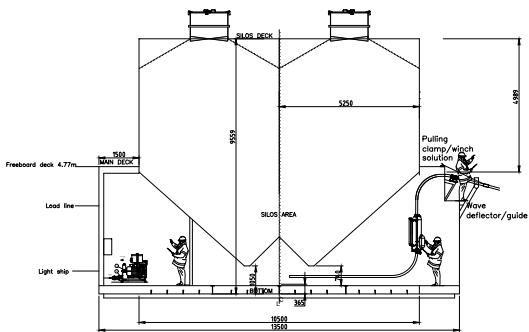
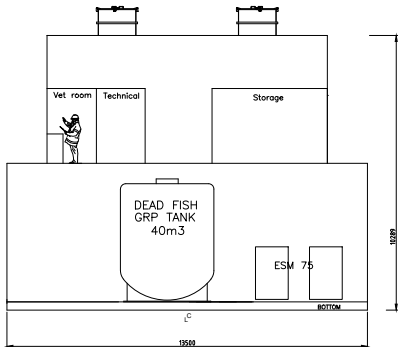


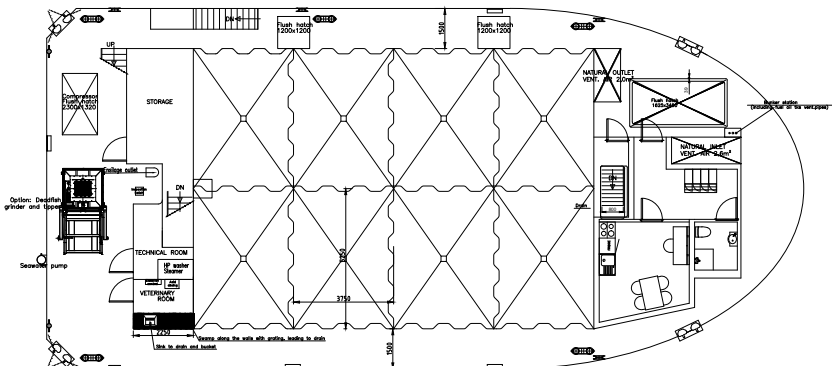
Silo deck



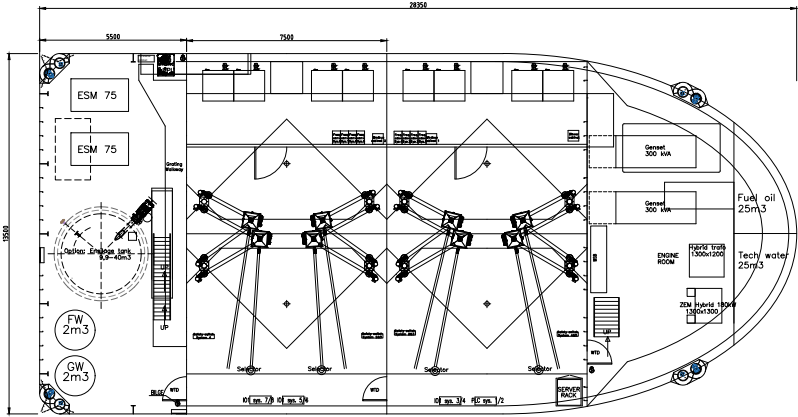
TRANSVERSAL SECTION (looking fwd)



TRANSVERSAL SECTION (looking aft)




