

## Annex 8:

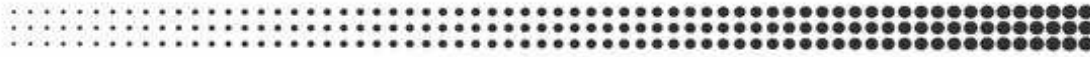
### Raceways for Macroalgae Production

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## EQUIPMENT LIST

### Technological Institute

Growout  
011.75.001.400.A  
10-10-11  
MBE

#### **Explanation For Equipment List**

For each item is given:

Position No.: identifies the item on the drawings.

AKVA Code/Position no. XX(yr).XXX(project code).XXX(facility code).XX(revision)-XXXX(product code)/XXX(position no.)

Class, Description: Product grouping in quotation, description of where and how item used

Brand/type: defines the item by simple description or common brand name

Supply code: defines supply terms

- 01 AKVA equipment supply
- 02 AKVA equipment local supply
- 03 Manufacturing drawings and/or specifications from AKVA
- 04 Technical specification for customer supply
- 05 Customer supply

Pieces: specifies the number of items included in the offer.

Specifications:

- System related Specifications unique to the given system
- Product related Specifications unique to the given product

Notes, Materials, Electrical supply briefly details the item. If one or more categories do not apply for any given item they are removed.



