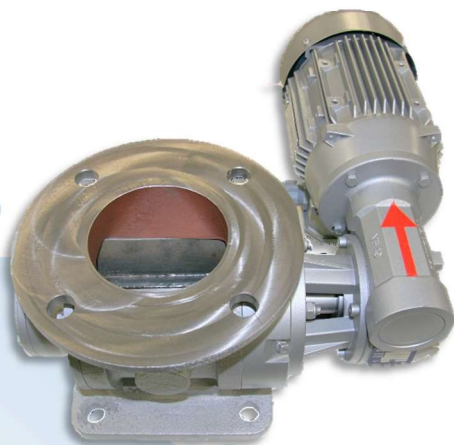
- Installed at the bottom of each silo, the feed injector handles the dosing of feed into the pipeline

- 1 for each silo/feed

- Compact and robust build

Switch board for 2-4 feeds BASE   7035

         3 Feeds   7036

         4 Feeds   7037

- Code 7035 is the base for the switch board. Inc setup for 2 feeds.

- The BASE code 7035 is also needed with 3 & 4 feed setups

FEED SILOS

NAME	CODE	ADDITIONAL INFO

Feed silo 600 litre   **1034**
- White PE Hopper & lid
- RX 101 NATURAL polyethylene resin

Stand for 600 litre silo   **1053**
- AISI 316 Stainless steel

Feed silo   1400 litre   **142005**
- Powder coated steel, lid on request

In addition to our standard sizes, pipe feeding system can be fitted with custom silo of your choice.

BLOWER, DOSER & SILOS		
7000	Side channel blower 5,5 kW 3-phase	1 Per system
7026	Softs tarter for 5,5 kW blower	Optional
7025	Feed injector/airlock 27rpm 3-phase	Doser for feed
7035	Switch board for 2 feeds	2 Feeds
7036	Switch board for 3 feeds	3 Feeds
7037	Switch board for 4 feeds	4 Feeds
1034	Feed silo 600 litre	White PE hopper & lid
1053	Stand for 600 litre silo	AISI 316 stainless steel
142005	Feed silo 1400 litre	Powder coated steel

REVOLVERS AND PIPELINE

NAME	CODE	ADDITIONAL INFO

Revolver 5 - Electric drum diverter — 7012
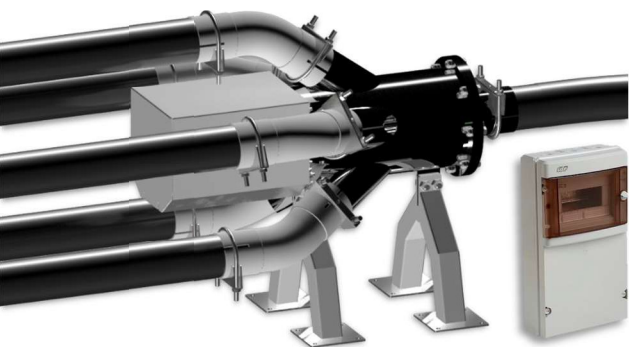
- Code includes:
    - 1pc Electric drum diverter – revolver 5
    - 1pc PLC for revolver
- 1 Inlet & 5 Outlets for tanks or additional revolvers
- Powder coated steel/aluminium
- Compact size and robust design
- Requires Arvo-Tec pipe feeding controller

Feeding pipe HDPE SDR11 OD75mm — 7050

- Smooth (high flowrates)
- Unaffected by sunlight
- Durable

Pressure sensor/transmitter — 7038

- Monitors airpressure in the pipeline
- System checks for faults between each feeding detecting leaks and blocked lines immediately
- 1 per system

Feed spreader attachment — 7080
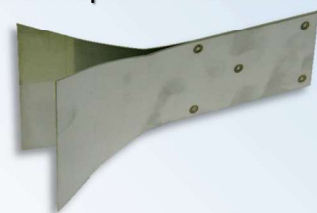
- Spreads feed in a wide pattern
- Installed at the end of each pipe lfeeding into tank/cage
- AISI 316 Stainless steel

REVOLVERS & PIPELINE		
7012	Revolver - 5 - Electric drum diverter	inc. PLC
7050	Feeding pipe HDPE SDR11 75mm	
7038	Pressure sensor/transmitter	1 per system
7080	Feed spreader attachment	Stainless steel

REVOLVER - SPARES & ACCESSORIES

Revolver – 5 Spare motor

150565

PLC for revolver

101052

Power supply 24 VDC 4,2A 101001
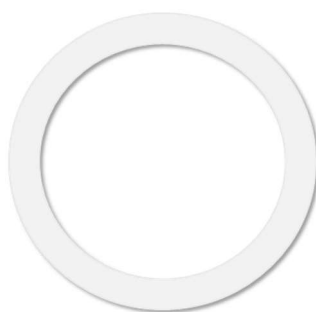
Magnet reading sensor

4806

Seal Ring PE

103205

Seal Ring

103199

REVOLVER SPARES AND ACCESSORIES		
150565	Revolver - 5 Spare motor	
101052	PLC for revolver	
101001	Power supply for revolver	24 VDC 4,2A
4806	Magnet reading sensor	
103205	Seal ring PE	
103199	Seal ring	