Main deck



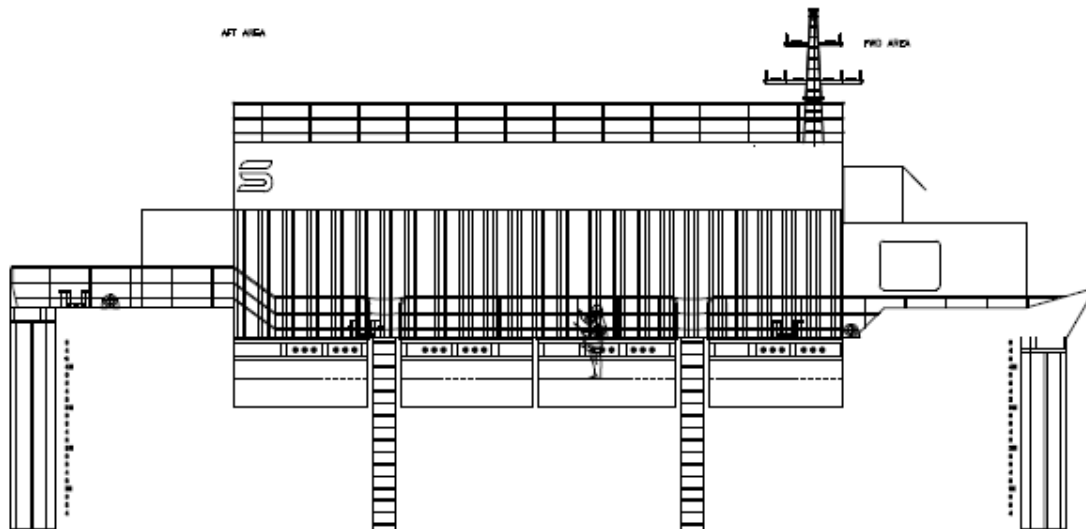
Bottom

| MAIN DIMENSION                              |                        |             |
|---|------------------------|-------------|
| LENGTH                                      | 28.35                  | METER       |
| BREADTH                                     | 11.5                   | METER       |
| DEPTH                                       | 4.77                   | METER       |
| DRAUGHT                                     | 3.366                  | METER       |
| SILO CAPACITY                               |                        |             |
| SILO QUANTITY                               | 8                      |             |
| SILO VOLUME                                 | Norm: from 112 M3/Silo |             |
|   | Max: 125 M3/Silo       |             |
| TANK CAPACITY                               |                        |             |
| FRESH WATER TANK                            | 25                     | M3          |
| FUEL TANK                                   | N/A                    |             |
| BALLAST TANK                                | 25                     | M3          |
| SEA WATER TANK                              | 9.3-40                 | M3 (Option) |
| GREASE WATER TANK                           | 2                      | M3          |
| EQUIPMENT                                   |                        |             |
| GENERATOR                                   | 2 x 300 kVA            |             |
| HYDRO                                       | 180 kVA                | (Option)    |
| BLOWERS                                     | 8 x 22 kW              |             |
| NOTES                                       |                        |             |
| GRP DEAD FISH TANKS ARE NOT HULL STRUCTURE. |                        |             |
| HINGED MT DOORS UNDER MAIN DECK.            |                        |             |

|   |          |   |              |      |                      |                   |   |
|---|----------|---|--------------|------|----------------------|-------------------|---|
| Revision  |          | Comments  |              |      |                      | Designer Approved |   |
| This document is the property of Scale Aquaculture AS. This document and any authorized reproduction thereof, must not be used in any way against the interest of Scale Aquaculture AS. Any authorized reproduction, in whole or in part, must include this legend. |          |   |              |      |                      |                   |   |
| Designer:   | TGU      | Approved by:  | 1/1          | Rev: | Scale Aquaculture AS |                   |   |
| Created date:   | 24.01.24 | Approved date:  | Weight (kg): | Size | Scale:               | 1:100             | 5063 Farnesfjorden Norway   |
| Not specified tolerances:<br>ISO 9001:2015 3.10<br>Remove all burrs and sharp edges<br>Surface finish Ra 3.2  |          | Description: General arrangement Standard Exposed 600 - Hs 5,99 Baskafrost 20.08.24 |              |      |                      |                   |  |
|   |          | Description: Standard Exposed 600 - Hs 5.99   |              |      |                      |                   | [Drawing number:  |

# Technical Specification

## Exposed 600 Bow HS 5,99



| Rev: | Rev. date: | By (initials): | Edits:                    |
|------|------------|----------------|---------------------------|
| 0    | 18.06.2024 | SOA            | Quote Bakkafrøst Scotland |
|      |            |                |                           |
|      |            |                |                           |
|      |            |                |                           |

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## 001 INTRODUCTION

### 001.1 Purpose

The purpose of this technical specification is to provide necessary information concerning the equipment and materials included with the barge.

