DREDGING SOLUTIONS PTY LTD

Simply. Smart dredging

THE Environmental Dredger

The amphibious multipurpose Watermaster concept is a smart choice for all environmental shallow water projects, such as: flood prevention, restoring shallow waterways and shores, vegetation and trash removal, cleaning urban canals, removing polluted sediments, maintaining industrial ponds and water construction projects.

Watermaster's smart operating principle enables very accurate and efficient environmental dredging - the right amount from the right place.

Watermaster has dedicated attachments for different applications – always the right tool for the job.

Watermaster's multipurpose functions and unique mobility minimize the needed machinery at the site and thus minimize the strain on the environment and keeping it efficient.

Watermaster is one machine that can efficiently complete all your shallow water work.

Watermaster is build for heavy duty multipurpose operation, it has a variety of attachments enabling a wide variety of applications.

The change between working modes takes about 30 minutes.

The amphibious multipurpose Watermaster does suction dredging, backhoe dredging, raking, piling and has the ability to use also other hydraulic attachments, such as a hydraulic hammer for under water work.

- **Mining & Industrial Pools**
- **Minerals Reclamation**
- **Environmental Services**
- **Pile Driving**
- **Flood Control**
- **Rivers and Canals**
- **Shorelines**

Dredging Solutions Mining Applications

Water is an essential part of a typical mining operation. There are 3 main types of water involved:

- Process Water
- Seeping Water
- Tailings Water

Watermaster solves problems in each of these categories.
Mineral sediments, also known as slimes, accumulate over time in process water ponds.
Cleaning the ponds from the slimes keeps the ponds in operation and prevents costly down-times.

Mining generates enormous amounts of solid waste, "tailings", in the form of rocks and dirt.
In order to prevent the uncontrolled release of tailings material into the environment, enrichment plants have a disposal facility, usually a pond. Tailings ponds require regular maintenance to ensure safe operation of the enrichment plant.

Tailings and drainage ponds may also contain valuable materials that have accumulated there due to rainfall or outdated processing methods. These materials can be profitably reprocessed with modern technology.

SLIMES REMOVAL

- Removing mineral sediments, slimes, from process ponds to keep them from clogging the pumps and lowering the production rate.
- Slimes removal from rain/groundwater ponds in open pit mines.

RECOVERING VALUABLE MATERIALS

- Pumping coal back to the process from drainage ponds.
- Pumping old tailings back to the process for reprocessing.
- Collecting spilled ore.

TAILING POND MAINTENANCE

Keeping tailings ponds in good condition and maintaining the volume.

- Pumping tailings to final deposit.
- Enforcing tailings pond banks.
- Leveling tailings in tailings ponds.

Watermaster Work Modes

The amphibious multipurpose Watermaster does suction dredging, backhoe dredging, raking, piling and has the ability to use also other hydraulic attachments, such as a hydraulic hammer for under water work.

Suction Dredging

- The main suction dredging attachment is the Cutter Pump.
- The most efficient suction dredging depth is 0,8 m – 5,5 m.
- The maximum pumping distance is 1,5 km.
- Indicational pumping capacity of sludge (solid material mixed with water) is around 500 m3/h.

Backhoe Dredging

- Steady independent anchoring with four stabilizers.
- The most efficient backhoe dredging depth is 0 m – 4,5 m.
- The indicational backhoe dredging capacity of solids is 40-60 m3/h, depending on soil type and backhoe bucket.
- Several attachments available: 600 l bucket with teeth,700 l bucket without teeth, Clam shell bucket.

Raking

- Watermaster ´s Rake-attachment is a 2,75 m wide tool for removing vegetation (both floating and rooted) and trash.

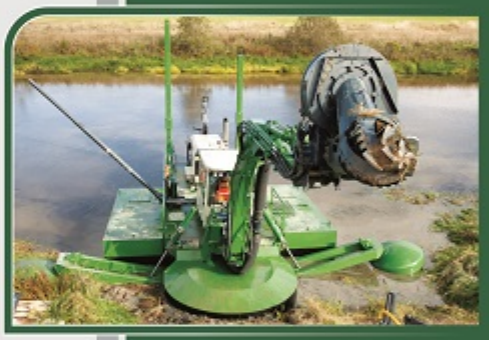
Piling

- Two attachments are available for piling work; the Piling bucket(for wooden piles) and the vibrating piling tool (for both metalsheets and wooden piles).
- Watermaster grabs the piles from the side and can thus handle longer piles.

