PURCHASE TECHNICAL SPECIFICATION

Equipment Required for Shrimp Farming

Under the Fisheries Development Action Programme 2021–2027, measure "Investments in Aquaculture"

Purchaser: SIA "Caridea"
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Registered address: Ūnijas iela 24-84, Riga, LV-1084, Latvia
Delivery and installation address: "Zivtiņas", Dobele Parish, Dobele Municipality, LV-3701, Latvia
Offer validity: until 30 April 2027
The procurement consists of two lots. Bids may be submitted for either one lot or both lots, provided the total cost of each lot is stated separately (do not add the lots together).
Technical requirements for equipment and machinery:

LOT I

Item	Technical specifications	Proposed model name	Quantity, pcs	Unit price, EUR	TOTAL, EUR
1. Integrated Feeding System					
Automatic juvenile micro-feeder (50 µm disc)	Precision rotary-disc automatic micro-feeder for shrimp post-larvae and juveniles (particle size 50–500 µm). Equipped with a 50-micron dosing disc for uniform feeding. Corrosion- and moisture-resistant polymer/stainless-steel housing for operation in saline conditions (28–30 °C, humidity up to 95%). Low-voltage DC motor (12–24 V DC). Includes tank-edge or rail mounting.		16		
Automatic adult shrimp pellet feeder (5 g discs)	Precision rotary-disc feeder for sinking and slow-sinking pellet feed (0.8–3.5 mm). Equipped with rotating discs dispensing 5 g doses. Designed for direct connection to a 30 L feed hopper. Moisture- and salt-mist-resistant housing. Low-voltage motor (12–24 V DC).		28		
Feed container / hopper (30 L)	Feed storage hopper with nominal capacity of 30 L, mechanically compatible with feeders in item 2. Made of food-grade, UV-stabilised HDPE with a tight-fitting lid to protect against moisture.		28		
Programmable feeding system controller	Programmable aquaculture feeding controller. Capable of independently controlling at least 8 programming channels and operating up to 14–16 feeders simultaneously. Supports multiple feeding cycles per day with adjustable duration and intervals. Backlit LCD display, manual control, non-volatile memory, moisture-		4		

	resistant IP65 enclosure. Power supply: 230 V, 50 Hz.				
				TOTAL	
				Total including delivery	
2. Integrated Water Treatment System					
Side-channel blower with variable frequency drive (VFD)	Industrial oil-free side-channel blower. Minimum output 60 m³/h at 190–200 mbar differential pressure. Equipped with an integrated variable frequency drive (VFD) for smooth airflow adjustment and soft start. Continuous S1 duty, corrosion-resistant aluminium/coated housing, silencer, air filter, safety valve and check valve. 230/400 V, 50 Hz.		4		
Multi-parameter water quality monitoring and control system	Continuous online water-quality monitoring and automation system. Measures, displays and records dissolved oxygen (DO: 0–20 mg/L), pH (0–14), ORP/Redox (−1000 to +1000 mV) and temperature (0–50 °C). Industrial probes resistant to saltwater (10–25 ppt salinity at 28–30 °C). Programmable alarms with remote notifications. Independent ORP cross-check against the controller in item 26, with immediate shutdown in case of sensor mismatch or high ORP. IP65 enclosure; 230 V, 50 Hz.		4		
Ozone generator	Industrial corona-discharge ozone generator with minimum ozone output of 10 g/h. Integrates with 14 existing vertical ozone-water contact columns. Automatic control via a separate ORP controller and double verification from item 6 to prevent bromate formation in saltwater. Compatible with dry air or oxygen. IP65 enclosure, 230 V, 50 Hz.		4		
Reverse osmosis (RO) water treatment system	Industrial RO system for central treatment of groundwater before synthetic sea salt is added. Permeate output at least 1,000 L/h; salt removal ≥95%. Includes multi-stage pre-filtration (sediment ≤5 µm and activated carbon), stainless-steel high-pressure pump, low-energy RO membranes, conductivity meter, flow meters and automatic microprocessor control panel. Stainless-steel frame; 230/400 V, 50 Hz.		1		
				TOTAL	
				Total including delivery	
3. Packaging and Freezing Equipment					