## 002 GENERAL INFORMATION

### 002.1 Principal dimensions

|                                 |  |
|---------------------------------|--|
| Hull type:                      | Exposed 600 HS 5,99 Bow  |
| Hull material:                  | Steel of NVA quality   |
| Hull length:                    | 28,35 metres   |
| Hull width:                     | 13.5 metres  |
| Hull height:                    | 4,8 metres   |
| Draft:                          | 2,9 meters   |
| Freeboard requirement:          | 1,38 metres  |
| Max. HS:                        | 5.99 metres  |
| Max. VC:                        | 1,5 m/s  |
| Feed load capacity:             | 1000 m3 gross volume   |
| No of silos:                    | 8 pcs  |
| Theoretical load capacity feed: | Teoretical:125m3, 83t pr silo<br>Based on natural filling (91% filling) 75T pr silo and total<br>600ton. |
| Total payload:                  | 740T   |
| Payload on main deck:           | 0.5 t/m <sup>2</sup>   |
| Payload platform                | 0.5 t/m <sup>2</sup>   |
| Maximum crane torque:           | 23tm   |

The barge design is a ScaleAQ Exposed 600T HS5,99 Bow with 8 silos.

The barge will be built in accordance with the NYTEK regulations and certified according to NS9415:2021. Calculated lifetime for the barge is 20 years, subject to correct maintenance and no damage.

## **002.2 Room list**

### **Deck 0:**

- 1 pcs generator room
- 1 pcs Hybrid room(option)
- 2 pcs blower room, isolated
- 1 pcs ensilage tank room
- 2 pcs silo sections

### **Deck 1:**

- 1 pcs storage
- 1 pcs technical room
- 1 pcs veterinary room
- 1 pcs living room with kitchen and control desk
- 1 pcs wardrobe
- 1 pcs toilet

## **003 DOCUMENTATION**

### **003.1 Drawings**

Drawings for the Scale Exposed 600 HS 5,99 Bow will be revised in accordance with this specification.

### **003.2 Certification**

The barge will be certified by DNV GL. The barge will be constructed and certified in according to the requirements and recommendations given in NS9415:2021.

The barge is designed for waves up to a maximum of HS 5,99 in according to requirement in NS9415:2021.

Calculation and stability reports for the tendered barge will be prepared and submitted.

The customer is responsible for mooring plan and mooring.

### **003.3 Commissioning and testing**

The barge will be tested by personnel from ScaleAQ and the company's subcontractors. Test reports will be sent to the customer prior to handover.

### **003.4 User manual**

ScaleAQ will provide a complete user manual for the barge and the feeding system.

## **100 CONSTRUCTION**

### **100.1 General requirements**

Steel hull, silos, workshop and control room will be constructed using steel quality suitable for ships, NVA or corresponding. Welding work will be carried out by NDT-certified welders, in accordance with NS-EN 473 / NS-EN ISO 9712:2012.

### **100.2 Deck hatches**

Generator room: 1625x3450mm flush hatch.

Blower room: 2 pcs 1200x1200mm flush hatch.

Ensilage storage tank: 1000x1000mm flush hatch

### **100.3 Silo hatches**

1400x1400mm Manual silo hatches with knife and grating.

### **100.4 Windows and doors**

Deck 0: 4 pcs watertight doors

Deck 1: 4 pcs weatherproof doors

### **100.5 Railings**

Railings around main deck (1) and silo deck (2) and roof made from galvanised steel. Height 1000mm

### **100.6 Stairs and ladders**

External stairs from deck 1 up to the silo deck 2 constructed from galvanised steel stairs.

Interior stairs constructed as galvanised steel stairs. Included stairs from deck 1 to deck 0 in accommodation module and from deck 1 down to generator room on deck 0.

One (1) safety ladders on quay side Two (2) safety ladders on feeding side, painted in high-viz colour.

One (1) safety ladder on aft short side, painted in high-viz colour.

There are included 1 boat stair on the barge. Mooring point for boat on hull side on both side of boat stairs.