Patented Cutter Pump

For demanding environmental dredging projects. Watermaster's own state of the art Cutter Pump is an essential part of the versatile Watermaster Concept.

- **It is made for tough conditions with changing soil types, roots etc.**
- **It includes two cutter crowns and an integrated vegetation cutting knife system**
- **The smart operating principle enables continuous productive operation (over 96 % of the total operation time) and the submersible pump allows working in very shallow waters or even from the dry land side**
- **The maximum pumping distance is up to 1,5 kilometers**
- **Easy and quick to clean when necessary - can be turned to Watermaster's own deck**
- **Watermaster is fully amphibious also when working with the Cutter Pump as the pump can handle the whole weight of the machine**



Convenient & Versatile

Transport

Watermaster is transported as a complete unit so there are no setup-times when arriving at the site.

Walks into Water

Watermaster is amphibious and can walk independently in and out of water without crane assistance.

Cruise to Site

Watermaster has it's own propulsion system so it can get to the site independently without the help of tugboats.

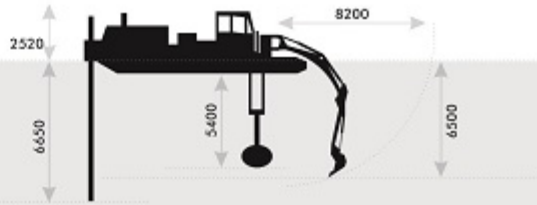
Work

Watermaster has four stabilizers enabling steady and accurate anchoring and operation.

Work Depths

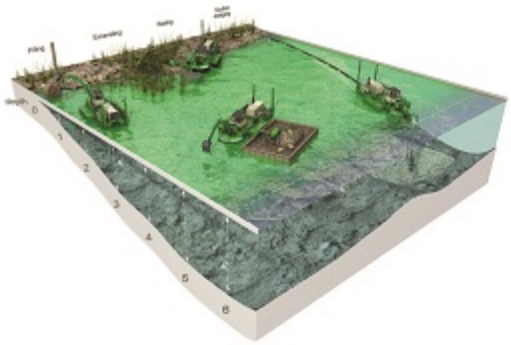
Watermaster is the shallow water specialist for all applications, from dry land to 6.5m depth.

- The maximum reach is 6,5 meters.
- The most efficient working depth is up to 5,5 meters.
- Watermaster uses the front and rear stabilizers to anchor itself to the bottom (from 4 points).
- Watermaster can operate in very shallow waters, wetlands or even on dry ground – in places that are unreachable for other dredgers.



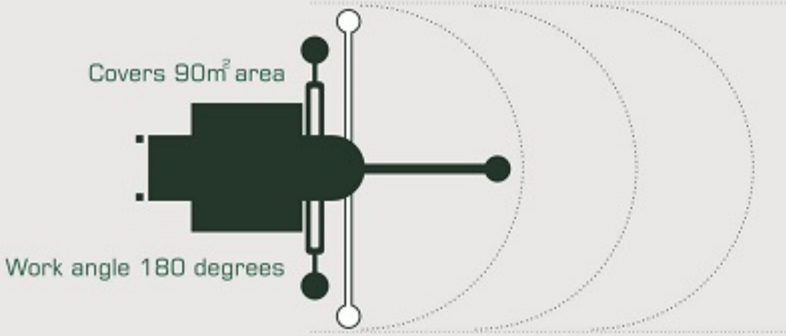
* General Reach and dimensions

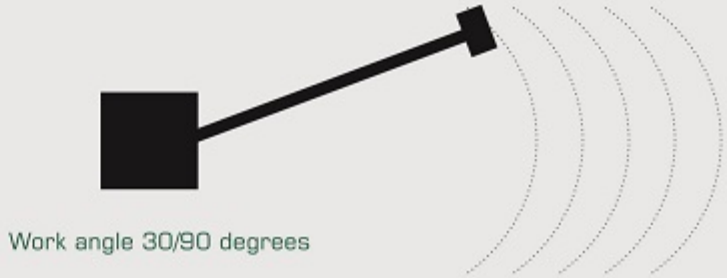
Watermaster VS Pontoon Excavators



By utilizing the Watermaster concept only one versatile machine is needed for various tasks in mining ponds.