Countertop packaging scales	Electronic countertop portion scales made of stainless steel (AISI 304/316). Protection rating at least IP65/IP67 for washdown and wet/salty environments. Weighing range 6–15 kg, accuracy 1–2 g. Tare function, backlit display, 230 V, 50 Hz power supply and battery.		1		
Floor scales for shrimp harvest	Heavy-duty stainless-steel (AISI 304/316) floor/platform scales for weighing larger shrimp quantities. Minimum capacity 50 kg (range 50–60 kg, accuracy 10–20 g). Washable non-slip platform with IP65/IP67 load cell and remote digital indicator. 230 V, 50 Hz.		1		
Chamber vacuum packaging machine	Industrial chamber-type vacuum packaging machine made of hygienic stainless steel (AISI 304). Vacuum chamber and sealing bar suitable for bags of at least 25 × 35 cm (bar length 300–350 mm). Capable of hermetically sealing thick barrier plastic bags (>125 microns, PA/PE). Programmable control panel. 230 V, 50 Hz.		1		
Modular walk-in freezer room	Industrial modular freezer room with approximate external dimensions of 2 × 3 m (~6 m²), maximum external height ≤2.40 m (internal height 2.10–2.20 m to fit beneath the processing-room ceiling at 2.60 m). Constructed from polyurethane (PUR/PIR) sandwich panels (minimum thickness 100–120 mm), with washable finish and insulated non-slip floor. Operating temperature −18 °C to −22 °C. Includes wall-mounted or split refrigeration unit (no ceiling monoblock; refrigerant compliant with EU F-gas regulations), automatic defrost, LED lighting and lockable door with emergency opening from inside. 230/400 V, 50 Hz.		1		
				TOTAL	
				Total including delivery	
4. Laboratory Equipment					
Laboratory analytical balance	High-precision electronic analytical balance for weighing shrimp juveniles/larvae and dispensing reagents. Readability 0.001 g (1 mg) or 0.0001 g (0.1 mg); capacity at least 200–300 g. Three-sided glass draft shield, stainless-steel weighing pan, calibration function. 230 V, 50 Hz.		1		
Biological light microscope	Laboratory binocular or trinocular biological microscope for shrimp health diagnostics (gills, hepatopancreas, tissues) and water microbiology. Magnification at least 400× (4×, 10×, 40× and 100× oil-immersion objectives, 10× eyepieces; total magnification 40×–1000×). Adjustable LED illumination, Abbe		1		