### **100.7 Mooring**

On the barge are installed 6 pcs bollards. 2 pcs rated 10T placed aft on the barge, 2 pcs rated 10T placed each long side of the barge.

Each corner of the barge is prepared for mooring rated for minimum 100T, 2 x 50T per corner.

Attachment for mooring corners is rated for up to 50mm chain. Each corner also has a Panama choke at the bottom.

Forward on the barge are included 2 pcs towing eyes rated for maximum load of 40T.

### **100.8 Waterproof bulkheads**

Deck 0 is divided into a total of 4 pcs. Waterproof bulkheads. 1 pcs. forward and 1 pcs. Aft and 2 pcs. silo sections in the centre.

Conduits for pipes and cables through waterproof bulkheads will be sealed with Roxtec or corresponding products approved for this purpose.

### **100.9 Tankage**

Included are 1 x 25m<sup>3</sup> diesel tanks. If more than 1 tank is installed, a balance pipe between the tanks is fitted.

Included is a 1 x 25m<sup>3</sup> tank for general fresh water to supply sink, kitchen, WC, veterinary room and high-pressure washer.

**Option: 1 x 38m<sup>3</sup> grinding tank for ensilage**

Included is 1 x 0,3m<sup>3</sup> tank for lubrication oil and 1 x 0,3m<sup>3</sup> tank for waste oil.

1 x 2m<sup>3</sup> septic/grey water tank is included.

### **100.10 Ventilation**

The necessary air shafts for the generator and blower rooms are included, to provide the air supply for included machinery.

Ventilation is also included from all rooms on deck 0 to prevent condensation issues.

Ventilation in bathrooms and kitchen is included, in addition to natural ventilation deck 1 and deck 2.

### **100.11 Fenders**

Fenders with truck tyres on the long side and aft. Fenders mounted with steel brackets.

### **100.12 Floor on deck 0**

Walkways in gratings.

### **100.13 Platforms**

Not included

### **100.14 Seawater inlet**

Not included



## 200 PAINT AND CORROSION PROTECTION

### 200.1 General requirements

The barge will be painted according to ScaleAQ Jotun anti-corrosion paint specification.

### 200.2 Metallization/anti-corrosion

Sand blasting according to SA2.5 Metallising to be done on exterior from approx. 1 meter above bottom and up. 75µm thickness

### 200.3 Painting

|  |   |
|--|---|
| Bottom of barge and up to approx. 1.2 metres | Jotacote Universal aluminium            |
| Antifouling paint                            | TBA                                     |
| Hull side, grey                              | Jotacote Universal, Hardtop XP RAL 7000 |
| Safety ladders, orange                       | Jotacote Universal, Hardtop XP RAL 2000 |
| Main deck, grey                              | Jotacote Universal, Hardtop XP RAL 7000 |
| Silo section and wheelhouse, white           | Jotacote Universal, Hardtop XP RAL 9016 |
| Highlight colours                            | Jotacote Universal, Hardtop XP RAL 9017 |
| Silo deck, grey                              | Jotacote Universal, Hardtop XP RAL 7000 |
| Interior, white                              | Jotamastic 87 RAL 9016                  |

### 200.4 Paint tanks

|                       |                                 |
|-----------------------|---------------------------------|
| Inside silo           | TBA                             |
| Ensilage tanks        | N/A, tanks constructed from GRP |
| Diesel tanks          | Penguard primer, red            |
| Technical water tanks | Penguard primer, red            |
| Void tanks            | Penguard primer, red            |

An extra tin of each paint type and colour will be supplied.

### 200.5 Barge name

Name front and back of wheelhouse, letter height 8" painted white. Construction no. of barge to be welded on wall in aft stairwell. Included ScaleAQ logo and customer logo.

### 200.6 Anodes

Anodes installed with bolts to hull (welded brackets). Drawings and documentation of anodes will be included in the documentation pack.

## **300 PIPING**

### **300.1 Fresh water**

Hot and cold water are supplied to the following points:

- Wardrobe
- Kitchen
- Toilet
- Veterinary room
- Outlet for steamer in veterinary room (cold water only)
- 

Included is 1 pcs pressure pump to maintain an adequate pressure at the outlet. The pump will supply minimum 70l/min at 4 bar at the pump outlet.

