

August 2020

FLOATING NET CAGE

3 HOT ISSUE

5 MARKET REVIEW

11 LIST OF EXPORTERS OF FLOATING NET CAGE

12 EXPORTERS OF FLOATING NET CAGE

EDITOR DESK

Dear Valued Readers,

The amount of fish consumption in Indonesia has increased year by year even exceeded the target. Fish, containing good nutrition such as protein and omega 3, can help to meet the body's protein just like red meat. Nonetheless, unlike red meats which are quite expensive, fish is more affordable and can easily be purchased and consumed by many people.

Indonesia as an archipelago country has the potential in fishery industry. The increased of national fish production especially in aquaculture sector is definitely needed to support national food and nutrition security as well as increasing fish products export. For this reason, it is important to support it with good facilities and infrastructure for aquaculture.

One of the aquaculture methods that can increased fishery products is floating net cage. Floating net cage is one of the most productive aquaculture techniques. The advantages of using this technique are the density of seed distribution, adequate quantity and quality of water, no need for soil cultivation, easy to control of predator disturbances, easy to harvest, and good quality of fish can be produced. This technique was first developed in fresh water environment especially in reservoirs and lakes. Now, it can be used for fish farming and other marine biotas.

In this Export News edition, we got a chance to visit one of floating net cage exporters, PT. Gani Arta Dwitunggal. The successful export experience of this company should be emulated by other exporters. They also successfully increasing fish production and other marine products that can meet international market quality.

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TABLE OF CONTENTS

3

HOT ISSUE

Freshwater fish cultivation technology continues to develop rapidly, one of which is the floating net cages which are mostly practiced in open waters such as rivers, lakes, and reservoirs. The successful development of floating net cage technology has also proven to play a role in increasing fish production nationally.

5

MARKET REVIEW

The Floating Net Cages Classified

11

LIST OF EXPORTERS OF FLOATING NET CAGE

1. Gani Arta Dwitunggal, PT
2. Indomarine Internusa, PT

12

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2. Indomarine Internusa, PT
3. Anugerah Atlantik, PT

HOT ISSUE

Freshwater fish cultivation technology continues to develop rapidly, one of which is the floating net cages which are mostly practiced in open waters such as rivers, lakes, and reservoirs. The successful development of floating net cage technology has also proven to play a role in increasing fish production nationally.



The floating net cage is one of the ideal techniques for aquaculture. It is placed in a deep-water and one of the best applications for intensive system aquaculture. In principle, all types of marine and freshwater fish can be maintained in floating net cages. In order to meet the national fish consumption which is predicted to reach 40 kgs per year, freshwater fish farming that uses environmentally friendly and sustainable method such as floating net cages is a necessity.

The fish cultivation using floating net cages is a way of farming that can be done at sea, river or lake because it has a fairly high water and suitable quality. One of the variants of floating net cages which are placed in the sea has frame with footing for inspection as the building structure. The floating net uses a floating device to keep it afloat, and is attached to the frame and anchor so that it does not move out of position. The fish remain in the cage because they are confined by the net.

Another type of cage, namely the hampang cage, is built using a net that is supported by wooden or bamboo poles. This type of cage is generally built on the banks of rivers and shallow waters.

The floating net cage framework can be made of bamboo, wood, metal pipe or square shaped iron which is given a net and a floating device such as a plastic drum or streoform so the container remains floating in the water. The framework and floats serve to hold the

net open on the surface of the water, while the closed net at the bottom is used to raise fish for several months.

With a narrow area, we can produce more fish without adding substantial costs. The pattern used to intensify the fish farming pattern will have an impact on high costs but can also get higher profits.

The floating net cages can be made in various sizes. Nets or containers for freshwater fish farming are

made from polyethylene. The shapes and sizes are highly influenced by the type of fish being cultivated, the size of the fish, the depth of the waters, and the ease of management. This method has a major economic impact for the community because it is the main livelihood for the people around public waters.

The floating net cages need clean water environment and use environmentally friendly technology so that fish can

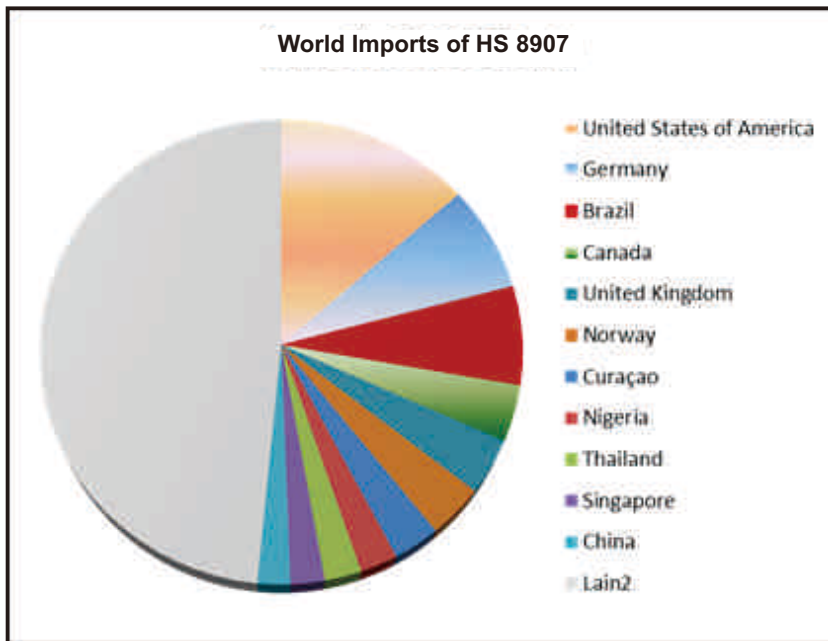
grow optimally. For those reasons, the development of floating net cages must be balanced with the water's carrying capacity.

Floating net cages in public waters should be arranged by considering the socio-economic aspects of the community and the environment. For this reason, there is a need for a guidance program for the sustainability of floating net cages so they can provide the widest possible benefit to the community.