	condenser (NA 1.25), mechanical X-Y stage. 230 V, 50 Hz.				
Stereo microscope	Binocular stereo microscope for morphological examination and quality control of shrimp juveniles and post-larvae. Magnification 10×–40× (or zoom 7×–45×) with 10× eyepieces. Dual LED illumination (incident and transmitted) with independent brightness control. Working distance min. 80–100 mm. 230 V, 50 Hz.		1		
				TOTAL	
				Total including delivery	
5. Seawater RAS, processing and laboratory equipment					
Seawater protein skimmers with pumps	Counter-current/Venturi foam separators made of ozone- and saltwater-resistant HDPE/PVC-U, with automatic rinse ring. Sized to treat 15–25% side-stream flow (15–25 m³/h for blocks A/B/D; 8–12 m³/h for block C). Includes 4 seawater PP/EPDM centrifugal pumps with silicon carbide (SiC) seals.		4 set		
Seawater UV sterilizers	Closed-body UV-C disinfection reactors with corrosion-resistant HDPE/PE housing, quartz sleeves and high-output lamps, delivering a UV dose of ≥40 mJ/cm² at operating flow. Electronic ballast with operating-hour counter and fault alarm (IP65, 230 V, 50 Hz).		4		
RO buffer tank and saltwater mixing station	Central water-preparation unit in the main water room: 1× 10–15 m³ HDPE RO permeate tank with float switch; 1× 10–15 m³ conical HDPE sea-salt mixing tank; 1× high-flow mixing pump (or stainless-steel 316 mixer); 2× saltwater supply pumps (duty and standby, PP/SiC); online salinity meter.		1 set		
Thick-wall AISI 316/316L stainless-steel saltwater heat exchangers	Submersible or flow-through plate/tubular saltwater heat exchangers made of premium marine-grade AISI 316/316L stainless steel with increased wall thickness (or titanium equivalent; no standard AISI 304 or copper alloys), one in each block's sump. Designed to heat 10–25 ppt saltwater to 28–30 °C from the existing heating system (biogas hot-water circuit). Includes motorised three-way valve, pump and thermostat.		4		
Variable-speed saltwater recirculation pumps with frequency converter	High-efficiency electronic variable-speed saltwater pumps. Water-cooled permanent-magnet motor (~2.2 kW / 3.0 HP, 230 V, 50 Hz) with integrated frequency converter, LCD display, very low noise level (~45 dB(A)), engineering-polymer hydraulics and SiC seal. Maximum flow ≥40 m³/h, pressure ≥20–26 m.		9		

Drum filter saltwater refurbishment and screen set	Saltwater refurbishment package for 4 existing mechanical drum filters: AISI 316 stainless-steel and polymer fasteners, seals, bearings, nozzles, 4× high-pressure wash pumps, and 1 complete spare screen set (60–100 µm / 80–200 µm AISI 316 or nylon panels).		4 set		
Fine-bubble aeration diffusers and backup oxygen system	Approximately 90–100 loaded EPDM/silicone fine-bubble tubular or ceramic diffusers (2 per tank for 44 tanks + 4 biofilter aeration grids); plus 4 oxygen supply control kits (rotameters + solenoid valves connected to DO controllers) and 1 emergency oxygen cylinder/LOX distribution manifold for critical situations		1 set		
Insulated shrimp-harvest containers and accessories	Harvest cooling and transport equipment: 6× insulated food-grade HDPE containers (200–300 L, with lids and drainage) for rapid cooling in ice slurry (−2 to 0 °C), 10× plastic pallets/crates and 2× AISI 304/316 stainless-steel shelving units.		1 set		
Portable water-testing and laboratory instruments	2× waterproof (IP66/IP67) portable DO/salinity/conductivity/pH/temperature meters (for backup and field use); 1× aquaculture photometer with reagent kits (TAN/NH4+, NO2−, NO3−, alkalinity, Ca2+, Mg2+); 2× optical/digital salinity refractometers (0–100 ppt); laboratory glassware and measuring vessels.		1 set		
Biosecurity, acclimation and high-pressure cleaning kit	1× industrial high-pressure washer (saltwater/detergent resistant, 50–100 m hose); 4× colour-coded biosecurity tool sets for each block (dip nets, screens, buckets, foot-disinfection baths); special post-larvae (PL) receiving and acclimation kit (titanium heaters, drip collectors).		1 set		
Separate ORP ozone-control controllers and saltwater probes	Industrial online ORP control controller with dual-junction platinum/gold probe for saltwater and ozone. Independently controls each block's ozone generator, using a dual-sensor architecture with the main monitoring system continuously cross-checking readings and triggering an alarm in case of sensor discrepancy.		4 set		
				TOTAL	
				Total including delivery	
6. Water, air and ozone piping, valves, fittings and supports					
Pressurised water piping (PVC-U PN10/PN16 and PE100)	Saltwater-resistant pressure piping for 4 blocks: ~220 m DN90/DN110 main return headers; ~320 m DN50/DN63 tank inlet branches, skimmer, UV and heat-exchanger bypasses; ~180 m DN32/DN40 lines for clean RO and prepared saltwater.		720 m		

