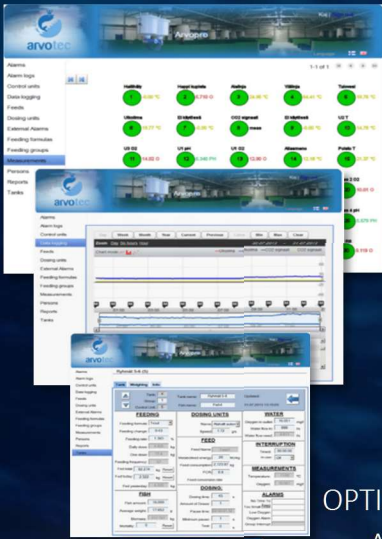


ARVO-TEC OY

Centralized Feeding System



# CENTRALIZED FEEDING SYSTEM



FEEDING PROCESS MANAGEMENT VIA WEB BASED INTERFACE

ALL INFORMATION IN ONE DATABASE

REMOTE ACCESS

ACCESS YOUR FARMS ONLINE

OPTIONAL GSM LINK UP TO 30 CONTROL UNITS CONTROLLERS FOR PIPE FEEDING  
ALARMS USING CABLE, RADIO OR LAN SYSTEM, MEASUREMENTS AND  
COMMUNICATION ALARMS



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

LIGHTWEIGHT AND MODULAR

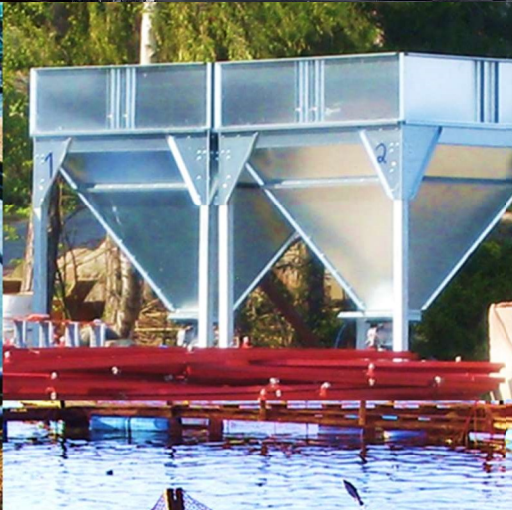
SYSTEM OPERATES WITH LOW AIR PRESSURE: NO COOLING NEEDED

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 .....	4
DOSER & BLOWER .....	5
FEED SILOS .....	6
REVOLVERS AND PIPELINE .....	7
REVOLVER - SPARES & ACCESSORIES.....	8
ARVO-TEC WEB BASED FEEDING SOFTWARE & PC USER INTERFACE .....	9
PIPE FEEDING CONTROLLER - WOLF .....	10-12
CONTROLLER-SPARES AND ACCESSORIES .....	13
ITEM LIST .....	14



## 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 relatively 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.

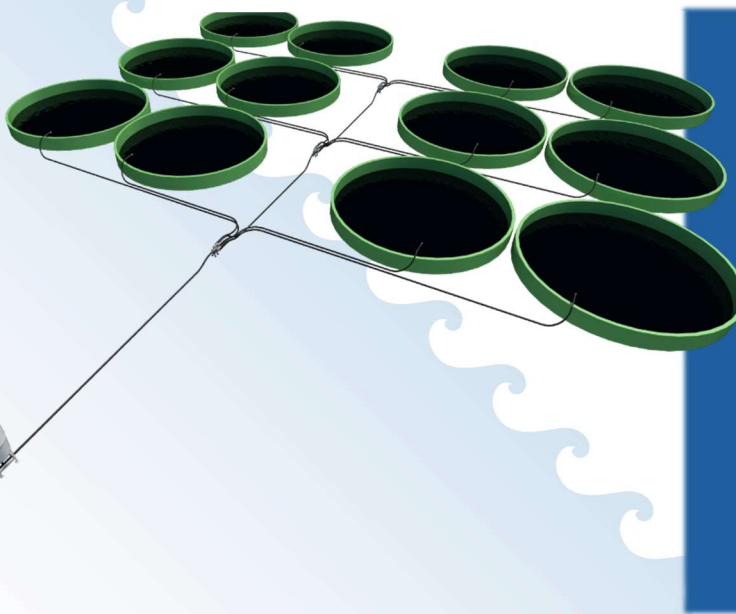
Each tank is controlled separately by Arvo-Tec control system. The control system is a comprehensive feeding, measurement and alarm system built around Arvo-Tec professional controller - WOLF.

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 be 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.