Included is 1 pcs 100l water heater to the accommodation section.

The water tank is filled from deck 1.

### **300.2 Technical water**

### **300.3 Sewage system**

Wastewater from hand sinks is connected to the sewage tank. Emptying to deck or sea.

Water closet.

The wastewater from the sink in the veterinary room includes a 3-way valve with discharge into a bucket or the sea.

### **300.4 Diesel system**

From the day diesel tank there is a return loop with a supply to the generators. A manual shut-off valve is included on deck 1, close to the diesel filling point. On the supply line, 1 pcs double Separ/Raco filter per diesel generator is included.

From the diesel tank is included 1 pcs diesel pump, to pump diesel to the diesel filling point on deck 1. The diesel filling point includes a filling pistol with a counter. Minimum 70l/min.

Diesel required to test the system is included.

The diesel tanks are refilled from the diesel filling point on deck 1.

### **300.5 Seawater system**

A seawater pump installed in external pipe on the barge side. Included are 1 x 20m hoses for flushing. The pump is fitted with a claw coupling for simple connection of the flushing hose. Minimum 80l/min. PULSAR 40/80 MNA with safety valve.

### **300.6 Ensilage system**

Option: A ScaleAQ pre grinder with a capacity of 20t/h is installed on the top of the grinding tank.

A tray tipper is installed on deck.

For fine grinding and circulation in the grinding tank a dry grinder pump of type «Ydra grinder pump SMP 525K-DN150 is included. 22kW-3x230/400V»

Pipework is included from the grinder tank for circulation in the tank and transfer to the storage tank. Pipework is included for circulation in the tank and transfer to deck. Valves are supplied as ball valves. The connection to the deck is supplied as a camlock fitting.

All valves are supplied as manually operated.

As a security solution, interlocks are installed to prevent overfilling of tanks. If the tank level exceeds 95% the pumps will stop automatically. To pump beyond this level, the pumps must be overridden.

### **300.7 Acid dosage**

Option: An acid safety container for a 1000l acid tank is included. The acid tank must be hoisted into the safety container with a crane. From the secure tank, hoses are included that are connected to a pump and then directly into the grinding tank.

Scale acid dosing system with a capacity of 17l/min or similar.

### **300.8 Lubrication and waste oil system**

Filling pipes (camlock) are included for the lubricating oil system from the deck 1 deck and down into the tank. A pump and filling hose with counter leading from the tank are included.

Hoses from jack pumps on the generators to the tank are included for the waste oil system. A pump is included for draining at the camlock on deck 1.

### **300.9 Trim system**

N/A

### **300.10 Exhaust**

For the included generators, an exhaust pipe in 316 quality is included. The exhaust pipe is ducted through the machine room, through an air duct and out over the roof of the ventilation shaft. The dimensions of the exhaust pipe are in accordance with the technical specifications from the generator supplier. A solution will be installed for drainage of exhaust pipes in the machine room. Exhaust pipes are supplied insulated down to the machine room.

### **300.11 Heat pump**

Option TBA:

Indoor and outdoor heat pump unit is included. The heat function of the heat pump shall function down to and including -15°C and the heat pump's cooling function shall function up to and including 35°C. The interior components will be in the control room and living room.

## **400 ELECTRICAL INSTALLATIONS**

### **400.1 General**

The electrical system for the barge will be a 400 V/230 V, 50 Hz TN-S system.

The electrical system will be designed, constructed, and verified in accordance with the Norwegian Regulation on electrical low-voltage installations (FEL) and NEK400:2018. Adjusted to UK standard for sockets.

All solutions supplied will be user and service friendly.

All cables and equipment will be labelled according to the same labelling standard and in accordance with the drafted documentation.

Only cables with Cu conductors will be used and wire Terminals will be fitted to all conductors consisting of multiple strands connected to screw connections.

A declaration of compliance will be provided, and final checks performed for systems installed.