MARKET REVIEW

The Floating Net Cages Classified



source: Trademap

The floating net cages are classified in product line of HS 89 Ships, boats and floating structures with HS Code 4 8907 other floating structures, rafts, tanks, floating devices, etc. The countries with the largest HS 8907 demand in the world are as follows;

In 2018, the total world imports of HS 8907 were USD 1.09 billion. The USA is the largest importer with USD 147.6 million or has share of 13.5%. Then followed by Germany with USD 81 million (7.41%), Brazil with USD 75 million (6.86%), Canada with USD 42.9 million (3.93%) and England with USD 42.6

million (3.9%). Meanwhile, the export value of Indonesia's HS 8907 in 2018 was USD 1.7 million or only 0.15% of all world imports.



The value of Indonesia's exports and imports of HS 8907 products in 2018, it has a negative trend of 39.11%. It's because the export value was very high in 2014 with total transaction of USD 27.17 million but in the following years it never reached that value again, the highest was only USD 18.8 million in 2017 and fell considerably in 2018 which only had USD 1.77 million.

In the Jan-Oct 2019, the exports value was USD 3.11 million, an increase of 139.72% from the previous year's in the same period.

For the export destination countries of HS 8907 in 2018 from Indonesia, namely Singapore, Brazil,



Denmark, China, Maldives, Germany, Bangladesh, Thailand, Malaysia and Brunei Darussalam. In the Jan-Oct 2019, the main export destination country is Singapore with a value of USD 1.85 million or nearly 60% of the total export value of Indonesia's HS 8907.

In the second place, Australia with a value of USD 469 thousand (15.05%) then Malaysia with a value of USD 219 thousand (7.04%) and Maldives with a value of USD 200 thousand (6.42%). To see the export potential of floating net cage,

we must also look at the development of the fish farming industry, especially in Indonesia. In 2015, the production of the aquaculture industry was dominated by the Asian with a total production of 81 million tons and took 90% of global production. China dominates with 53% of global production, followed by India, followed by the three largest producers in Southeast Asia, Indonesia, Vietnam and the Philippines. Southeast Asia took for 12.4% of global production.

In 2015, 4.3 million tonnes of cultivated fish produced in Indonesia which consisted of 2.9 million tonnes of freshwater fish, 1.3 million tonnes of seawater fish, and 0.1 million tonnes of brackish water fish. The type of



source: BPS, calculated in 2019

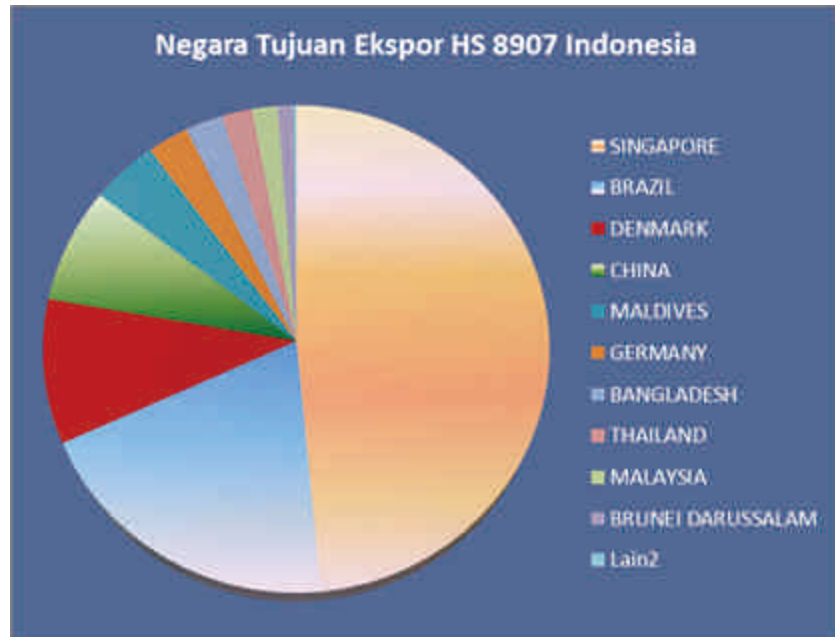
freshwater fish that widely cultivated in Indonesia are goldfish, tilapia, catfish, catfish, pomfret and carp while the type of sea water fish that widely cultivated in Indonesia are grouper hucks / mice, tiger grouper, white snapper, red snapper, baronang fish, star pomfret, milkfish, and even yellow fin tuna. All types of fish can be developed using the floating net cage system.

To find out more about the export potential of Indonesian Floating Cages, in November 2019, we got to visit the factory of PT. Gani Arta Dwitunggal (Aquatec), one of Indonesia's floating net cages exporters, located in Padalarang, West Bandung, West Java.

Aquatec has been regularly exporting,



Aquatec also produces eco wood material which is a combination of HDPE wood and plastic that can be used as walls and steps. They also make UPVC roofs and polyethylene doors.



source: BPS, calculated in 2019

especially to countries with beaches, namely Malaysia, Singapore, Brunei, the Philippines, China, the Maldives and Ghana. Soon, Aquatec will export to Fiji and other Pacific countries. PT. Gani Arta Dwitunggal with Aquatec brand is a company that produces fishery cultivation facilities and infrastructure, including floating net cages for saltwater fish, fresh fish, crab, shrimp, lobster and other aquacultures such as a floating pier for the tourism industry (floating house, dock), facilities Anti-Drown Transportation.

There are 16,000 units of Aquatec HDPE floating marine cages that have been installed in all over Indonesia. The Aquatec HDPE Floating Jetty has also been used on Angso Duo

Island, Liwungan Island, Bangsring Underwater, Nusa Penida Island Bali, Lombok and other tourist areas. The HDPE Anti Drowning Transportation Facility is also widely used by many fishermen and BNPB Indonesia as well.

PT. Gani Arta Dwitunggal operates three HDPE pipe extrusion machines with different diameter sizes, ranging from OD 50mm to OD 800mm. The pipe will be combined with the components produced from the injection machine then assembled into a cage system. Apart from pipes and components, they also have HDPE monofilament machines that can manufacture their own nets. Although the machines are imported from Germany, plastic ore and other

production equipments come from Indonesia so that they meet the local content requirements.

Aquatec also produces eco wood material which is a combination of HDPE wood and plastic that can be used as walls and steps. They also make UPVC roofs and polyethylene doors.

Although all of the materials for production are made of plastic, they are highly durable and flexible, and also have less maintenance than other natural materials. HDPE material, used as a base, is also known as a plastic material that is dense but malleable, resists in high temperatures and corrosion.