ARVO-TEC WEB BASED FEEDING SOFTWARE & PC USER INTERFACE

REMOTE / ROAMING USERS

INTERNET

VPN (virtual private network) tunnel

PLANT OR HEAD OFFICE LOCAL USERS

MySQL database in Arvo-Tec PC, Main user interface

MySQL database located inside Arvo-Tec PC or optional remote location as backup
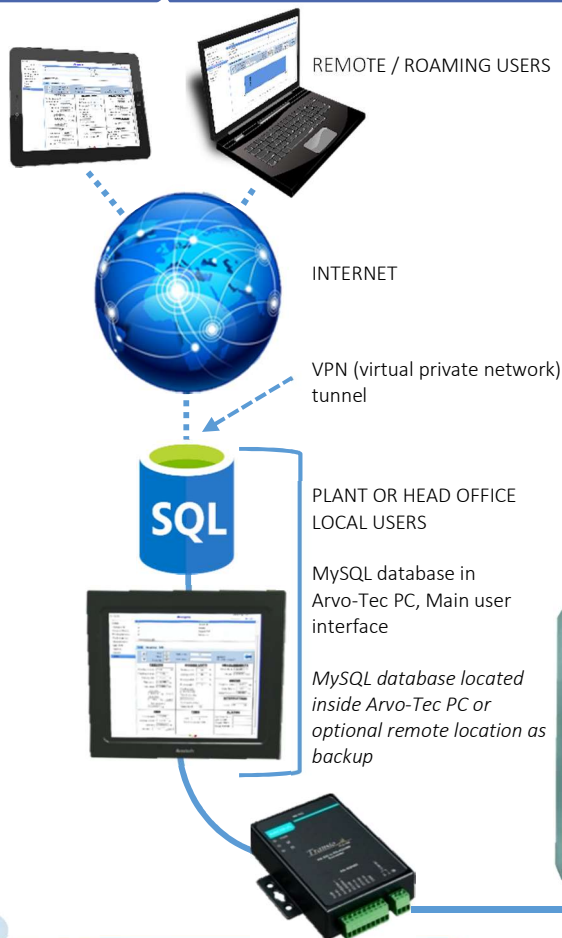
Adding a PC connection with web based software to Arvo-Tec feeding system gives access to clear, easy to use graphic interface with optimized functions for managing your farm with ease.

Control PC works as a central user interface to the system enabling control of all WOLF-control units, probes, feeders and other connected equipment from one point.
Quick overview of you measurements, alarms and detailed tank status.

Create day reports, feed reports and store all your data.

Information can be exported to be used by 3rd party software e.g. Excel, Fishtalk.

System is accessible using a browser anywhere through VPN, enabling secure online water quality -and feeding monitoring.
PC connection enables on-line support from Arvo-Tec service team should the need arise.

Measurements View

Pipe Feeding Perioids View

Datalog View

Tank View

PIPE FEEDING CONTROLLER - WOLF

PIPE FEEDING CONTROLLER
DISPLAY & KEYBOARD

The Arvo-Tec pipe feeding controller is a fully integrated feeding, measurement and alarm system.

WOLF - controller is the brain of all Arvo-Tec systems and as such is mandatory for the pipe feeding system to operate.

Comprehensive controls for Feeding rates, Feeding times, Dosing units, Feed types, etc.

Each controller supports up to a maximum of 28 tanks.

Advanced software uses enviromental parameters like water temperature, oxygen content and biomass as initial data to adjust feeding according to mathematical energy demand model which is fully adjustable by user.

Inbuilt generator management controls.

Cased in AISI 316 stainless steel cabinet for extreme conditions.

240 V or 110 V AC Power options. Also optional 24v battery with generator.

Optional GSM controls for manual feeding start, interruption and test.

ARVO-TEC CENTRALIZED FEEDING CONTROLLER - WOLF

NAME	CODE	ADDITIONAL INFO

Pipe feeding controller - WOLF   7030

- Supports up to 28 tanks
- Advanced feeding controls for centralized system.
- Standalone or optional PC connection
- AISI 316 stainless steel cabinet
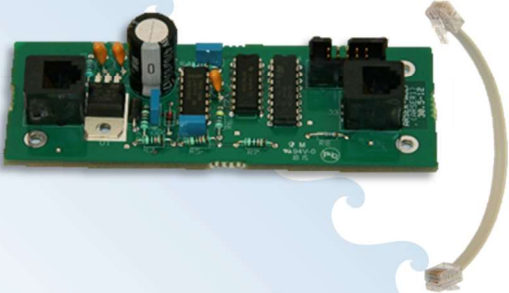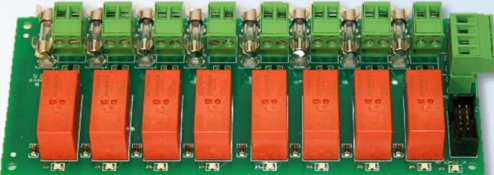- Mandatory for system to operate