### **400.2 Generators**

The barge will be supplied by the following generators:

2 x 300 kVA Himoinsae/Iveco synchronised via a Deep-Sea Electronics panel. Supplied with acoustic enclosure.

The generators will be supplied with start battery and timer.

### **400.3 Shore power**

Option TBA: 350 Kva 1000-400V trafo installed with shore power connection cabinet.

### **400.4 Hybrid**

Option: 180 KWh Scale hybrid system connected to MSB

## **400.5 Electrical distribution**

The electrical system comprises a main panel located aft deck 0 and a sub-distribution system for the accommodation section, located forward deck 1.

A one-line diagram will be prepared for all distributions and the distributions will be supplied with a declaration of compliance, final check, and ring circuit list for Switch board.

### **Main panel:**

The main panel will be built according to NEK439 parts 1 and 2. The panel will be supplied in the form of a steel plate cabinet fitted to the wall with access to all parts of the cabinet from the front. The main panel has an enclosure rating of IP54 when the doors are closed and IP2X when the doors are open. The panel will be supplied with rust protection and coated.

The main panel is divided into the following sections:

- Intake field
- Fuse box for circuit breakers and machinery circuits (for authorized personnel only)
- Cable field
- General consumption fuse box for unauthorized personnel

All circuit breakers are supplied with electronic protection.

The intake field contains 1 pcs. 630A circuit breaker for connection of shore electricity and 1 pcs 630A switch isolator for connection of generators. These breakers are mechanically interlocked.

The fuse box for circuit breakers and machinery ring circuits contains circuit breakers and automatic fuses for large loads such as the feeding system and various other machinery. This field is only for authorized personnel.

The cable field contains terminal blocks for connecting cables. All cables up to 10 mm<sup>2</sup> (inclusive) are connected to terminal blocks and cables larger than 10 mm<sup>2</sup> are connected directly to circuit breakers/automatic fuses.

The fuse box for unskilled personnel contains ring circuit outlets for ordinary consumers. These include ring circuits for lighting, sockets, etc. 3 pcs. Spare 16 A ring circuits will be available for future use.

### **Distribution panel:**

The distribution panel will be designed according to NEK 439 and fulfil all relevant norms and standards. The panel will be supplied in the form of a steel plate cabinet fitted to the wall with access to all parts of the cabinet from the front. The main panel has an enclosure rating of IP54 when the doors are closed and IP2X when the doors are open. The panel will be supplied with rust protection and lacquered with solid lacquer.

The distribution panel will supply all ordinary consumers in the accommodation section, such as lighting, sockets, and heating, etc. The panel will be designed for operation by unskilled personnel.

### **Ring circuits for ordinary consumption:**

Ring circuits for ordinary consumption are included. The requisite number of outlet sockets will be included to enable the barge to be used for its intended purpose, with a minimum of 1 pcs double outlet socket for rooms intended for permanent occupation.

#### **400.6 Lighting**

A complete lighting system for the entire barge is included, both internal and external. It is possible to turn all lighting on and off. All lighting will be supplied as LEDs and will be of good quality from a recognised supplier.

Below deck, light fittings will be mounted directly on steel or on cable trays. Light fittings will be recessed into the ceiling in rooms with suspended ceilings.

A lighting strength of 100 lux at floor level is used in rooms not intended for permanent occupation. The lighting strength of 200 lux at work level in rooms where it is anticipated that maintenance work may take place, such as rooms containing machinery and pumps, etc. In rooms serving as workplaces, such as the veterinary room, offices, meeting rooms and control rooms, lighting has been arranged so that the lighting strength is 500 lux where the work will be performed.

Pathway lightning is included around the entire exterior of the barge. In addition, 2 pcs. LED floodlights aft and 2 pcs. LED floodlights on the silo deck will be fitted.

##### **Control:**

The installation will allow all interior lighting to be switched on and off at 2 different locations on the barge.

On deck 0 lighting is controlled via traditional on/off switches. Multi-way switches and if appropriate cross-switches will be fitted in rooms with multiple entrances/exits.

Lighting on decks 1 and 2 is controlled via traditional on/off switches. Light switches will be fitted in rooms with several entrances/exits. It is anticipated that it will be possible to dim the lighting in the control room.

