



# The perfect farming base

AKVA group Feed Barges, N - 15.09.12 - [www.khvic.no](http://www.khvic.no)





Decades of experience and more than 270 barges delivered world wide makes AKVA group stand out as the leading supplier of feed barges.

The latest models provide true scale of economics efficiencies to a wide range of cage farming operations with sizes ranging from 96 to 650 metric tons. They include the latest innovations in efficient feed handling, storage, logistics and personnel comforts to ensure a functional and safe farming base for your crew.

AKVA group can deliver feed barges suitable for a wide range of sites and climates, including inshore, offshore, arctic and tropical areas. All barges are delivered complete, fully self contained with Akvasmart CCS Feed Systems, generator(s), control room, living quarters, safety equipment and all other optional equipment installed, such as integrated mort silage systems, camera- and sensor systems.



**Tailor made quality solutions**  
AKVA group is the world´s leading supplier of feed barges with decades of experience and a wide range of high quality models up to 650 mtons.



**Complete operational control**  
The control room is the heart of the barge. This is where the operator has all information available and control the entire feeding process.














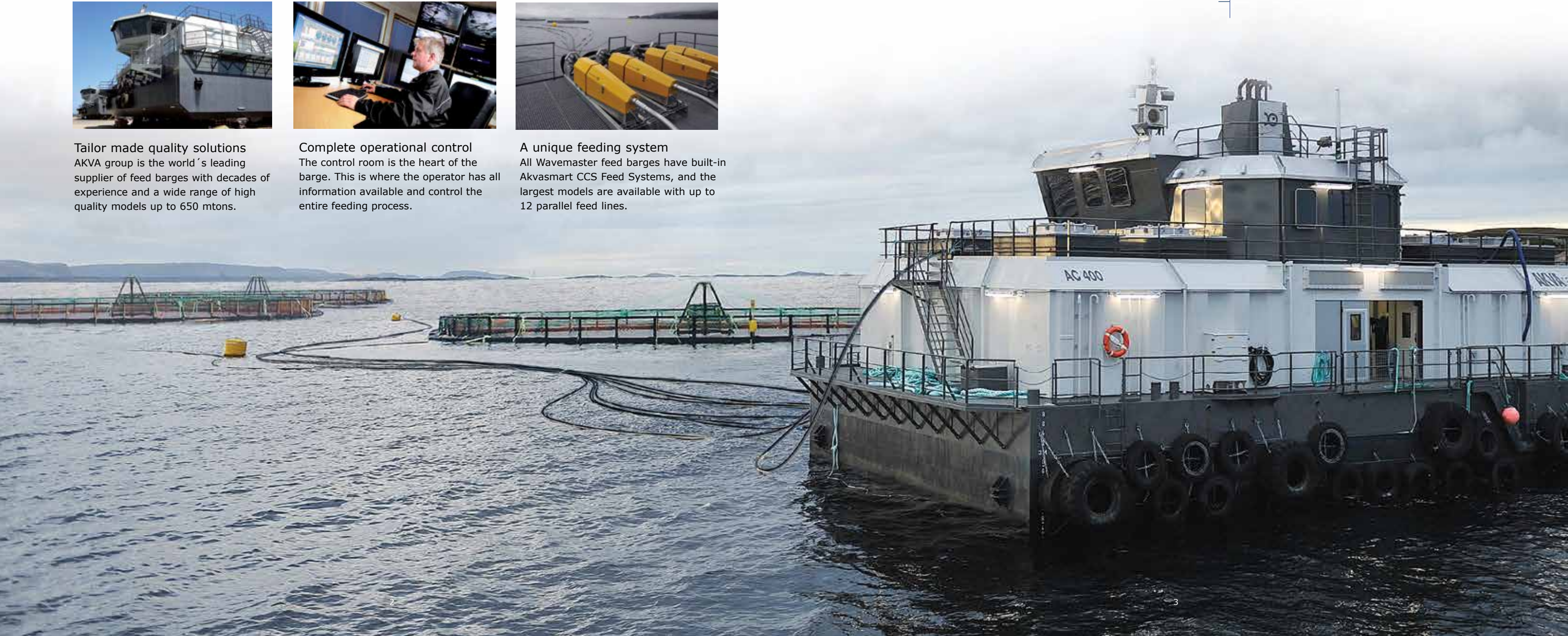
**A unique feeding system**  
All Wavemaster feed barges have built-in Akvasmart CCS Feed Systems, and the largest models are available with up to 12 parallel feed lines.