Gravity drainage and sludge piping	For hybrid drainage (retaining existing main lines): ~120 m DN110/DN160/DN200 PVC-U SN8 / PE100 pipes to connect isolated tanks for drainage rerouting; ~110 m DN63/DN110 drum-filter wash and sludge lines to the tank and biogas plant.		230 m		
Air distribution mains and ozone piping	Heat-resistant AISI 316 air drops from blowers (~20 m); ~260 m DN50/DN63 PVC-U/PE100 air rings; ~350 m DN20/DN25 pipes and hoses to 44 tanks and 4 biofilters; ~80 m PTFE/PVDF ozone tubing (6–12 mm) and ~40 m DN50 ozone ventilation to 14 existing ozone contact columns (H = 3.3 m, D = 0.5 m).		750 m		
Saltwater and air valves	Fully corrosion-resistant valves (PVC-U/PP bodies, EPDM/PTFE seals, AISI 316 stems—no brass or carbon steel): ~110× DN32–DN63 ball valves; ~55× DN110–DN200 butterfly valves/gate valves; ~24× DN50–DN110 check valves; ~96× DN20–DN32 air-control valves; ~12× motorised/solenoid valves (24 V/230 V).		297 pieces		
Pipe connections, flanges and corrosion-resistant supports	PVC-U fittings, elbows, tees, reducers, tank adapters, flanges, seals, AISI 316 bolts and adhesives; plus ~280 sets of fiberglass (FRP), PP and AISI 316 ceiling and wall supports throughout the 72.8 m hall.		1 set		
				TOTAL	
				Total including delivery	
7. Power supply, cables, automation and alarm systems					
IP65 electrical distribution and VFD control cabinets	4× moisture-resistant IP65 distribution and control cabinets for blocks A–D + 1× central RO/processing distribution cabinet. Equipped with circuit breakers, 30 mA residual-current protection, motor protection breakers, contactors, phase-monitoring relays, surge protection and emergency-stop buttons.		5 panels		
Power cables for all equipment	Moisture- and chemical-resistant power cables (NYY-J / H07RN-F, 3G2.5 to 5G6 mm²), connecting blowers, ozone generators, 9 variable-speed pumps, skimmers, UV sterilizers, drum-filter pumps, RO system, freezer and sockets.		400 m		
Low-voltage, sensor and control-signal cables	Low-voltage and shielded instrumentation cables (2×1.5 mm² and LiYCY 4×0.75 mm²), connecting 44 feeders to 4 controllers, water-monitoring probes, ORP ozone safety lines and Ethernet/Modbus network.		200 m		
Corrosion-resistant cable trays, IP65	Corrosion-resistant PVC and fiberglass (FRP) overhead cable trays above 44 tanks, ~90× IP65/IP67 branch junction boxes with		280 m +90 junction boxes		

protective conduits and junction boxes	waterproof cable glands, plus equipotential bonding and grounding system.				
Central alarm system, GSM telemetry and control UPS	Uninterruptible power supply (UPS, 2–3 kVA) for water-quality and power controllers and oxygen solenoids; connected to a dual-SIM GSM/SMS communicator for immediate alarm text messages about low DO, ORP discrepancies, power loss or temperature deviations.		1 set		
				TOTAL	
				Total including delivery	
8. Tank adaptation materials					
Corrosion-resistant feeder mounting stands	Custom HDPE / FRP / AISI 316 stands and platforms for all 44 automatic feeders (16 juvenile + 28 adult shrimp feeders), replacing wooden boxes.		44 set		
Tank inlet and outlet hydraulic modifications	Modification of all 44 tanks for shrimp hydraulics: tangential PVC-U inlet nozzles for circular flow, adjustable internal/external standpipes for level control and replaceable AISI 316/PVC screens for shrimp protection (16× juvenile tanks, 300–500 µm/1 mm; 28× adult tanks, 1.5–2.5 mm).		44 set		
Anti-jump protective nets	UV-stabilised fine protective nets with stainless fasteners around the rims of all 44 tanks to prevent shrimp from jumping out.		44 set		
Sludge collection tank and pump station to biogas plant	5–10 m³ corrosion-resistant HDPE/coated concrete buffer tank for drum-filter washwater and skimmer sludge; 2× submersible sludge pumps (duty and standby, 15–25 m³/h) with float switches and frost-resistant pipeline to the neighbouring biogas plant.		1 set		
				TOTAL	
				Total including delivery	
				Equipment and machinery installation costs	
				TOTAL OFFER PRICE (excluding VAT)	