The barge will be supplied with a complete decentralised emergency lighting system. Emergency lighting will be supplied with LED light sources with a 1-hour battery capacity.

#### **400.7 Electrical heating**

Heating cables in bathrooms, toilets and wardrobe are included. The underfloor heating will be controlled via a wall-mounted thermostat with floor sensors.

2 pcs 2kW fan heaters in each silo section, 1 pcs 2kw fan in silage room, technical room, veterinary room, and engine room/workshop is included.

Heater panels are included

#### **400.8 Electrical cable tray and earthing/grounding**

Wall- or ceiling-mounted cable tray will form electrical ducting. Electrical installations will be concealed in rooms with lined walls. Ducts will be designed such that they have adequate reserve capacity for future use.

All conduits running through watertight bulkheads will be sealed with Rextec or corresponding seals approved for this purpose.

Adequate earthing/grounding systems are included for the barge. The earthing system corresponds to NEK 400:2018 with the requisite equalising connections. An earthing/grounding electrode connected to the sea is included.

#### **400.9 Tele/data communication**

The requisite number of data network sockets are included with the equipment tendered. 3 pcs antennas for wireless networks will also be installed. 2 pcs. of these will be on deck 0 and 1 pcs. will be on deck 2. The network on board the barge will be a wired distribution network according to Cat6A standard with the cable type F/STP.

42u rack cabinet.

Outlets for the following equipment are included:

- Barge Control
- Feeding system
- Workplace sockets (2 pcs. per workplace)
- Sockets for control room
- 8 pcs. mast outlets (terminate above the ceiling beneath the mast)
- Requisite equipment for camera systems

#### **400.10 Fish lighting**

Included are 2 pcs 63A circuits in main switch board and enclosure 2x63 amp 400V lighting cabinet. With rox and bending limiter at hull.

#### **400.11 Exterior power outlets**

Included are 1 pcs 3f+N 400V 16A outlet sockets aft and 1 pcs 3f+N 230V 32A outlet sockets at diesel filling point.

For 3f 230V 32A outlet socket at diesel filling point is included 1 pcs 25kVA 400V/230V dry-isolated transformer placed below deck.

## **500 AUTOMATION AND COMMUNICATION**

### **500.1 General**

ScaleAQ Barge Control is included for this barge. This includes generator monitoring, tank monitoring and bilge pump control.

The feeding system is described in chapter 900

### **500.2 Barge Control**

Barge Control is a server-based top system for the control and monitoring of various technical systems on board the barge. Access to Barge Control is via PC, tablet, and smartphone, etc.

For Barge Control the following system is included: Generator monitoring, tank monitoring and bilge pump control

#### **Generator monitoring**

This function allows monitoring of various parameters on all the generators. I.e. the following parameters: Voltage, electrical power, output, motor speed, battery voltage, charging voltage, status of generator switch, coolant temperature, oil pressure and operating hours.

#### **Tank monitoring**

Pressure sensors are fitted to all tanks on board the barge to record the height of the column in the tank. Barge Control indicates the tank level as the height of the column in mm and as a percentage. It is possible to generate an alarm if the tank level becomes too high or too low. Level gauges are included for the following tanks: diesel (x2), consumption water, technical water, ensilage grinder tank, ensilage storage tank.

#### **Bilge pump control**

Watertight sensors of the type 'Ultima Switch' from SPX Flow (total of 10 pcs) are included in all watertight bulkheads. A signal is transmitted when one of these water sensors is triggered, which starts the bilge pump in the bulkhead concerned. In Barge Control it is possible to monitor the status of the water sensors and set the bilge pumps to manual mode to prevent the bilging of an undesired medium.

#### **Trim system**

N/A

### **500.3 Silo level measurement**

Not included



## **600 OTHER TECHNICAL EQUIPMENT**

### **600.1 Crane**

1 pcs Palfinger PK 29500M with winch and remote control included.

### **600.2 Hoist load hatch**

N/A

### **600.3 Mast**

A mast in painted steel on the roof of the accommodation section is included. The mast has sufficient capacity for the installation of any antennas and other equipment.