Some of the floating marine cage systems that Aquatec has developed, as follows :

1. Square Shape Net Cage



source: aquatec.co.id

The square shape cage is designed to be strong and flexible so it can withstand ocean waves up to 2 meters height. Suitable for use in the

high seas (offshore) location. It consists of some HDPE floating devices with anti-UV cylindrical shape connected to a number of monoblock that connect each component. Above the floating device, there is a track for walking made with an anti-slip protrusion using the patented method so it is firm and connect securely with the floating device.

2. The Round Shape Net Cage

The round shape cage is proven to be able to stand sea waves up to 3 meters. Suitable for use in the high seas (offshore) location. The



source: aquatec.co.id

round cage does not have an angle so the fish can swim around the cage without being interrupted. Suitable for raising fast swimming fish such as milkfish, starfish, white snapper, red snapper, napoleon, and tuna.

3. The River Net Cage



source: aquatec.co.id

The Aquatec River Cage is a net cage installed with current breaker and trash scraper specially designed for use in fast-flowing rivers. With the current breaker on the front of the cage, the current speed is reduced so the fish in the cage can survive and have a higher survival rate. Large shape rubbish such as wooden blocks and small trash such as plastic bags are dispelled so that the marine cage is durable and easy to care for. Aquatec River cage is usually tethered to large trees around the river. However, if the area around the cage placement does not have large piles or trees, the river cage can be placed using a large anchor which is connected through the cage floating device.

4. The Offshore Submersible Cage



source: aquatec.co.id

A special technology for offshore floating cages is a must for those who wish to cultivate fish in areas prone to typhoons. The Aquatec Offshore Submersible Floating Net Cage is an offshore floating cage that can be submerged to a depth of 10-20 meters below sea level, able to avoid the effects of typhoons and

extreme waves. Moreover, it also has been used to deal with typhoon storms with 9-meter waves in southern China. The submersion of the Aquatec Offshore Submersible Floating Cage only takes less than 5 minutes to be installed underwater.

PT. Gani Arta Dwitunggal has received a visit from delegation from the Statistics Bureau of China's Jiangsu Province. Aquaculture is a very important sector for Jiangsu Province with worth value up to USD 600 billion or 6% of the Jiangsu economy. Given its strategic role, the Central Government

has allocated 10% of China's state budget to Jiangsu. When they visited the factory, they collected all the data from the company. They are considering to propose a cooperation with the selected company.

The company that they will consider cooperating are company who pay attention to environmental issues, uses green environment technology and has standardize food safety. According tom Mr. Zhou Guoqiang, Aquatec has fulfilled all the requirements.

In the near future, he will invite Aquatec to visit Jiangsu for further cooperation.





In Indonesia, PT. Gani Arta Dwitunggal has collaborated with several parties including with University of Padjajaran in research on mixing / crossing (hybrid) grouper species in Pangandaran and research on environmentally friendly antifouling agents for net cultivation; with Ministry of Marine Affairs and Fisheries in grouper fish research in Maluku and East Java provinces; and with various

large research and development agencies of marine culture in all over Indonesia such as Batam, Lampung, Situbondo, Gondol, Lombok, Ambon, and Wakatobi for research purposes on grouper, milkfish, pompano, star pomfret, white snapper, tuna fish, yellow tail and lobster.

Looking at the progress of PT. Gani Arta Dwitunggal, it turns out that the export

potential of floating net cage is very large in supporting the world's aquaculture industry. Many Indonesian business players should be able to take advantages of this opportunity by contributing to increase exports for both marine cage and fishery products.

List of Exporters of Floating Net Cage

- **GANI ARTA DWITUNGGAL, PT**
Kawasan Industri Batujajar Permai
Jl. Raya Batujajar KM 2.8, Padalarang, Jawa Barat (40533)
Tel : (62-22) 6864016
Fax : (62-22) 6864015
Email : aquatec.gad@gmail.com
Website : aquatec.co.id
- **INDOMARINE INTERNUSA, PT**
Jl. Teluk Kumai Timur No. 83A 60165, Perak Utara, Surabaya
Tel : (62-31) 3813568, 62-81333074687
Fax : (62-31) 3813568
Email : indomarine.internusa@gmail.com
Website : coolboxindonesia.com

Gani Arta Dwitunggal, PT



PT. Gani Arta was founded at Jl. Raya Ujung Berung km 10 no. 6-8, Bandung, by the late Mr. Mukim Sunadim in 1972. Mr. Budiprawira Sunadim replaced him as the company's chairman on 1988. As the company grows, its' location became no longer sufficient. Therefore, in 1993, Mr. Budiprawira has established a second PT. Gani Arta, PT. Gani Arta Dwitunggal on Jl. Raya Batujajar, Padalarang. These two companies run the same business, which are laces, specialized in knitting.

Besides this achievement, PT. Gani Arta

was the first to open a true retail "factory outlet" for local market in each of the factory site, selling products direct to the market on company grounds itself. The retail shop is located at the very front of each of the factory.

Currently for further efficiency, PT. Gani Arta main factory and head office has moved and merge with its sister company in the ever-changing demand in textile industry. PT. Gani Arta Dwitunggal has a bigger site, able to contain all its demands from the 2 factories.

The Aquatec production are, as follows :

1. HDPE Pipe Extrusion Machine

PT. Gani Arta Dwitunggal operates three high productivity HDPE pipe extrusion machines with size range from 50 mm to 800 mm. The two extrusion machines include co-extrusion technology for HDPE pipe coating with antibiofouling and anti-UV coating. This technology is the only



one in the world and makes the Aquatec HDPE cage the world's only low-maintenance biofouling cage.

- Co-extrusion machine HDPE Everplast OD 50mm-250mm pipe with a production capacity of 450 km per year capable producing antibiofouling and anti UV HDPE pipes with a layer thickness of 1-2 mm.



- Co-extrusion machine Everplast HDPE pipe OD 250mm-450mm with a production capacity of 160 km per year capable producing antibiofouling and anti UV HDPE pipe with a layer thickness of 1-2 mm.

- HDPE Everplast pipe co extrusion machine OD 355mm-800mm with a production capacity of 160km / year



2. HDPE Injection Machine



Gani Arta Dwitunggal operates three high productivity HDPE injection machines with pressure forces of 530 tons, 1600 tons and 2100 tons. It produces many types of components which have been applied to Aquatec floating products including HDPE cages, floating piers, and anti-sinking boats.