All barges are constructed according to NS9415:2009 Norwegian standard for floating fish farms. The barges are certified by Noomas.

Barge models:

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## High quality - Economic solutions

The main purpose for a feed barge is to provide the most efficient, optimized and reliable feed system for your farming operations. The second purpose is to provide a safe and seaworthy barge that can withstand the forces of nature at your farmbase site.

Each individual barge model has been optimized to ensure the lowest possible cost compared to size of barge. As a result, the AKVA group Feed Barges are the most cost efficient barges on the market with no material or space wasted.



### Up to 24 feed silos

AKVA group is the world's leading supplier of feed barges with decades of experience and a wide range of high quality models up to 650 mtons.



### Full overview and control

The control room is the heart of the feed barge. This is where the operator has all information available and control the entire feeding process.



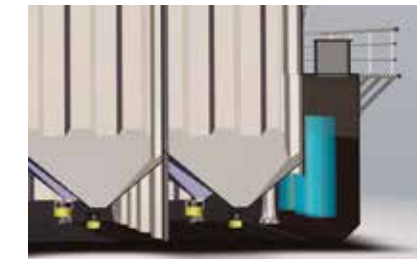
### Modern living facilities

Modern feed barges are becoming a main work place with proper meeting facilities, living areas and entertainment centers.



### Smart anchoring solutions

Reinforced bottom tube for anchoring chain distributes loads and prevents chafing during tightening.



### Integrated silage tanks

The most silage tanks are integrated in the hull below the feed selector valves. This is the most effective silage system in the market today.



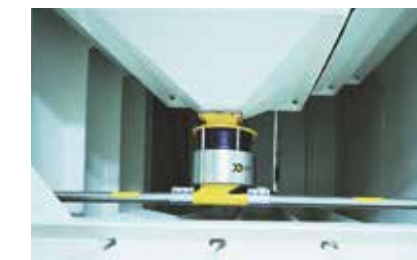
### Flexible crane solutions

Cranes of high quality can easily be installed on the barges.



### Reliable feed system

The central feed system concept was invented by AKVA group in 1980 and Akvasmart CCS is today the most popular and reliable system world wide.



### Gentle feed handling

A custom Feed Certified Dozer Valve is transferring the feed into the flow. Combined with Air Control this will ensure perfect feed handling.



### Sound protected machine room

A big machine room with sound protection makes the maintenance easier. You can easily install more generators to increase capacity.



# Up to 12 parallel feed lines

All barges have built-in Akvasmart CCS Feed Systems, and the largest models are available with up to 12 parallel feed lines. Most are supplied with 90mm Quattro systems (4 feed lines), but some with Twin (2) and some Hexa (6). The Feed Blowers are installed in the sound protected machine room together with the control cabinets. Cooling pipes for the feed transport air are welded to the outside hull in a protected position below the water line. The standard dimension is 110mm in order to prepare all barges for future expansions.

The feed enters the air flow through the Doser Valves and is then blown through seamless stainless pipes inside the barge and up to the Selector Valves on the exterior main deck platforms. From there, the feed continues through the PE feeding pipe to each cage, where Rotor Spreaders distribute the feed.



The feed storage capacity in each silo range from 15-70 metric tons (based on a density of salmon feed at 650kg/m3).

The feed is loaded into the silos using either bulk bags or bulk blower/conveyor systems. Hatches are available in various sizes.

Steel plate thicknesses of 5.5 - 6.5mm.

The silo sections are often made with corrugated steel plates in order to achieve high strength to weight ratio and smooth internal surfaces.

Akvasmart Feed Dosers are available with capacities from 10g/sec. to 192kg/min.

Real time measurement of airflow, backpressure and temperature ensures optimum feed handling.

# AC 450 Panorama



Silo deck, control room, living room



Cabins, wardrobe, silos



## AC 450 Panorama - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Design & comfort as one of the main interior features.
- Panorama model's raised control room, provides the most complete view control over the silos and the cages.
- Panorama model provides comfortable accomodation.
- Spaceous engine room prepared for the most demanding power management system.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.