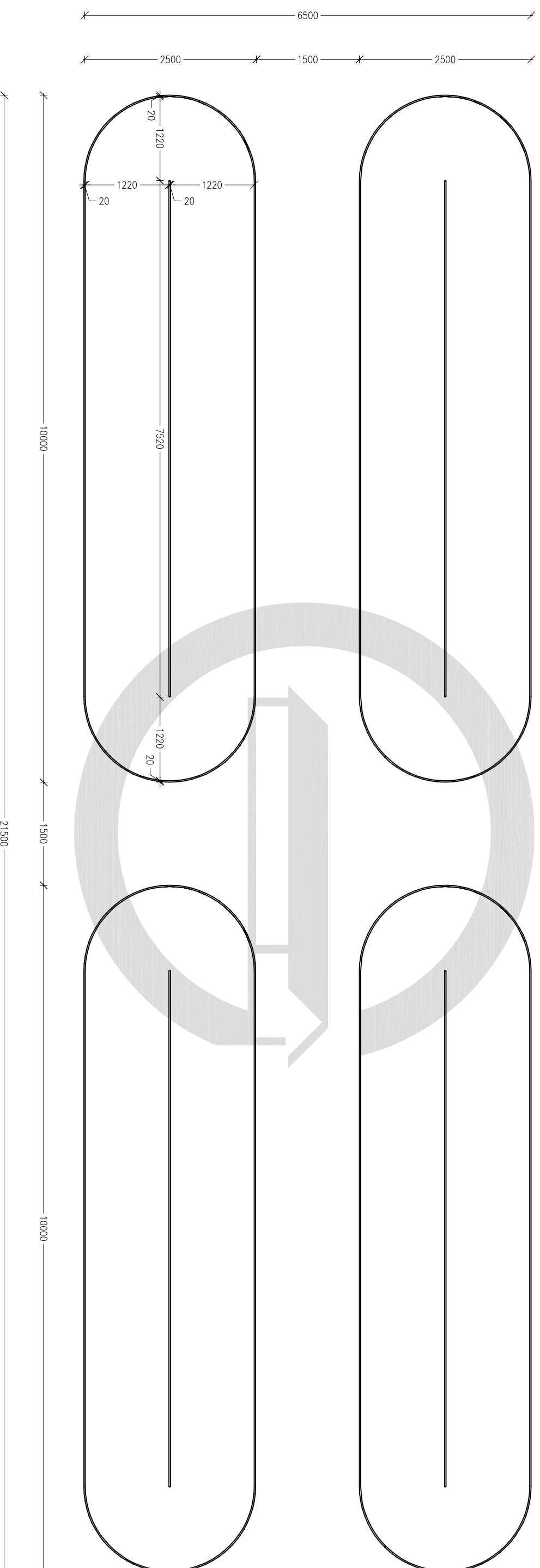
Position No.	AKVA Code/Position no.	Class, Description:	Brand/type:	Pieces:	Supply Code:	Specifications (system related)	Specifications (product related)	Notes	Materials:	Electrical supply:	Rated Power	
036	011.75.001.4 00.A-13/36	Mechanical filtration- DRUMFILTER, primary	Hydrotech 1203-2H (AISI 316)	1 pc/s	01	300 m3/hr	40 micron	15 mg/L TSS	To install in a canal. Including inlet channel, backwash pump strainer (PVC) and packaging.	AISI316	3x400V - 50 Hz	Rated Power 0,37 kW
037	011.75.001.4 00.A-62/37	Mechanical filtration- BACKWASH, primary	Grundfos CRN 3-17	1 pc/s	01			0,8 L/sec, 8 bar	0.	AISI316	3x400V - 50 Hz	Rated Power 1,50 kW
053	011.75.001.4 00.A-559/53	Pumps, Valves and Accessories-Intake water pumps	Grundfos NB 150-200/210-160, Marine conditions, 150m3/hr (8mWc)	2 pc/s	01	125 m3/hr	3,6 mWc	0,4 m min water level, 200 ø mm inlet, 150 ø mm outlet	Pump SW coated. Dry pump installed in a pump installation sump to secure self priming or on a plinth next to the point of suction with a low head loss foot valve.	Cast iron with ceramic coating	3x400V - 50 Hz,	Rated Power 7,50 kW
055	011.75.001.4 00.A-591/55	Pumps, Valves and Accessories-NPK reservoir pumps	Iwaki MX 401 pump, 17m3/hr (5mWc)	2 pc/s	01	25 m3/hr	1,2 mWc	0,4 m min water level	Dry pump installed in a pump sump to secure self priming or on a plinth next to the point of suction with a low head loss foot valve. The pump is delivered with flanges.	Plastic	3x400V - 50 Hz,	Rated Power 0,75 kW
066	011.75.001.4 00.A-594/66	Pumps, Valves and Accessories-INTAKE FLOW	F300-H01 flowsensor and F900 wall mounted instrument	4 pc/s	01				Electronic flow sensor with wall mounted instrument. To be used with pipe sizes DN15 - DN100.	NA	24V	Rated Power 0,10 kW
070	011.75.001.4 00.A-598/70	Pumps, Valves and Accessories-INTAKE FLOW	Mounting saddle (Ø250mm) for flowsensor	4 pc/s	01				Mounting saddle to install electronic flowsensor onto a pressure pipe, with EPDM sealant to secure a water tight seal..	NA	NA	NA
083	011.75.001.4 00.A-612/83	Pumps, Valves and Accessories-FLOW Meter NPK reservoir pumps	ASV DFM350 Flowmeter, 60- 600L/hr, d25mm sockets ends (PVC/PE)	4 pc/s	01			0,6 m3/hr	Mechanical flow meter, DN20, with float PVDF MAGNET. If the pipe dimension is reduced before the flowmeter, a piece of pipe with the length equal to 5-7 x DN is connected to the inlet and outlet of the flowmeter, in this case the piece of pipe will have the length 100-140mm. This is done to get a stable flow.	Acrylic	NA	NA
087	011.75.001.4 00.A-621/87	Pumps, Valves and Accessories-FLOW METER Tanks	ASV Flow data sensor ZE3000	4 pc/s	01				Micro-processor controlled for accurate flow measurement and evaluation. Existing flowmeters (with magnetic floats) can easily be retrofitted with the ZE3000 to electrically signal the flow.	NA	8-28 Volt DC	Rated Power 0,00 kW
193	011.75.001.4 00.A- 3501/193	Control System- CONTROL SYSTEM	Control Master Unit	1 pc/s	01				System for monitoring, controlling, data logging and alarming water quality parameters and farm operation. Connection with office computer for direct communication (adjusting set points). Included for system: General alarm output and system fault alarm output; Electrical cabinet/s and junction boxes; battery backup; all communication cables and sensor cables.	N/A	230V - 50Hz	Rated Power 0,14 kW