3. HDPE Monofilament Machine



PT. Gani Arta Dwitunggal produces its own HDPE monofilament yarn to ensure the quality of the net. Aquatec HDPE yarn has an elongation strength over 900% for superior strength.

- 2 pieces of Kung Shing 140 HDPE yarn with a diameter of 0.14mm

0.28 mm

- Tai Hung 200 HDPE thread with a diameter of 0.2mm - 0.36mm

4. Yarn Preparation Machine



- Twisting machine for UHMWPE (Ultra High Molecular Weight Polyethylene) yarn
- Mehane machine
- Cone twisting machine

5. Knitting Net Machine



Gani Arta Dwitunggal knit the knotless HDPE cultivation net and UHMWPE using a German machine, Karl Mayer.

- It has ten German-made Karl Mayer knitting machines for



HDPE and UHMWPE to make knotless nets



milling machines

- Double planner milling machine
- Medium milling machine
- 4 small milling machines
- 180 cm diameter lathe machine



Polyethylene Compound) board profiles for industrial and tourism applications that includes floating piers and floating houses.

- 3 WPC extrusion machine
- Brushing, embossing, and cutting machine

6. Heat Setting Machines



- 2 German-made Babcock heat-regulating stenter machines, 315 cm wide

- 2 pcs of 125 cm diameter lathe machines
- 4 pcs of small lathe machines
- Radial drill machine

9. Boat Clamp Machine



7. The workshop

PT. Gani Arta Dwitunggal specifically manufactures molding for injection machines to ensure efficiency and speed of product innovation

- 2 pcs of large 200cm x 100cm x 100cm



8. WPC (Wood Polyethylene Compound) machines



Gani Arta Dwitunggal manufactures high quality WPC (Wood

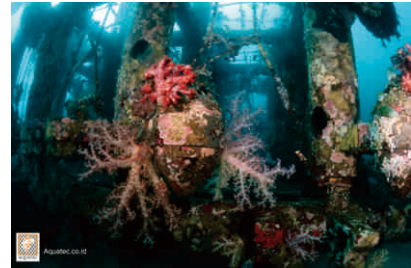
Gani Arta Dwitunggal produces HDPE anti-sink boats

- The boat clamp engine was specially designed by Gani Arta Dwitunggal and manufactured in Taiwan to produce the world's only boat clamp engine.

These are the important

points of PT Gani Arta Dwitunggal (Aquatec):

1. Aquatec cages have been used by many major research and development agencies for marine culture in Indonesia, including Batam, Lampung, Situbondo, Gondol, Lombok, Ambon, and Wakatobi for research purposes on grouper, milkfish, pompano, star pomfret, fish, white snapper, yellow tail tuna and lobster.
2. Gani Arta Dwitunggal (Aquatec) has collaborated with Gondol's BBRBLPP (Center for Marine Cultivation Research and Fisheries Extension) in research for hatchery, breeding and rearing of yellow tail tuna. Currently, BBRBLPP Gondol already has 5 units of Aquatec round cages with a diameter of 50 meters, 1 unit of round cages with a diameter of 35 meters and also several other round cages, octagonal cages and rectangular cages.
3. Gani Arta Dwitunggal (Aquatec) has collaborated with Padjajaran University in research on mixing / crossing (hybrid) grouper fish species in Pangandaran and research on environmentally friendly antifouling agents for aquaculture nets. Currently, Padjadjaran University has operated 20 holes of Aquatec rectangular floating marine cages for research.
4. Gani Arta Dwitunggal (Aquatec) has collaborated with the MMAF (Ministry of Marine Affairs and Fisheries) Maluku province in grouper research.
5. Gani Arta Dwitunggal (Aquatec) has collaborated with Ministry of Marine Affairs and Fisheries in East Java province to test submersible cage and grouper research.
6. Gani Arta Dwitunggal (Aquatec) has collaborated with Center for Marine Cultivation Fisheries in Lampung to research the live culture of vanamei shrimp in HDPE cages.
7. Aquatec cages have been tested and developed automatic feeding of 20 meter diameter round cages for yellow tail tuna at the Wakatobi Research Center
8. Gani Arta Dwitunggal (Aquatec) has developed HDPE fish apartment products (as artificial coral reefs) in Tulamben (Bali) and Batam



PRODUCTS AND TECHNOLOGY

Aquatec products include HDPE rectangular floating marine cage, round cage, submersible marine cage; UHMWPE knotless anti predator net; floating dock; floating house marine aluminum & ecowood and a series of anti-sink boat products. Since the end of 2008 in the aquaculture sector, Aquatec cages have been built on a foundation of in-depth knowledge in the areas of HDPE pipe co-extrusion (for antibiofouling), large-scale injection of HDPE components as well as other HDPE processes. As the demand for marine cages has increased in line with our capacity and capability to develop HDPE cages.

In 2019, more than 15,750 cages have been spread across ocean in

Indonesia, Malaysia, Singapore, Brunei Darussalam, Philippines, China, Maldives and Ghana.

Aquatec technology:

Overview of some technology which Aquatec used in their daily production

1. Knock-down system with pipe membrane closure (Patent No. P00201504807)



One of the first Aquatec products to be produced is the Square shape Floating Net Cage, designed to have flexibility and resilience on the high seas against wave heights of up to 1.5 meters. The main advantage of the cage is the knock-down system, which is the only cage in the world that can be assembled/ The cage consists of separate components that can be installed using 316 stainless steel bolts with simple tools



and can be disassembled as needed. These makeshipping costs cheaper and the installation process easy. In addition, the leak-proof pipe membrane closure method is able to withstand water up to a pressure of 17,500 kg force.

2. Improved Butt fusion Joints (Patent No. P00201501709)



Gani Arta Dwitunggal developed the HDPE round cage for offshore waters that can withstand waves up to 4 meters. To achieve this technology, we use the improved butt fusion technology, in which the thickness of the butt fusion joint has been increased to two times the thickness of the floating pipe, resulting in a much stronger joint. This technology avoids the risk of pipe connection failure in the cage. In addition, a leak-proof membrane is installed in the pipe to separate it into several leak-proof sections, which increases the durability and safety of the circular cage, thereby enabling the Aquatec Round Cage to withstand the waves of ocean.