Capacity	
Feed capacity:	450 tons (8 silos)
Silage:	Up to 60 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 6 cubic meters
Sewage:	Up to 5 cubic meters
Barge Spesifications	
Length (ex platforms):	22 m
Breadth:	12 m
Depth till main deck:	4.0 m
Minimum freeboard:	1.074 m

Control room and living quarters

Cabin level/ Deck level

Storage/ Workshop

Pantry

Wardrobe

Machine room





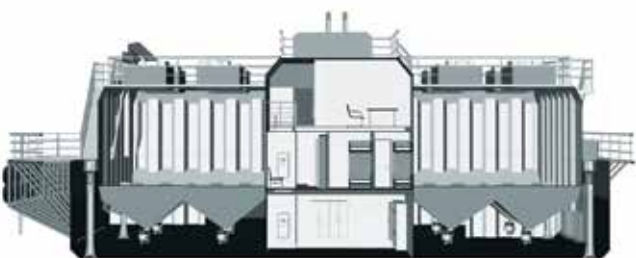
AC 450 Comfort



Silos, control room, living room



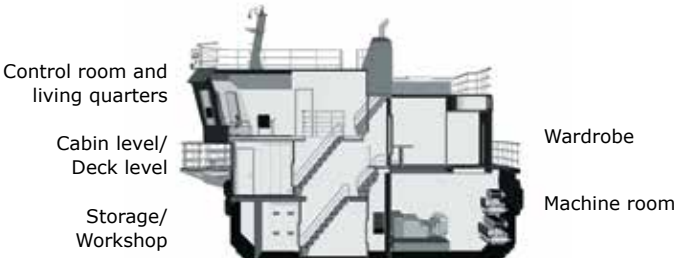
Cabins, wardrobe, silo deck



AC 450 Comfort - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Design & comfort as one of the main interior features.
- Spacious engine room prepared for the most demanding power management system.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.

Capacity	
Feed capacity:	450 tons (8 silos)
Silage:	Up to 60 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 6 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	22 m
Breadth:	12 m
Depth till main deck:	4.0 m
Minimum freeboard:	1.074 m



AM 400 Comfort



Silos, control room, living room



Machine room, silos, aft deck



AM 400 Comfort - features:

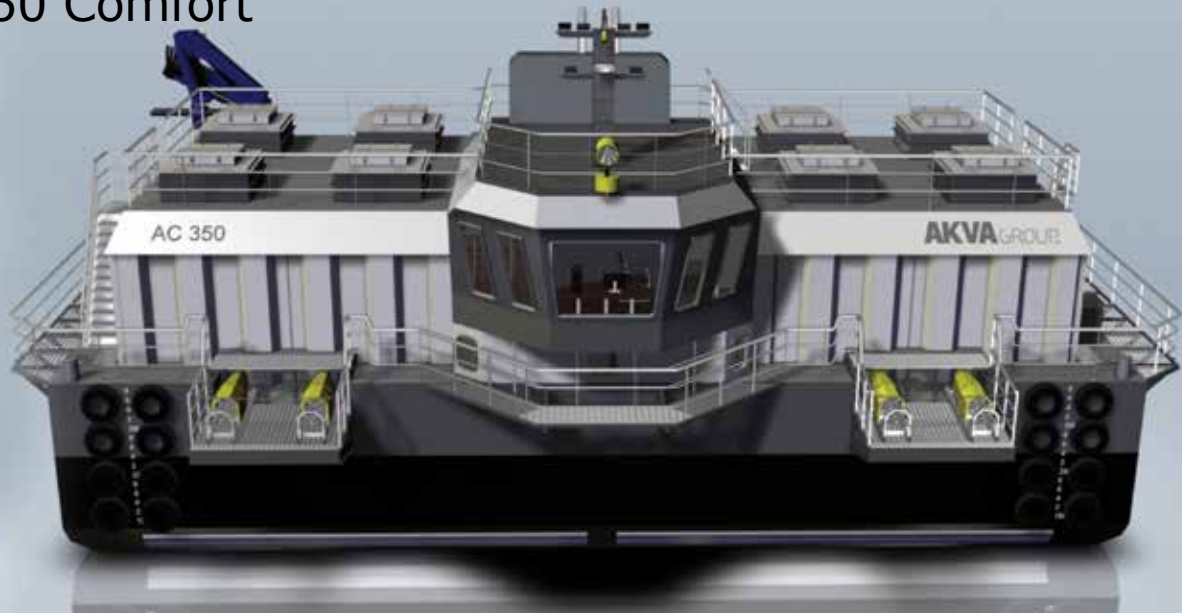
- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Design & comfort as one of the main interior features.
- Raised control room, provides complete view control over the silos and the cages.
- Modern and comfortable accommodation.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.
- Large deck with high loading capacity pr. m<sup>2</sup>.