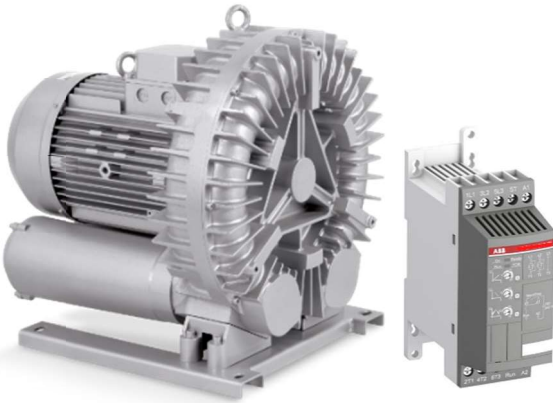


### TECHNICAL SPECIFICATIONS

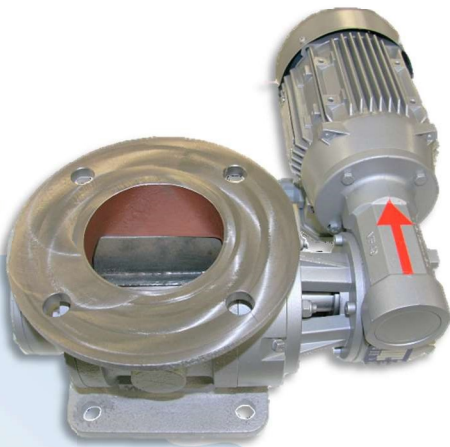
- 1-4 Feeds per system
- Up to 28 tanks per system. Add additional systems for larger sites
- 3x400 VAC - 5,5kW blower
- 75mm Ø PE pipe
- Maximum pipe length 300m
- Feeding capacity 170 g/s, 12t/d
- Arvo-Tec control system with advanced aquaculture functions

## DOSER &amp; BLOWER

NAME	CODE	ADDITIONAL INFO
Blower 5,5 kW 3-phase	7000	<ul style="list-style-type: none"> <li>Powerful 3-phase sidechannel blower for creating airflow in the pipeline</li> <li>Totally maintenance-free</li> <li>1 per system</li> <li>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.</li> </ul>
Soft starter 5,5 kW	7026	



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 &amp; 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
 <p>Revolver 5 - Electric drum diverter</p>	7012	<ul style="list-style-type: none"> <li>Code includes: <ul style="list-style-type: none"> <li>1pc Electric drum diverter – revolver 5</li> <li>1pc PLC for revolver</li> </ul> </li> <li>1 Inlet &amp; 5 Outlets for tanks or additional revolvers</li> <li>Powder coated steel/aluminium</li> <li>Compact size and robust design</li> <li>Requires Arvo-Tec pipe feeding controller</li> </ul>
 <p>Feeding pipe HDPE SDR11 OD75mm</p>	7050	<ul style="list-style-type: none"> <li>Smooth (high flowrates)</li> <li>Unaffected by sunlight</li> <li>Durable</li> </ul>
 <p>Pressure sensor/transmitter</p>	7038	<ul style="list-style-type: none"> <li>Monitors airpressure in the pipeline</li> <li>System checks for faults between each feeding detecting leaks and blocked lines immediately</li> <li>1 per system</li> </ul>
 <p>Feed spreader attachment</p>	7080	<ul style="list-style-type: none"> <li>Spreads feed in a wide pattern</li> <li>Installed at the end of each pipe lfeeding into tank/cage</li> <li>AISI 316 Stainless steel</li> </ul>