3. Monoblock Pipe Connectors



Gani Arta Dwitunggal manufactures pipe connection components for HDPE circular cages by using high capacity HDPE injection machines to make pipe connecting components into a solid unit. Aquatec produces a monoblock pipe connection component with no joints or weak points and this is why it is able to withstand the conditions in the ocean.

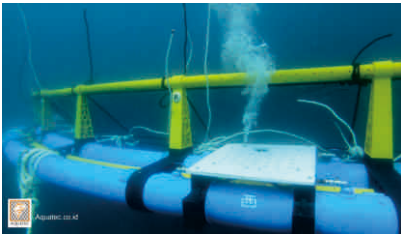
4. Anti Barnacles HDPE Pipe



Gani Arta Dwitunggal coated Aquatec HDPE pipe with 1mm-2mm of Anti-UV and Anti-Barnacle. The anti

barnacles prevent dirt (biofouling: moss, barnacles) from sticking to HDPE pipes and reduce the effort and maintenance costs associated with biofouling. Anti-UV protects it from intense UV rays and helps increase product life.

5. Submersible Cages (Patent No P00201700166)



Gani Arta Dwitunggal created the fastest submersible cage in the world and the first in Southeast Asia that is able to sink 15 meters below sea level with a submerging time less than 5 minutes and can be flown back to the surface in less than 10 minutes. The cage sinks and floats perfectly by keeping the net shape cylindrical in the submersible process. The technology was created for use in typhoon-prone areas such as Vietnam, the Philippines and Southern China where it is able to respond quickly to typhoons so that

farmers can cultivate fish all year round. The Aquatec Submersible Cage is also very easy to operate with only two operators.

6. UHMWPE Knotless Net



Gani Arta Dwitunggal is the first company in Southeast Asia to successfully create a UHMWPE (Ultra High Molecular Weight Polyethylene) knotless cultivation net which has a steel wire tensile strength to prevent attacks from marine predators. UHMWPE net is also very light and easy to clean.

7. Floating House and The Foundation (Patent No P00201300037 and P00201500613)



Gani Arta Dwitunggal created an innovative floating platform system which is very flexible and can follow waves movement while maintaining balance and durability. Gani Arta Dwitunggal also created a floating house made from marine aluminum profile frames and WPC (Wood Polyethylene Compound) which is intended to use on the sea.

8. Anti-sink Boat (Patent No P00201300597)



Gani Arta Dwitunggal created the Aquatec anti-sink boat for many purposes in various forms such as Jukung, Katamaran, and Pontoon.



AquaTec round floating marine cage (FMC) is the first and only round marine cage in the world that is multisection and Completely Knock Down (can be installed and disassembled without damaging the components of the cage). Available in 10 meter diameter (31 meter circumference), 15 meter diameter (47 meter circumference), 20 meter diameter (62 meter circumference), 35 meter diameter (110 meter circumference), and 50 meter diameter (157 meter circumference), and other sizes.

Each end of AquaTec's floating marine cage is covered with the patented leak-proof dual membrane technology, which ensures the marine cage's resistance in offshore weather. The AquaTec round floating floating device is not filled

with styrofoam so it is environmentally friendly. Fence posts are monoblock without joining or welding to ensure strength during harvest activity. The connector of the floating device is integrated with the inner float with patented technology so that it does not shift.

The multisection system in the AquaTec round marine cage provides a higher level of safety in aquaculture activities, where if there is damage to one section of the circular marine cage, that section can be dismantled and replaced without stopping the fish farming activities carried out in the marine cage.

AquaTec round cage can be equipped with Tuna Feed Independent system, Double Net system, and fish carcass storage system. AquaTec round marine cage is

certified TKDN with domestic content level > 40%.

The Flexi type floating marine cage (FMC) is the 4th generation of the AquaTec brand box cage. FMC Type Flexi is designed to be strong and flexible so that it can face ocean waves up to a height of 2 meters.

The floating device and components of the Flexi Type FMC are made of Prime Grade Polyethylene (PE) with environmentally friendly anti-UV. Do not use Styrofoam or other materials that pollute the environment both inside and outside the floating device.

The Flexi Type FMC uses a Completely Knock Down system, consisting of a floating device and components that can be assembled into a complete cage and can be disassembled easily without damaging the cage, thus making it easier to deliver to areas.

The AquaTec Flexi FMC is TKDN certified with a domestic content level > 40%.

Floating Net Cage Structure

FMC Type Flexi consists of a number of Prime Grade Polyethylene (PE) floating

devices with anti-UV cylindrical shape connected to a number of monoblock connecting components.

The cylindrical floating device has hydrodynamic properties, making it easier for the water to circulate in the cage, especially the circulation of surface water which is rich in oxygen so it is good for fish growth.

Above the floating device is a track for walking with an anti-slip protrusion that is installed using the patented method so that it is firm and joins the floating device.

The monoblock connecting components are made of Prime Grade Polyethylene (PE) with a special anti-UV mixture so that they are flexible in the face of waves at sea. The connection between the floating device and the connecting components uses grade 316 Stainless Steel

bolts (high level of anti-corrosion) equipped with a double ring and a nylon lock nut that is anti-loose

FMC floating device specifications:

- Made from Prime Grade Polyethylene (PE) with anti-UV
- Cylindrical shape with an outer diameter (OD) of 355mm and a wall thickness of the buoyancy > 11mm
- Each end of the floating device has 2 waterproof layers which are applied using a patented method
- Bright blue color to minimize heat absorption from sunlight and for easy viewing from a distance
- Has a track to walk with an anti-slip pattern on

the top for the safety of cage users

Track Specifications on Floating Equipment and Floating Equipment Connector:

- Made from Prime Grade Polyethylene (PE) with anti-UV
- Brightly colored to minimize heat absorption from sunlight and to be easily seen from a distance
- Has an anti-slip pattern with a pattern height of 2mm

Floating Device Connector Specifications:

- Made from Prime Grade Polyethylene (PE) with anti-UV
- Monoblock with a special mixture that is flexible in facing the waves at sea
- Connects 4 floating devices for nearly unlimited expansion
- Has 4 holes with a diameter of 30mm to tie the anchor rope