Capacity	
Feed capacity:	400 tons (12 silos)
Silage:	Up to 50 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 8 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	27 m
Breadth:	12 m
Depth till main deck:	4.0 m
Minimum freeboard:	1.159 m





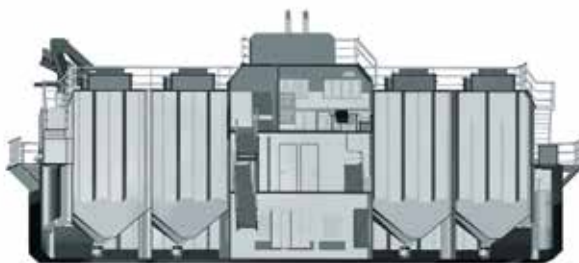
AC 350 Comfort



Silo deck, control room



Living quarters, wardrobes, silos



AC 350 Comfort - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Design & comfort as one of the main interior features.
- Spacious engine room prepared for the most demanding power management system.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.

Capacity	
Feed capacity:	450 tons (8 silos)
Silage:	Up to 60 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 6 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	22 m
Breadth:	12 m
Depth till main deck:	4.0 m
Minimum freeboard:	1.074 m

Control room and living quarters

Cabin level/  
Deck level

Storage/  
Workshop

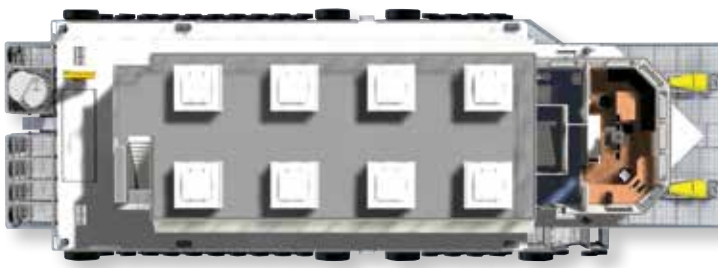


Wardrobe

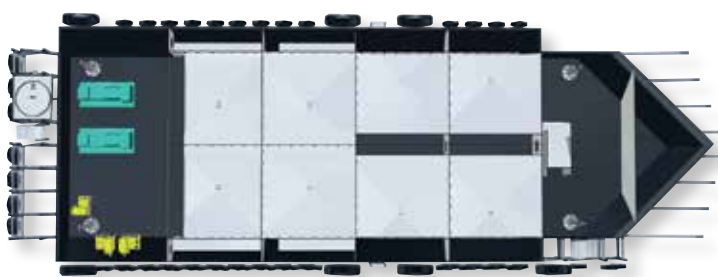
Machine room



AM 320 Classic



Silo deck, control room



Machine room, silos, aft deck



AM 320 Classic - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Spacious engine room prepared for the most demanding power management system.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.
- Large deck with high loading capacity pr. m².

Capacity	
Feed capacity:	320 tons (8 silos)
Silage:	Up to 40 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 8 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	28.4 m
Breadth:	10 m
Depth till main deck:	3.5 m
Minimum freeboard:	1.182 m

Control room and living quarters

Storage/  
Workshop



Wardrobe

Machine room





AM 320 Comfort



AM 240 Classic



Silo deck, control room

AM 320 Comfort - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs)
- Spacious engine room prepared for the most demanding power management system.
- Comfort model's raised control room, provides full view control over the silos and the cages.
- Modern and comfortable accommodation.
- Metallized above main deck to ensure high quality protection against sea conditions
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.
- Large deck with high loading capacity pr. m<sup>2</sup>.