### 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



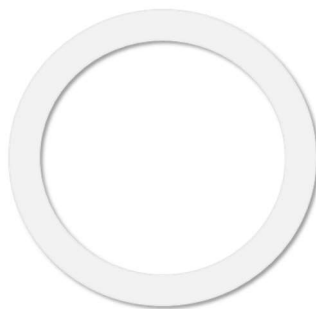
Power supply 24  
VDC 4,2A 101001



Magnet reading sensor  
4806



Seal Ring PE  
103205



Seal Ring  
103199

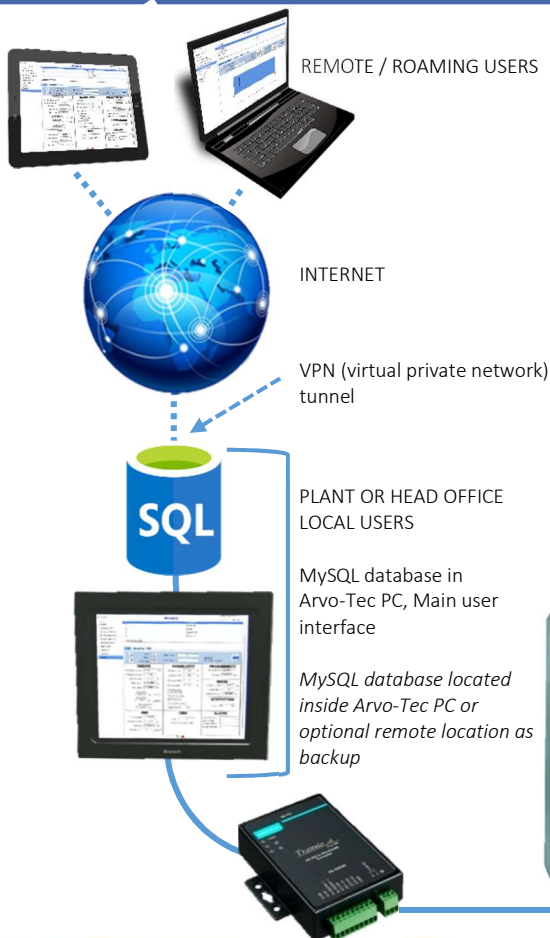


### REVOLVER SPARES AND ACCESSORIES

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



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.



Measurements View



Pipe Feeding Periods View



Datalog View



Tank View

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

Information can be exported to be used by 3<sup>rd</sup> 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.

## 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 environmental 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	<ul style="list-style-type: none"> <li>Supports up to 28 tanks</li> <li>Advanced feeding controls for centralized system.</li> <li>Standalone or optional PC connection</li> <li>AISI 316 stainless steel cabinet</li> <li>Mandatory for system to operate</li> </ul>






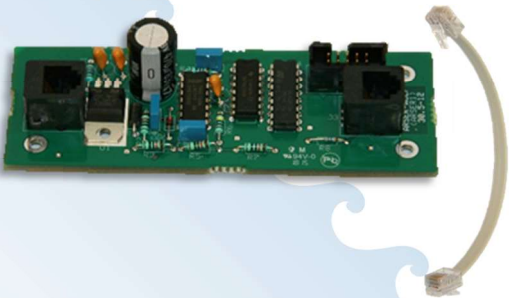
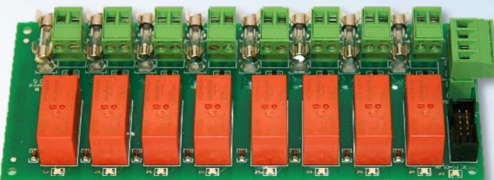
Industrial multitouch panel PC with  
web based ArvoPRO software

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



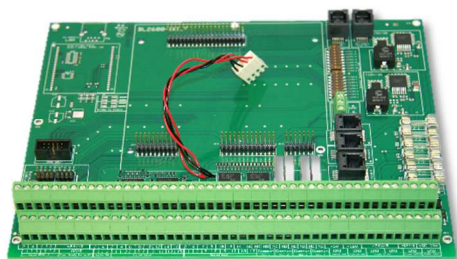
## ARVO-TEC CENTRALIZED FEEDING CONTROLLER - WOLF

NAME	CODE	ADDITIONAL INFO
Overvoltage protection board ARINT	3602	<ul style="list-style-type: none"> <li>Provides mandatory overvoltage protection for communication between PC and controllers</li> </ul>
		
Converter RS 485-232	3700	<ul style="list-style-type: none"> <li>Extend the distance between PC and control unit up to 10 km</li> <li>Add converter &amp; ARINT-board for controller-PC communication</li> </ul>
		
GSM module	7040	<ul style="list-style-type: none"> <li>Optional GSM module for alarms</li> <li>Alarms e.g. barge to mainland</li> <li>Optional Feeding interruption, start and test commands.</li> <li>1 per system</li> </ul>
		
ARSER I/O board	3603	<ul style="list-style-type: none"> <li>Includes necessary communication cable</li> <li>Spare only</li> </ul>
		
Relay board 8-channel	3710	<ul style="list-style-type: none"> <li>Spare only</li> </ul>
		

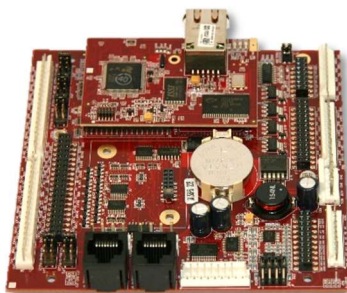


## CONTROLLER-SPARES AND ACCESSORIES

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	Overtoltage 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
<del>3701</del>	<del>Import-export extension for ArvoPRO</del>	
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	



## This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across most of the page width. In the top right corner, there is a decorative border consisting of light blue waves or clouds. Similarly, in the bottom left corner, there is another decorative border of light blue waves or clouds. The rest of the page is plain white with no other markings or text.