Net Link Specifications:

- Made from Prime Grade



Polyethylene (PE) with anti-UV

- Can be installed, dismantled, or moved on the cage as needed

Anchor Specifications:

- The Flexi Type KJA is equipped with a US Navy design cast iron anchor with a choice of 50kg and 80kg weight
- Each anchor is tied with a rope made from Polyethylene (PE) with anti-UV with a choice of 20mm and 24mm diameter
- Each anchor is equipped with a PE coated iron weight weighing 5-15kg
- The anchor can be equipped with a marker buoy if needed

Cultivation Net Specifications:

- AquaTec Cultivation Net is a knotless category net so that it does not injure the reared fish when rubbing against each other. Mesh sizes are available in square or sido (diamond) with a choice of mesh sizes from 3mm to 5" (inch)



The floating dock is a place to moor the ship on a floating pontoon. The use of the pontoon is to anticipate sea tides, so that the position of the ship and the dock is always the same then the pontoon and the pier are connected by a flexible platform / bridge to the land that can accommodate sea tides.

AquaTec Floating Jetty is able to adapt with ocean's tides by providing a pier that have the same height as the sea level, making it suitable to be used by traditional Indonesian fishermen and medium-scale passenger vessels. AquaTec Floating Jetty has high buoyancy (recommended maximum load: 100kg per meter square) and can move along with the waves. It can be installed very quickly in just a few days so that the benefits can be enjoyed by the user immediately. It is also environmentally friendly

and can be assembled easily.

AquaTec Floating Jetty can function as a station to move passengers and goods between boats in the middle of the sea. It can also be used as a complement to wooden or concrete piers, and can also be connected directly to the land.

For areas that have quite a large shifting due to tides, the AquaTec Floating Pier is designed to be placed the mud / sand so that the community's daily activities can be carried out on top of the AquaTec Floating Pier.

AquaTec Floating Jetty consists of a Polyethylene (PE) floating device with a thickness of 12.5mm and a platform that runs on a floating device made of Ecowood (WPC - Wood Polyethylene Compound) with a thickness of 30mm so its product life are over 20 years.

It can be equipped with a fence, bolar / mooring, and dock bumper to reduce collisions with ships, and can be linked with other AquaTec products. Suitable for marine highway applications.

AquaTec Floating Pier is local content (TKDN) certified with domestic content levels more than 40%.

AquaTec Floating Pier advantages are;

1. Environment friendly
2. The floating device has a thickness of up to 11-15mm so it is durable with a service life of over 20 years
3. The walking platform is made of 30mm thickness Ecowood which is seawater and termite resistant with an anti-slip pattern
4. Flexible and resistant to waves
5. Completely knockdown and quick to install in a matter of days
6. Has high buoyancy (maximum recommended load: 100kg / m²)
7. Has a wide variety of applications and can be

expanded

8. Can be used on mud / sand at low tide
9. Because it is floating, it always follows the tides of the sea, giving the pier height from the sea level which is always the same

Jukung, Catamaran and Jukat

Jukung and Catamaran are sea transportation commonly used by fishermen in Indonesia. There is a flaws of using traditional Jukung and catamaran because it was made of wood which is easily weathered.

Cutting timber to make traditional Jukung and catamaran is not environmentally friendly, especially after seeing the dire condition of Indonesia's forests.

AquaTec creates modern marine transportation facilities using anti-drown Jukung and anti-drown catamaran made from Polyethylene. Because it is made of Polyethylene, there is no need to cut trees to make Jukung and catamaran.

AquaTec anti-drown Jukung and anti-drown catamaran are made from flatt pipes, so they can split water very well.

Because the pipe is filled with air and is sealed, the buoyancy of the AquaTec anti-drown Bearing and anti-drown Catamaran is inside the pipe, so it cannot drown in bad weather even when it is upside down.

In addition, AquaTec's anti-drown Jukung and anti-drown Catamaran have a product life up to 20 years; much longer than traditional





Jukung and Catamaran.

AquaTec anti-drown Jukung is a compact and reliable single hull boat suitable for fishing and long-distance sailing.

The AquaTec anti-drown Catamaran is a tough double hull boat that can accommodate large loads, suitable for hobbies, fishing, passenger transportation,

and marine commodity transportation for very long distances.

The AquaTec anti-sinking jukat (jukung catamaran) is a catamaran that is given an outrigger like a jukung, resulting in more stability than a catamaran.

Unlike fiber made marine transportation, AquaTec's anti-drown Jukung and anti-

drown catamaran have very high impact resistance. If the fiber transportation break easily when hit, the AquaTec Anti-sinking Jukung and Anti-sinking Catamaran are resistant to very hard impacts. We use flexible Polyethylene pipes with a thickness of up to 12.5mm for safety.

By using AquaTec's anti-drown jukung and anti-drown catamaran, fishermen can safely sail and improve their living's standard.

AquaTec's jukung, catamaran, and anti-drown jukat have been tested in the Pangandaran Sea. The resilience of AquaTec's anti-drown jukung has been proven, with the trial of a tourist expedition using AquaTec anti-drown jukung in Bali and Lombok Strait.



Indomarine Internusa, PT



PT Indomarine Internusa Is A Company In The Field Of Procurement Of Cool Boxes, HDPE Cool Boxes, Cooler Boxes, HDPE Cooler Boxes, Ship Engines, Paste Engines (Yamaha, Suzuki, Evinrude, Honda, Mercury, Dolphin Selva), Outboard Engine Spare Parts, Equipment And Ship Tools (Speed Boat Equipments), Navigation Tools. Rubber Boat, Garmin Gps, Furuno Navigation, Garmin Radar, Garmin Fishfinder Depth Sounder, Icom Vhf Ssb Radio Communication, Avon Inflatable Boat, Bombard Inflatable Boat Commando

Rescue Boat, Life Jacket, Survey Equipment Tool, Survey Equipment, Compass, Brunton Compass Suunto, Boat Yacht Ship Equipment Life Safety

Equipment, Parker Racor Filter, Parker Hydraulic Hose, Teleflex Morse, Rule Pump, Vetus, Bennet Trim Tab, Delco Marine Battery, Polyform Fender F4 A5,