Capacity	
Feed capacity:	320 tons (8 silos)
Silage:	Up to 40 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 8 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	28.4 m
Breadth:	10 m
Depth till main deck:	3.5 m
Minimum freeboard:	1.182 m

Control room and living quarters

Cabin level/ Deck level

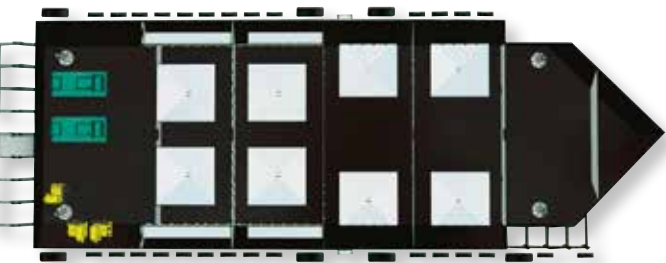
Storage/ Workshop



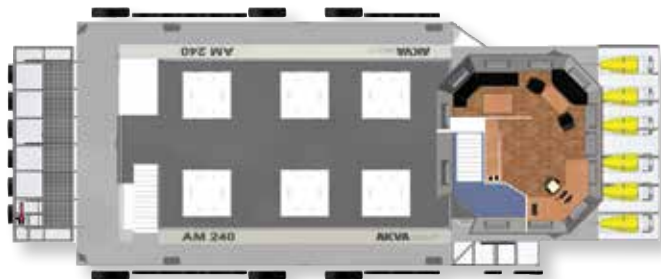
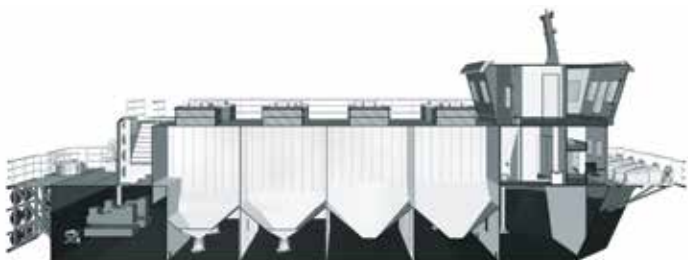
Pantry

Wardrobes

Machine room



Machine room, silos, aft deck



Silo deck, control room, living quarters



Machine room, silos, aft deck



AM 240 Classic - features:

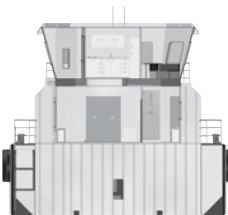
- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs)
- Spacious engine room prepared for the most demanding power management system.
- Metallized above main deck to ensure high quality protection against sea conditions
- 5 years warranty on all painted surfaces.
- Hull integrated mill tank of high processing capacity.
- Large deck with high loading capacity pr. m<sup>2</sup>.

Capacity	
Feed capacity:	240 tons (6 silos)
Silage:	Up to 30 tons
Diesel tank:	Up to 30 tons
Freshwater tank:	Up to 4 cubic meters
Sewage:	Up to 5 cubic meters
Barge Specifications	
Length (ex platforms):	21.5 m
Breadth:	10 m
Depth till main deck:	3.5 m
Minimum freeboard:	1.065 m

Control room and living quarters

Cabin level/ Deck level

Storage/ Workshop



Pantry

Wardrobes

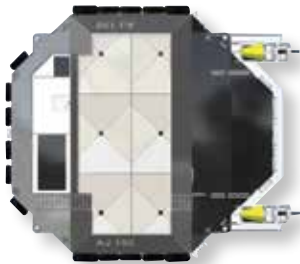
Machine room



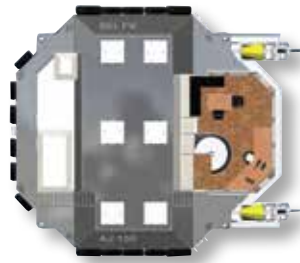
AJ 150 Classic



AJ 130 Comfort



Silo deck



Control room, living quarters, silos



AJ 150 Classic - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Spacious engine room prepared for the most demanding power management system.
- 5 years warranty on all painted surfaces.