LOT II

Item	Technical specifications	Proposed model name	Quantity, pcs	Unit price, EUR	TOTAL, EUR
Electric water-heating boiler	Nominālā jauda: vismaz 950 kW Elektrobarošana: 3 × 400 V, 50 Hz Jaudas regulēšana: vismaz 30 pakāpes		1		

	Maksimālais darba spiediens: vismaz 6 bar; pārbaudes spiediens 9 bar Pieslēgumi: Padeve un atgaita DN125 / PN16 Temperatūras regulēšanas diapazons: 5 līdz 100 °C Lietderības koeficients: līdz 99 % Vadība un uzraudzība: attālināta ieslēgšana un izslēgšana; Jaudas vai temperatūras uzdevums ar 0-10 Vsignālu; āra temperatūras kompensācija. Uzraudzībai paredzēti darbības un kļūmes signāli, kā arī 0-10 V jaudas, temperatūras un iestatītās temperatūras indikācija.				
Insulated thermal storage tank	Tilpums: vismaz 600 m³ Diametrs x augstums: vismaz Ø 14 m x 3,5 m Materiāls: Cinkots tērauds ≥1,0 mm/vai ekvivalents Paneļa garums: vismaz 3 m Siltumizolācija: sienas, pamatne un peldošais virsējais pārsegs (trīsslāņu sistēma) Apdare: Pilnībā pārklāts korpuss papildu korozijas aizsardzībai Pārsegums: pašnesošs, pilnībā slēgts kupola tipa pārsegs, kas nerada papildu slodzi uz tvertnes sienām. Grīdas izvadi un enkurojuma komplekts: Nodrošināt tvertnes pieslēgumu ūdens sistēmai un stabilu nostiprinājumu pie pamatnes, vismaz 14-16 gab. enkuru komplekts		1		
Ceiling fan Doll DV 5000 (or equivalent)	**Tehniskā specifikācija:** Ventilatora diametrs: 600 mm Gaisa plūsma: līdz 5 000 m³/h Motora tips: EC motors Barošanas spriegums: 230 V Maksimālā jauda: 163 W Maksimālais apgriezienu skaits: 980 apgr./min. Vadība: 0–10 V DC / PWM Aizsardzības klase: IP54 Darba temperatūra: no −25 °C līdz +60 °C Svars: ~11 kg Gaisa plūsmas novirzīšanas sistēma ar regulējamām lāpstiņām.		11		
				TOTAL	
				Total including delivery	
				Equipment and machinery installation costs	
				TOTAL OFFER PRICE (excluding VAT)	

Equipment and material requirements:

- All supplied equipment (including auxiliary materials) must be new and unused, certified in accordance with EU standards (CE marking), and suitable for food-hygiene and saltwater environments;
- At the time of delivery, certificates of conformity, as-built documentation and operating instructions (in Latvian and/or English) must be provided;
- If any equipment item differs slightly from the requirements of the technical specification, please clearly highlight and indicate this;
- Minimum warranty period: 24 months.

Information to be included in the offer:

- Supplier/company details and contact person.
- Detailed technical specification including the offered equipment models, manufacturers and breakdown of work costs.
- Delivery and installation timelines and warranty terms.