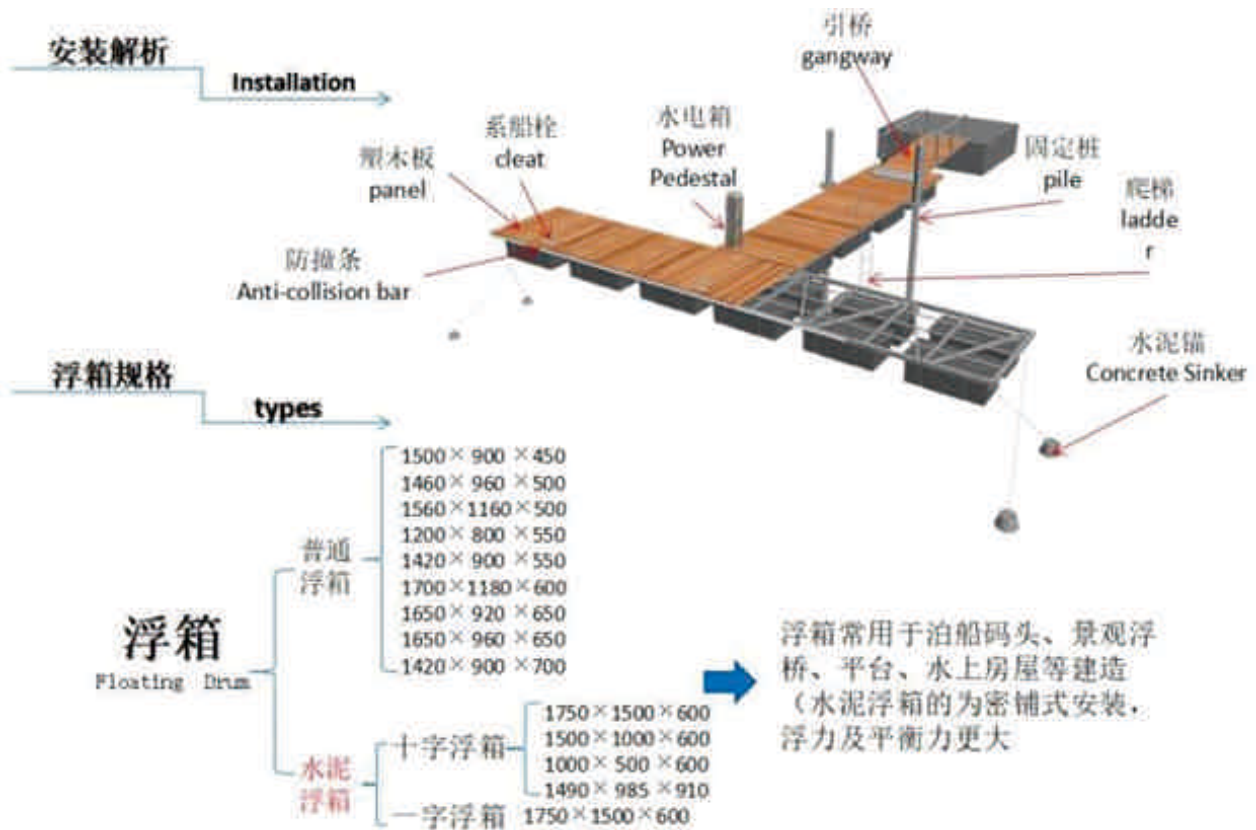
Survey Equipment Ship
Tools, Filter Racor, Pump Itt
Rule Jabsco, Avon Rubber
Ship, Commando Boat
Bombard Rescue Boat,
Ritchie Compass, Suunto
Compass Brunton Compass,
Danforth Compass, Fender
Polyform A5 F2, Vetus,
Teleflex Morse Hydraulic
Steering Ship, Remote Morse
Cable, Radio Vhf Marine Ssb
Communication.



PT Indomarine Internusa
Provides All Types of Fishing
Equipment Including the
following: Fish Feed
Equipment, Hatchery
Equipment, Cultivation
Equipment, Fishing
Equipment, Processing
Equipment, Water Lab

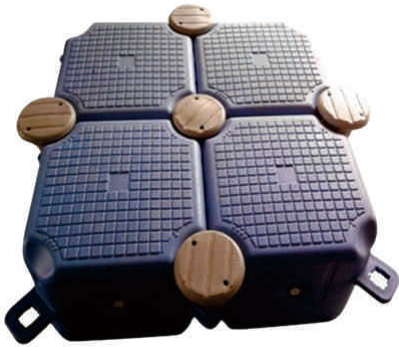
Equipment, Marine Lab
Equipment, Fishery School
Equipment, Fisheries
Polytechnic Equipment,
Fisheries & Marine
Department Tools, Paddle
Wheel, Current Meter, Do
Meter, Pellet Printer, Frezer &
Cold Storage, Ice Machine
And Fish Medicine.

We Have An Adequate
Stock Stock, And For Goods
That Are Imported Can Be
Provided Quickly. Handled by
Expert Staff in Their Fields
(Professional) and
Experienced Technicians.



PRODUCT

FLOATING NET CAGE



The floating net cage used to keep fish or aquatic biota floating on the water.

Functions:

For breeding or cultivation of fish and marine life.

Purpose:

By using the "Magic Float" Interlocking System Floating Cube, the floating net cage

remains stable even though the waves are big, because the frame of its construction is a series of floating cubes that bind each other, making it very strong, stable, and durable.

Material:

There are several types of materials used for the

construction of traditional floating net cages:

- Bamboo or wood.
- Paralon pipe (PVC)
- Fiber glass
- Styrofoam which is given a net so that the cage always floats on the water.



Currently, a technology innovation has been found for "floating net cages" using "Magic Float", which is a multipurpose floating cage construction with HDPE (High Density Polyethylene) material that is easy to install, environmentally friendly, strong and durable.

CERTIFICATE:

1. ISO 9001
2. CE of Xinyi Float



ALUMINUM FLOATING CUBES

Aluminum Floating Jetty is a floating dock made from environmentally friendly High Density Polyethylene (HDPE) combined with a flange system into a single, sturdy and flexible structure, and reinforced with a Marine Aluminum profile frame, then equipped with Wood Polyethylene floors which are thick, making it suitable to used in ocean and fresh water.