Capacity	
Feed capacity:	150 tons (6 silos)
Silage:	-
Diesel tank:	Up to 12 tons
Freshwater tank:	Up to 2 cubic meters
Sewage:	Up to 2 cubic meters
Barge Specifications	
Length (ex platforms):	13.3 m
Breadth:	12 m
Depth till main deck:	3 m
Minimum freeboard:	926 m

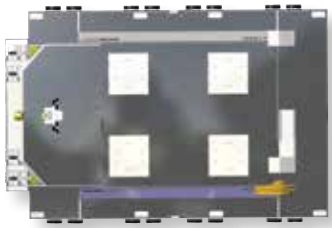
Control room and living quarters



Deck level Storage

Wardrobe/wc

Machine Room



Silo deck



Control room, living quarters, silos



AJ 130 Comfort - features:

- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Spacious engine room prepared for the most demanding power management system.
- 5 years warranty on all painted surfaces.
- Comfort model's raised control room, provides full view control over the silos and their cages.

Capacity	
Feed capacity:	130 tons (4 silos)
Silage:	-
Diesel tank:	Up to 11 tons
Freshwater tank:	Up to 2 cubic meters
Sewage:	Up to 2 cubic meters
Barge Specifications	
Length (ex platforms):	14.5 m
Breadth:	10 m
Depth till main deck:	2.5 m
Minimum freeboard:	947 m

Control room and living quarters



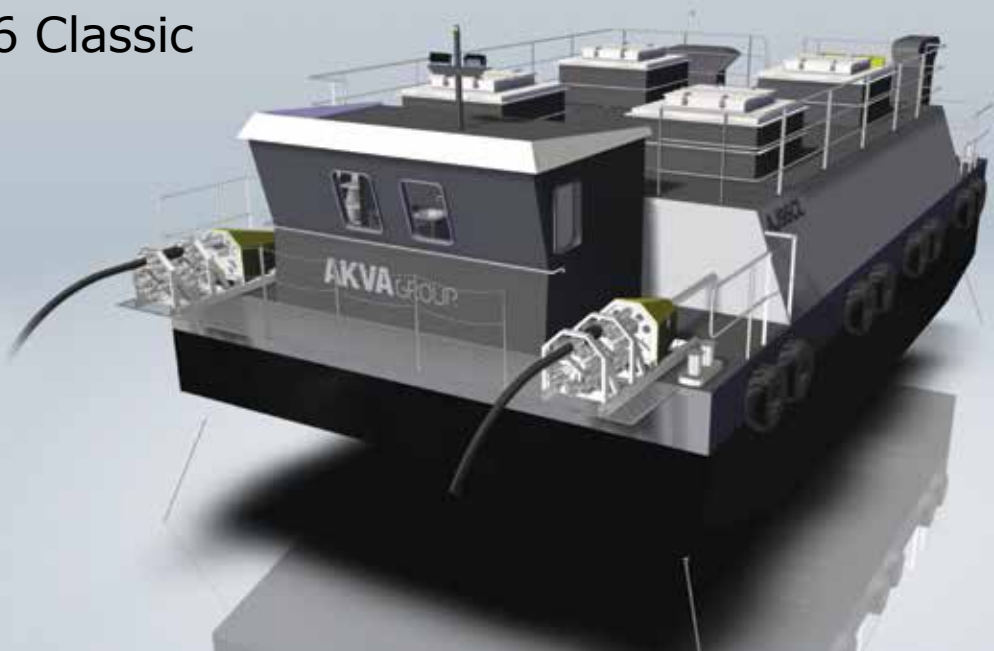
Deck level Storage

Wardrobe/wc

Machine Room



AJ 96 Classic

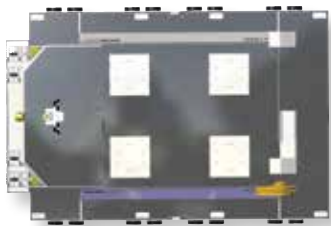


AWB 50 Work Barge



AJ 96 Classic - features:

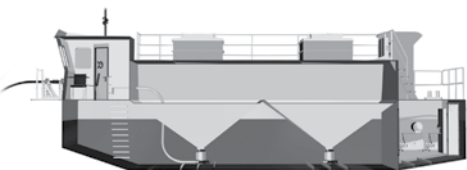
- Feed capacity dimensioned based on customer needs.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Spacious engine room prepared for the most demanding power management system.
- 5 years warranty on all painted surfaces.



