



INNOVATIVE **P**ERMANENT **U**NDERWATER **F**ORMWORK



MODULAR

Modularity. HYDRANTULA designs consist of elementary 3D cells that can be added arbitrarily (like LEGO bricks). The finished structure can be easily adapted in size and strength to the needs of the customer and the conditions of aquatoria.



MULTIROLE FITTING DESIGN

Versatility. Most HYDRANTULA fittings have an excessive number of connection sockets for pipe beams and rods and can be used at different positions in the structure, performing different roles (corner, wall, bottom, center). This greatly reduce assortment and let us - save on logistics and inventory.

II



MULTILAYER MULTISTOREY

High-rise buildings. HYDRANTULA provides possibility of using several floors (tiers) in the structure. This increases the strength of the structure. Makes it suitable for significant depths (5...12m)



ISOTROPIC LOAD

Isotropy of loads. Unlike most land structures, HYDRANTULA is perfectly adapted to significant lateral and alternating loads and "ascent" forces. She holds a punch from any direction.

IV



S

SEABED FREESTAND

HYDRANTULA can be installed both on a field of screw piles or without a strong connection to the seabed [FreeStand mode]. In the latter case, HYDRANTULA structures can be dismantled or relocated.

C

CONDUCTED SCREW PILE COMPATIBLE

HYDRANTULA can be installed both on a field of screw piles or without a strong connection to the seabed [FreeStand mode]. In the latter case, HYDRANTULA structures can be dismantled or relocated.

V



A

MPHIBIOUS

Amphibious. HYDRANTULA is equally good in seasonally flooded lowlands, in the tide zone or at depth.

I

CEPROOF

Frost resistance. Even a 100cm layer of sea ice will not damage the HYDRANTULA structure.

V



D

RY - 90 % INSTALLATION

Dry assembly. 90% of all work related to the installation of HYDRANTULA is carried out on shore. This ensures the safety of work, speed and high quality. And dramatically reduce budget and workforce essential skills.

W

AVE TRANSPARENCY

High transparency for waves. HYDRANTULA structures freely pass waves through themselves, HYDRANTULA are not an obstacle to coastal currents. 3D frame do not cause erosion of the bottom or sediments. They do not contribute to waterlogging.

VII



C

COST EFFECTIVE

Reasonable price. The cost of a "marine" foundation is comparable to its land-based counterparts.

S

SERVICE LIFE - 60 YEARS

Durability/Longevity. HYDRANTULA can be used for up to 60 years.

VIII



A

RTIFICIAL REEF

HYDRANTULA eventually overgrows with sessile aquatic organisms and mollusks and becomes an artificial reef.



E

ASY TO ASSEMBLY

Ease of assembly. Thoughtful engineering solutions allow you to confidently assemble 3D farms, guided by an understandable manual. Its LEGO for adult.

IX



ROOVELOCK

Sealed concrete supply. Radically reduces aquatoria pollution. Increases the quality and speed of work.



COMPOSITE REBAR RODS

Composite rebar rods. Improve the volumetric rigidity of the 3D truss.



LIGHTWEIGHT EMPTY FORMWORK

If composite armoring used - empty Hydrantula formwork weights just first tonnes (1...3) and can be handled by truck with crane or barge with built-in crane. Also Hydrantula formwork can be afloat for long enough time to trawler her to final location. All that greatly saves time and money.



RICH COLOR

Rich color palette. For a consistently good mood.

XI



S

IZE SCALABLE 300%

Scalability. Unlike most other formwork systems, HYDRANTULA allows you to change the size of the product in a wide range (300%) without changing the range of components. Exclusively due to the adjusted cutting of pipe beams.

O

FFSHORE 70M

Offshore. HYDRANTULA is designed to be pumped in with concrete via concrete pipeline. It allows Hydrantula to be installed without specialized "marine" equipment (floating cranes, barges, floating shvings) at a distance of up to 70 meters from the shore.

XII



LOW CO₂ FOOTPRINT

Hydrantula formwork do not contain steel and saves up to 75% of concrete for comparable structures. It greatly reduce CO₂ emissions caused by steel and cement manufacturing and material shipping. HDPE manufactured from oil or natural gas without burning coal and with much less energy consumption.



NO MICROPLASTICS

Hydrantula made of thick walled HDPE it produce less then 0.5% of ocean microplastics (and only in frozen waters) if compare by weight with packing, woven items, fibers or plastic bottles. From other side we do not use any paints or chemicals for wood treating, do not use harmful Zn to protect steel from corrosion and our structures outlast any wooden or metal by several times.

XIII



SEA LEVEL RISE PROTECTION

SEA LEVEL RISE is a major challenge for many countries include USA, Dutchland, Netherland, Carribean nations. Coastal protection technologies of Hydrantula can keep recreational potential and save beach from erosion.



OFF-SHELF 70% MATERIALS

70% of the HYDRANTULA structure is assembled from standard, widely available constructional materials.



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