Unlike the floating jetty in general which has a cube-shaped floating device, the Aluminum Marine Floating Jetty is very strong and resistant to waves and also durable.

ADVANTAGES OF ALUMINUM FLOATING DERMAGA

1. Environmentally friendly, the cube is made of premium grade anti-UV High Density Polyethylene (HDPE).
2. The construction is made

with marine aluminum so that it is durable with a product life of over 30 years.

3. The walking platform (floor) is made from Wood Polyethylene Compound - WPC which is seawater and termite resistant with an anti-slip pattern.
4. Flexible and resistant to waves.
5. Completely knockdown and quick to install in a matter of days.
6. Has high buoyancy (maximum recommended load: 150kg / m2).
7. Because it is floating, it always follows the tide of the sea, giving the pier height as high as the current sea level.



Anugerah Atlantik, PT



PT. ANUGERAH ATLANTIK serves sales of hdpe floating cube where the product is a cuboid with a size of 500 x 500 x 400 (mm) which is produced using HDPE material with a wall thickness of about 10 mm. The Floating Cube has ear hooks on each side for connecting HDPE floating cubes. The HDPE Floating Cube inside is empty filled with air for the buoyancy of the floating cube. HDPE

floating cubes are also made from very environmentally friendly materials, which are produced using recycled HDPE, and the material is UV resistant which is resistant to sun and weather. HDPE floating cube surface has a shape that is safe for people to walk because it has anti-slip.

Floating Net Cages | The quality of hdpe floating cube is no doubt besides its

environmentally friendly production material and strong HDPE, hdpe floating cube is tested for its material strength. This HDPE floating cube has passed the material laboratory test with international standards. The HDPE floating cube passes the tensile test, the tear test, the compressive test to the buoyancy test.

The HDPE floating cube that came out of the

manufacturer has passed the test so that the quality is not in doubt.

Floating Net Cages | PT. ANUGERAH ATLANTIK is the agent of hdpe floating cube products in Indonesia. We have various types of hdpe floating cube. Floating Net Cage We have HDPE floating cube which is flat and also interlock which has the same function and strength. We also have a single hdpe floating cube that has a size of 500 x 500 x 400 (mm), a double that has a size of 1000 x 500 x 400 (mm), is a quartet that has a size of 1000 x 1000 x 400 and there is also a cube floating hdpe half 500 x 500 x 250 (mm) and 250 x 500 x 400 (mm). Modular Float System or Floating Cube is an innovative-creative product with versatile and multifunctional features, where this product is cuboid and can float.

Floating Net Cages | This product is designed to be very safe and environmentally friendly, where by using a very strong HDPE material, this product is anti-UV and can be recycled and has a long life time because the material is anti-corrosion.

Floating Net Cages | This product has 4 connecting constructions in each corner that function to connect with

one another so that it can be assembled and assembled very easily to fit the desired design.

Floating Net Cages | This product is very versatile and multifunctional because it can support several fields of work, namely for floating piers, floating net cages, floating houses and supporting engineering work.

SPECIFICATIONS | Floating Net Cages

- Dimension: 500 x 500 x 400 (mm)
- Weight: ± 7 kg / pcs
- Floating Capacity: 350 kg / m2
- Material: HDPE (High Density Polyethylene)
- Color Available: Blue,

Orange, Gray and Black

- Life Time: 15 years

ADVANTAGES OF FLOATING CUBES | Floating Net Cages Environmentally Friendly | Floating Net Cages

The Modular Float System is made of very strong High Density Polyethylene (HDPE) so that the Modular Float System is anti-corrosive, anti-oxidant, UV resistant and very environmentally friendly which can prevent erosion from sea water, chemicals, medicines and oil.

Safety | Floating Net Cages

The Modular Float System has a non-slip surface design that ensures safety and stability.





Easy Care | Floating Net Cages

The Modular Float System has a life time of around 15 years without any maintenance costs unless the damage is caused by nature and misuse in operations.

Easy Installation | Floating Net Cages

The Modular Float System is very easy to install and assemble. The unique design and structure of the Modular Float System so that it can be changed according to the conditions of the installation location.

Reasonable Prices | Floating Net Cages

The price of the Modular Float System is very reasonable according to the benefits, life time, maintenance, materials and advantages of the Modular Float System.

Complete Accessories Equipment | Floating Net Cages

The Modular Float System has complete accessories that can support the construction of floating piers such as bollards, fenders, fences, pile guides etc.

FEATURE | Floating Net Cages

- The floating cube is manufactured from strong HDPE material
- The Floating Cube has a unique design
- The floating cube is designed to have a non-slip surface for user safety
- The floating cubes have strong "ears" to tie the floating cubes together
- The Floating Cube has an inlet to put water into the floating cube which functions to adjust the balance

- The Floating Cube has a "dot" on each corner for easy installation.
- The floating cube has a "draft" meter to determine the immersed condition of the floating cube

- payload of 300 kg: 35 cm - 40 cm (load limit)
- Double Layer
- Single Layer height 80 cm, where each square meter is made of 8 pontoon / cube with load capacity max. about 600 kg / square meter.

- Floating Platform
- Floating Dock
- Floating Walkway
- Floating Jet Ski Dock
- Floating House
- Floating Restaurant
- Fish Cages (Fish Farm)
- Supporting engineering work (Supporting engineering work)
- Floating Helipad

FLOATING POWER CAPACITY | Floating Net Cages

- Single Layer
Single Layer height 40 cm, where each square meter is made of 4 pontoon / cube with load capacity max. about 300 kg / square meter
- Unloaded draft height: 2.5 cm - 3 cm
- Draft height with a payload of 150 kg: 15 cm - 20 cm (safe)
- Draft height with a

- Unloaded draft height: 3 cm - 5 cm
- Draft height with a payload of 300 kg: 40 cm - 50 cm (safe)
- Draft height with a payload of 600 kg: 70 cm - 80 cm (load limit)

APPLICATION | Floating Net Cages

- Floating Jetty
- Floating Bridge
- Floating Swimming Pool



Floating Net Cages | HDPE

Floating Cube is a multifunctional product that is very useful to help in everyday life. The HDPE floating cube functions such as floating jetty, floating net cages, floating net cages, floating helipads, floating net cages, floating vehicles, floating pump houses, floating houses, floating gazebos and floating restaurants.



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