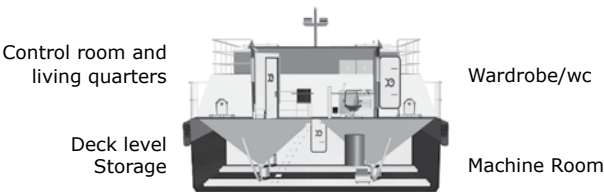
Silo deck



Control room, living quarters, silos

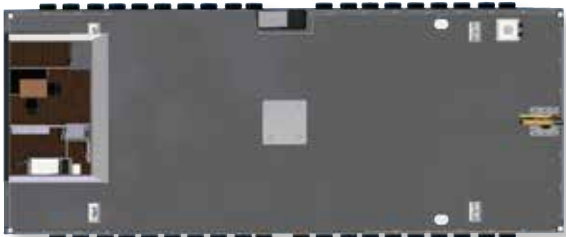


Capacity	
Feed capacity:	96 tons (4 silos)
Silage:	-
Diesel tank:	Up to 5.5 tons
Freshwater tank:	Up to 2 cubic meters
Sewage:	Up to 2 cubic meters
Barge Specifications	
Length (ex platforms):	14.5 m
Breadth:	8 m
Depth till main deck:	2.2 m
Minimum freeboard:	947 m

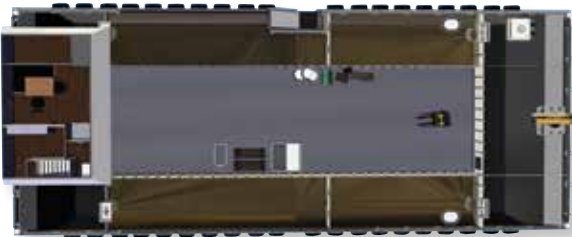


AWB 50 Work Barge - features:

- Deck area of 17x5 sqm designed for optimal cargo handling and operations.
- Calculated strength to stand up to 4,5 m of significant wave height (Hs).
- Accomodation of 6.5x4 sqm, with living room, kitchen, toilet and garage available areas.
- Metallized above main deck to ensure high quality protection against sea conditions.
- 5 years warranty on all painted surfaces.
- Max cargo capacity up to 100 tons (including deck cargo, excluding ensilage)



Control room, accomodation, deck area



Machine room, storage














Capacity	
Feed capacity:	50 tons
Silage:	Up to 125 tons
Diesel tank:	1 cubic meters
Freshwater tank:	Up to 125 tonn
Sewage:	1 cubic meters
Barge Specifications	
Length (ex platforms):	25 m
Breadth:	10 m
Depth till main deck:	2.2 m
Minimum freeboard:	1.000 m