Using conventional methods several machines are needed for different work areas and tasks in mining ponds.





Watermaster uses over **96%** of total operation time for productive work and less than **4%** for repositioning the machine.

A non-flexible stiff suction pipe dredger covers only a narrow area and must constantly be repositioned, more labour intensive.

Suction Dredging

Backhoe Dredging

Raking

Piling

Clam Shell

Heavy Duty Versatility

Watermaster is built for heavy duty multipurpose operation, it has a variety of attachments enabling a wide range of applications.

- **The change between working modes takes about 30 minutes.**

The amphibious multipurpose Watermaster does;

- **Suction Dredging**
- **Backhoe Dredging**
- **Raking**
- **Piling**
- **Clam Shell**

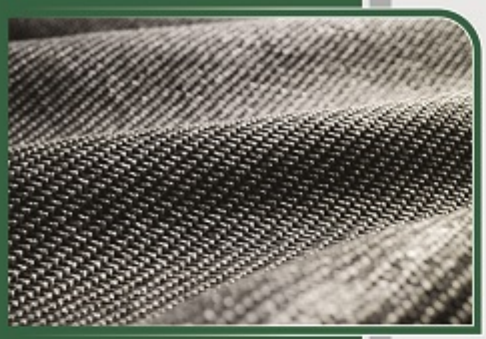
Watermaster Dredging Solution

- **One Machine**
- **Superior mobility & versatility**
- **Replaces several single purpose machines**
- **Reduces operational costs**
- **Proven performance & service**
- **Operating area; from dry ground to 6m depth**
- **Heavy duty versatility**

Watermaster is a fully tested and documented serial product.

For quality assurance each Watermaster is inspected and approved by an independent Maritime Authority.

- Watermaster's reliability is demonstrated through documents like:
- ISO 9001 Quality Certificate.
- ISO 14001 Environmental Certificate.
- CE certificate.
- Stability and trim calculations.
- Inclining test reports.
- Noise measurement reports.
- Vibration measurement reports.
- Cabin safety certificate (FOPS).



Treating Problem Mine Water - GEOTUBE

A highly reliable, all-in-one solution has been developed for reducing the impact industry has on the environment. This is used in conjunction with the Watermaster multipurpose dredgers.

Sludge containing metals is purified inside Geotube units. Four layers of the Geotube containers capable of being filled to 2.32 metres high each are installed at the site. The size of the Geotube processing area and the number of containers are carefully dimensioned to meet the capacity required, the composition of the sludge to be treated, and the mechanical stress that is imposed on structures.

THE NEW TECHNIQUE IS SUITABLE FOR;

- **Mines**
- **Oil Refineries**
- **Pulp and Paper Mills**
- **Municipal and Industrial Water Treatment Plants**
- **Tanning Units**
- **Environmental Projects**
- **Construction Projects**

BENEFITS ARE;

- **High treatment speed and large capacity**
- **Good cost efficiency**
- **Safe and reliable**
- **Works well regardless of sludge type**
- **Operates year round in all weather conditions**
- **Good purification results**
- **Excellent sludge treatment and drying performance**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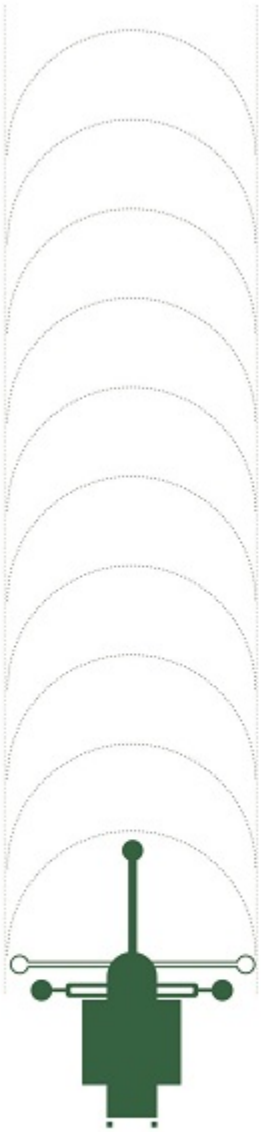

Dredger covers over 90m² area from each positioning - **work angle is 180 degrees**

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