Industrial multitouch panel PC with web based ArvoPRO software   3702

- Intel© Celeron? J1900 2.0GHz Panel PC
- 12.1" LED 1024*768 with 5-wire resistive touch screen
- RAM 4GB DDR3L SODIMM
- SSD 120GB SATA
- WLAN PCIe mini-card,
- Intel Wireless-N 7260 Half min
- WIN 10 PRO ENG 64-BIT

- Standard communication: twisted pair RS-485 cable up to 1 km
- Wired PC connection requires   serial converter and surge protection board
- Optional: Low power radio link for PC communication up to 200m
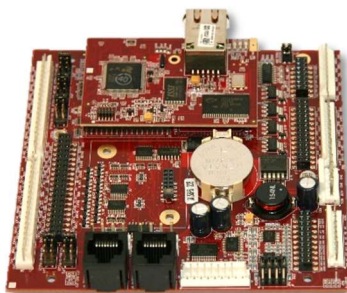
ARVO-TEC CENTRALIZED FEEDING CONTROLLER - WOLF

NAME	CODE	ADDITIONAL INFO
Overvoltage protection board ARINT	3602	▪ Provides mandatory overvoltage protection for communication between PC and controllers
Converter RS 485-232	3700	▪ Extend the distance between PC and control unit up to 10 km ▪ Add converter & ARINT-board for controller-PC communication
GSM module	7040	▪ Optional GSM module for alarms ▪ Alarms e.g. barge to mainland ▪ Optional Feeding interruption, start and test commands. ▪ 1 per system
ARSER I/O board	3603	▪ Includes necessary communication cable ▪ Spare only
Relay board 8-channel	3710	▪ Spare only

CONTROLLER-SPARES AND ACCESSORIES

ARIF-WOLF Motherboard
140014
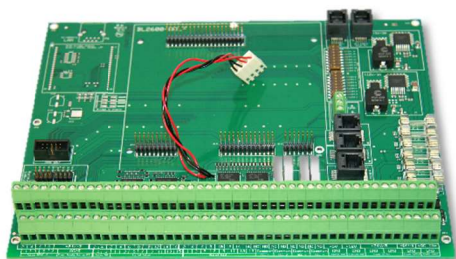
CPU-WOLF
100030

Memory backup battery
CR2477N   3714

Power supply 24 VDC 2,5A

101001

	CENTRALIZED FEEDING CONTROLLER - WOLF / PC CONNECTION	
7030	Pipe feeding controller - WOLF	Up to 28 tanks
3702	Industrial multitouch panel PC + ArvoPRO	Win 10 web based
3701	Import-export extension for ArvoPRO	
3602	Overvoltage protection board ARINT	
3700	Converter RS 485-232	
7040	GSM module for alarms	Optional expansion
3603	I/O board ARSER	Spare only
3710	Relay board 8 -channel	Spare only
	CONTROLLER SPARES AND ACCESSORIES	
140014	ARIF-WOLF motherboard	
100030	CPU - WOLF	
3714	Memory backup battery	CR2477N
101001	Power supply 24VDC 2,5A	Input AC 100-240v

ITEM LIST

	BLOWER, DOSER & SILOS	
7000	Blower 5,5 kW 3-phase	1 Per system
7026	Softstarter for 5,5 kW blower	Accessory for generator use
7025	Feed injector/airlock 27rpm 3-phase	
7035	Switch board for 2 feeds	2 Feeds
7036	Switch board for 3 feeds	3 Feeds
7037	Switch board for 4 feeds	4 Feeds
1034	Feed silo 600 litre	White PE hopper & lid
1053	Stand for 600 litre silo	AISI 316 stainless steel
142005	Feed silo 1400 litre	Powder coated steel
	REVOLVERS & PIPELINE	
7012	Revolver - 5 - Electric drum diverter	inc. PLC
7050	Feeding pipe HDPE SDR11 75mm	
7038	Pressure sensor/transmitter	1 per system
7039	Cable & connector for sensor 2m	
7080	Feed spreader attachment	Stainless steel
	CENTRALIZED FEEDING CONTROLLER - WOLF / PC CONNECTION	
7030	Pipe feeding controller - WOLF	28 tanks
3702	Industrial multitouch panel PC	Win 10 web based
~~3701~~	~~Import-export extension for ArvoPRO~~	
3602	Overvoltage protection board ARINT	
3700	Converter RS 485-232	
7040	GSM module for alarms	for offshore use mainly
3603	I/O board ARSER	Spare only
3710	Relay board 8 -channel	Spare only
	CONTROLLER SPARES AND ACCESSORIES	
140014	ARIF-WOLF motherboard	
100030	CPU - WOLF	
3714	Memory backup battery	CR2477N
101001	Power supply 24VDC 2,5A	Input AC 100-240V
	REVOLVER SPARES AND ACCESSORIES	
150565	Revolver - 5 Spare motor	
101052	PLC for revolver	
101001	Power supply for revolver	24 VDC 4,2A
4806	Magnet reading sensor	
103205	Seal ring PE	
103199	Seal ring	