Wavemaster Feed Barges - Specifications



												
Model:	AC 650	AC 450	AM 400 12S	AC 350	AM 320	AM 240	AM 160	AJ 150	AJ 130	AJ 96	AWB 50	Comments:
Feed capacity												
Loading capacity - feed (tons):	650	450	400	350	320	240	160	150	130	96	50 (on deck)	Based on density of 650kg/m³
Loading capacity - feed (m3):	1050	715	645	579	495	405	260	250	210	155	No silos	***
Number of silos:	12	8	12	8	8	6	4	6	4	4		
Secondary hatch over size (m):			*		1.2	1,2 *		1 x 1		Optional		* Optional: 1,5 x 1,5
Barge spesifications												
Length - total (LOA) m:	28,5	22	27,5	22	28,35	21,5	17,5	13,33	14,5	14,5	25,0	***
Breath - total (BOA) m:	12	12	12	10	10	10	10	12	10	8	10	***
Depth till main deck (m):	4	4	4	4	3,5	3,5	3,5	3	2,5	2,5	2,2	***
Water proof sections:	5	5	4	5	4	4	4	3	3	3	3	Subject to applicable regulations
Min. freeboard Hs >=3m, standard anch.:	1,185	1,074	1,168	1,074	1,182	1,065	0,998	0,926	0,947	0,947	1,125	Hs = Significant wave hight
Min. freeboard Hs >=3m, X-anchoring:	1,35	1,24	1,334	1,074	1,382	1,267	1,165	1,093	1,114	1,195		
Deck house - options available:	Panorama/Comfort	Panorama/Comfort	Comfort	Comfort/Panorama	Comfort/Classic	Comfort/Classic	Comfort/Classic	Classic	Comfort/Classic	Classic		
Veterinary room possible:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	*	No	No	No	* Optional diver´s room
Biosecure zones:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	***
Max number of generators:	3+1 small	3+1 small	4	3	3+1 small	2+1 small	2+1 small	2	2	1	1	
Diesel tank, construction:	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	***
Diesel tank capacity (m3):	2x25	2x22	2x11.5	2x15	2x11.75	2x11.5	2x11.5	2x3-2x6	5,5-11	5,5	5,5	***
Freshwater tank, construction:	PE	PE	PE	PE	PE	PE	PE	PE/GRP	PE/GRP	PE/GRP	PE/GRP	***
Freshwater tank, capacity (m3):	2-8	2-6	2-8	2-6	2-8	2-4	2-4	1-2	1-2	1-2	1-2	***
Sewage, construction	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	***
Sewage tank, capacity (m3):	3	3-5	3-5	3-5	3-5	3-5	3-5	1-2	1-2	1-2	1-2	***
Ensilage tank, construction:	Painted steel	Painted steel	Painted steel	Painted steel	Painted steel	Painted steel	Painted steel	N/A	N/A	N/A	Painted steel	***
Ensilage tank, capacity (m3):	32-72	32-60	24x2**	2x25	23-40	20-30	2x8	N/A	N/A	N/A	50-100	Strongly recommended
Mill tank, capacity, construction:	Integrated in the hull or inserted on aft platform	Integrated in the hull or inserted on aft platform	2 m³ stainless steel tank inserted on aft platform	Integrated in the hull or inserted on aft platform	2 m³ stainless steel tank inserted on aft platform	2 m³ stainless steel tank inserted on aft platform	2 m³ stainless steel tank inserted on aft platform				2 m³ stainless steel tank inserted on aft platform	
Control room + pantry (m²):	53/33,5	53/33,5	38	28	23/13	23/13	23/13	25	14	8	7	
Living quarters, wardrobe, wc (m²):	45	45	39	22	23/8	23/8	23/8	29	4			
Garage (m²):	24	24		18								
Technical room (m²):	36	36	54	21	28	28	18	8	8	4		
Machine room (m²):	36	36	72	39	46	30	24	27	20	16,5	17	
Metallized above Main Deck:	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
Certified according to:	NS 9415/NYTEK	NS 9415/NYTEK	NS 9415/NYTEK	NS 9415/NYTEK	NS 9415/NYTEK	NS 9415/NYTEK	NS 9415/NYTEK				NS 9415/NYTEK	
Designed according to:	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	DNV 1A1 Barge R3	
Optional equipment:	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	Please inquire	
Feeding system												
Possible number of feedlines:	2-12	2-8	2-6	2-6	2-6	2-6	2-4	2-4	2-4	2-3		
Standard placing of selectors:	Side	Side	Bow	Side	Bow	Bow	Bow	Bow	Bow	Bow		
Aircooler system:	U-profile	110mm steel cooling pipes/ U-profile	U-profile	U-profile	U-profile	U-profile	U-profile	Air-to-air cooler or U-profile	Air-to-air cooler or U-profile	Air-to-air cooler or U-profile		AJ 130 and AJ 150 have also U-profile

\* Option (See comments) \*\* Option can be 2x11,5 silage tanks + 4x11,5 emergency silage tanks \*\*\* Some variations may apply.

Certification guide, construction/anchoring:

The Wavemaster Feed Barges are designed in accordance with DNV 1A1 Barge R3 classification. Steel hull, superstructures and feed silos are manufactured using marine grade mild steel, type NVA or equivalent. All steel construction is

performed in accordance with NS470, and all welding is tested by certified NDT (Non Destructive Testing) inspector. The silo modules are constructed with corrugated steel plates in order to get smooth internal surfaces and a high strength to weight ratio (not all models).

High quality on all windows, watertight doors and hatches. Extended bow and aft platforms is available as options. Well proven design and construction, combined with innovation makes Wavemaster Barges reliable, efficient and seaworthy barges. A wide range of models are available at a competitive price.

All barges are constructed according to NS9415:2009 Norwegian standard for floating fish farms. The barges are certified by Noomas.