### **600.4 High-pressure washer**

A high-pressure washer (with steamer) of type Kärcher HDS 10/20 is included. The high-pressure washer is installed aft on the barge with the required hoses. The high-pressure washer will be supplied with a trigger gun and outlet leading from the room it is installed in.

### **600.5 Camera system**

The following cameras are included on board the barge: 1 pcs dome camera, surveillance cameras in silo sections, engine room, silage room, blower room, silo deck and selectors.

### **600.6 Compressor**

2 pcs ESM 75 13,7M3/min compressor is included.

### **600.7 Central vacuum cleaner**

Not included

## **700 INTERIORS**

### **700.1 General**

The barge is designed for and has solutions with good adaptation to Nordic climates, both summer and winter conditions. High level of focus on high quality, durable materials.

### **700.2 Insulation**

Control room and toilets rooms will be insulated with 150mm Rockwool, roof insulated with 10mm Armaflex and 200mm Rockwool. Interior floors insulated with 100mm Rockwool.

### **700.3 Surfaces**

System ceiling (T-profile) in accommodation section that offers good access to technical installations above ceiling. Walls in accommodation module clad with FIBO Trespo panels. Panel in bathroom supplied with tile pattern.

Floor in control room, living room, cabins and toilet supplied in vinyl.

White mouldings around doors and windows

### **700.4 Sun screening**

N/A

### **700.5 Furniture**

Furniture is included according to GA.

### **700.6 Kitchen**

Kitchen included according to GA. Final kitchen drawings will be sent to the customer for comment. In a standard kitchen, the following white goods are included:

- Refrigerator with freezer compartment
- Microwave oven
- Dishwasher
- Oven and cooking plates.

### **700.7 Control room**

For the control room, the following furniture is included:

- Office desk
- Office chair
- Table and 4 chairs

### **700.8 Washroom**

- NA

### **700.9 Cabins**

- NA

### **700.10 Bathrooms**

The following equipment is included in bathrooms:

- Water closeth
- Sink

### **700.11 Changing room**

The following equipment is included in changing rooms:

- 4 pcs lockers

## **800 SAFETY FUNCTIONS AND EQUIPMENT**

### **800.1 Safety equipment**

The following equipment will be installed on the barge:

- The barge is designed to float in the event of the failure of 1 watertight section
- 6 pcs portable fire extinguishers
- Fire suppression system in engine room.
- 1 pcs eye wash station
- 4 pcs life buoys 30" with rope and light
- 1 pcs fire alarm central and requisite number of detectors and fire alarms.
- Water sensors and bilge pumps
- 4 pcs safety ladders along the entire barge.
- Noisy equipment warning signs on the doors to the machinery room
- Signs for lifebuoys, fire extinguishing equipment, fire hoses and emergency exits
- A safety plan on all decks
- First aid kit
- Sign with the room number for each room, signage on all tanks and electrical distribution systems, circuit breakers, etc.

## 900 CENTRALISED FEEDING SYSTEM

### 900.1 General

An 8-line feeding system is included with the following components:

- 8 pcs «Robuschi Robox 45 ES» 30kW blowers controlled by frequency converter with safety switch for each blower.
- 8 pcs steel coolers integrated in hull side.
- 8 pcs Blow-through valves of the 'H-GRD 200 Easy' type, with the option of reverse operation and safety switches
- 16 pcs complete feed augers with motors and reduction gears controlled by frequency converters. All augers are supplied with dedicated safety switches.
- 4 pcs 3-hole distribution valves with pipe support.
- 4 pcs direct lines with pipe support.
- **System for easy fasten feedpipe to selectors.**
- Feed pipe and bend in acid-proof material, 76.1 mm for connection to 90 mm feed hose from barge to enclosure.
- 8 pcs. feed pipe cleaning stations.
- 8 pcs pressure sensors
- 8 pcs feed sensors in sluice
- 8 pcs temperature sensors
- 1 pcs electrical cabinet with PLS
- 3 pcs electrical cabinets for I/O
- 1 pcs server
- 1 pcs PC
- THD filter