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194	011.75.001.4-00.A-3509/194	Control System-CONTROL SYSTEM	Computer control centre	1 pc/s	01			Computer control centre on which to run the Control System. Including two pieces of screens for easy overview of entire facility..	N/A	230V - 50Hz	Rated Power 0,14 kW
195	011.75.001.4-00.A-3521/195	Control System-CONTROL SYSTEM, oxygen probes	Oxygen Probe, with temperature	4 pc/s	01		400 % max satd oxygen, 50 max deg C	Probe to be used with control system. Including 7m of probe cable. Each probe can control emergency dosing and PID advanced dosing. Individual set-points for dosing and high/low alarms. Remember mounting brackets.	N/A	NA	NA
199	011.75.001.4-00.A-3526/199	Control System-CONTROL SYSTEM, pH probes	Oxyguard pH Manta System with probe	4 pc/s	01		4 min pH level, 9 max pH level	Unit can be used with the control system or can be used independently. Output display centre for 1 oxyguard pH probe. Individual set-points for dosing, and high and low alarms. Including probe and probe cable..	N/A	230V - 50Hz	Rated Power 0,14 kW
203	011.75.001.4-00.A-3525/203	Control System-CONTROL SYSTEM, salinity probes	Oxyguard Salinity Probe	4 pc/s	01		40 o/oo max salinity	Probe to be used with control system. Including 7m probe cable. Remember mounting brackets.	N/A	NA	NA
207	011.75.001.4-00.A-3523/207	Control System-CONTROL SYSTEM, carbon dioxide probes	Oxyguard Carbon dioxide Probe	4 pc/s	01		100 mg/L max carbon dioxide	Probe to be used with control system. Including 7m probe cable and calibration set. Remember mounting brackets.	N/A	NA	NA
214	011.75.001.4-00.A-3566/214	Control System-CONTROL SYSTEM, tank level sensors	Elobau level sensor	8 pc/s	01		100 mm water level	Level sensor to signal low or high water level alarm. Including a mounting plate/bracket.	N/A	max 48 V	Rated Power 0,10 kW
222	011.75.001.4-00.A-3538/222	Control System-CONTROL SYSTEM, drumfilter level sensors with control	MJK Type 704P, Drumfilter control 0-5m	1 pc/s	01		3 m water level	Drumfilter control unit to start/stop a drumfilter and backwash system. Includes pressure transmitter (model 3400), galvanic isolation and alarm system. Includes only wiring between control unit and water level sensor. MJK Itemnr. 202064.	N/A	230V - 50Hz	Rated Power 0,10 kW




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223	011.75.001.4 00.A- 3543/223	Control System- CONTROL SYSTEM, lift pump level sensors with control	MJK Type 704P, for pump control, 0-3m	2 pc/s	01		3 m water level, 4 control relay/s	Pump control unit to start/stop pumps. Up to 4 channels for water level (0-3m) control in the system. Includes pressure transmitter (model 3400), galvanic isolation and alarm system. Includes only wiring between control unit and water level sensor. MJK Itemnr. 202063.	N/A	230V - 50Hz	Rated Power 0,10 kW
225	011.75.001.4 00.A- 3571/225	Control System- CONTROL SYSTEM, Input for Motor/s	Control system input for Motor/s	35 pc/s	01			Input for all the motors that need controlling via the Control System..	NA	NA	NA
260	011.75.001.4 00.A- 3511/260	Control System- CONTROL SYSTEM, input/output box/es	Input/Output boxes	1 pc/s	01			Input for a maximum of 6 tanks. Including level sensor, dosing output, emergency output, battery backup and ups..	N/A	230V - 50Hz	Rated Power 0,40 kW
262	011.75.001.4 00.A- 5507/262	Technical Installations- Movement of water	Paddle wheel SC 1,5 kW	28 pc/s	01			Floating paddle wheel for creating water current.	Plastic and steel	3x400V - 50 Hz	Rated Power 1,50 kW
290	011.75.001.4 00.A- 5508/290	Technical Installations- Movement of water	Electrical fittings for Paddle wheel SC 1,5 kW	28 pc/s	01			Electrical safety unit, wire and plugs for Floating paddle wheel.	NA	NA	NA
331	011.75.001.4 00.A- 6502/331	Electrical Installations- MOTOR CONTROL CENTRE	Motor Control Centre, supplied	1 pc/s	01			See Drawings for details. For own supply of control system..	NA	3x400V - 50 Hz	Rated Power 0,10 kW



Denne tegning er kun vejledende og kan derfor ikke betragtes som produktionstegning.

Tegningen er GRÅKJÆRS ejendom og må ikke kopieres, gengives eller overtrages uden vores skriftlige samtykke.

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