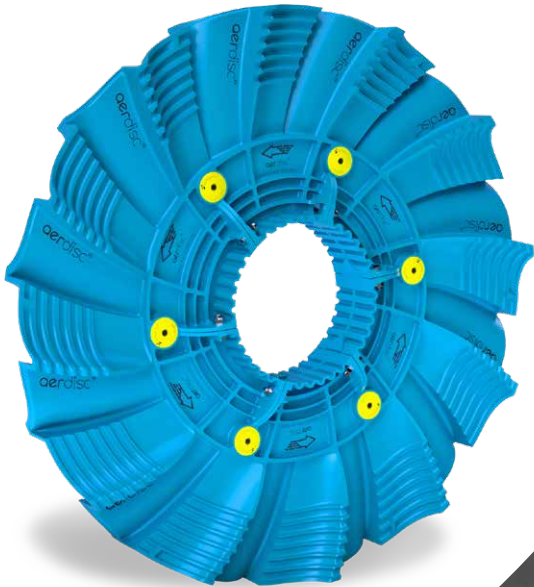


aerdisc®

directional aerator

- **Eliminate** ragging
- **Improve** efficiency
- **Prevent** short-circuiting



A product development by



Your **Aeration** Partner

aerdisc® DA-0750-50/10D - Gen 3
7.5kW, 50Hz, 69rpm, 10-Disc

www.aerdisc.co

www.aeris.global

It's all about the **refresh**

aerdisc® Directional Aerator

aerdisc® sets new standards of oxygen transfer efficiency and has no capacity to harvest rag nor scour the floor of earthen lagoons.

The disc is designed to maximise collection and release of air, whilst generating a huge pump rate and strong horizontal velocity.

aerdisc® is designed to optimise conversion of mechanical energy into kinetic energy. It does not waste energy throwing water in the air.

The operating principle involves a continuous cycle of capturing atmospheric gases and dissolving oxygen as the partially immersed disc rotates.

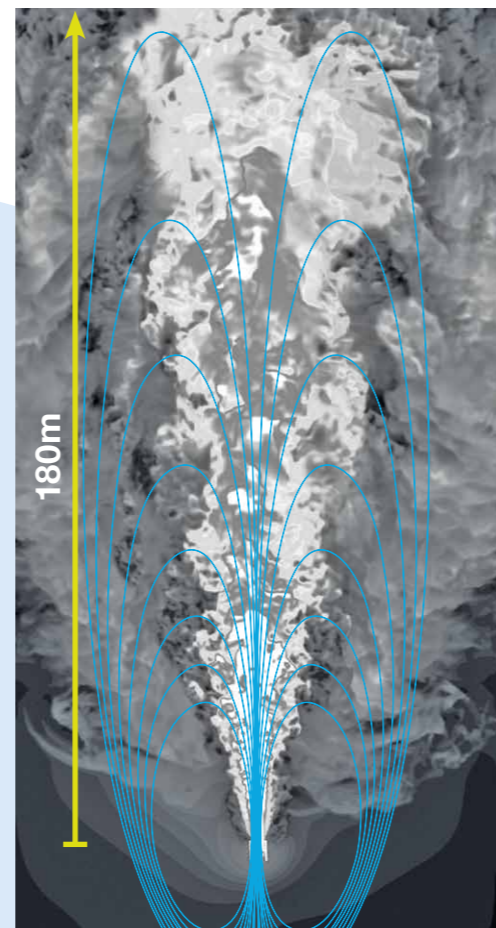
The primary task of any high-functioning aerator is continuous renewal of the contact area



● What is directional aeration?

As the name suggests, directional aeration directs the discharge in a chosen direction, for a particular purpose. The most common purpose is generation of a specific flow pattern to prevent short-circuiting. This is the term given to flow taking the most direct path between the inlet and outlet. This reduces the HRT (Hydraulic Retention Time) and therefore limits the process potential of any flow-through lagoon.

However, the core logic is less obvious. Directional aeration focuses on mass displacement of water and rapid renewal of the contact area. Water with a low DO (Dissolved Oxygen) level is drawn in, charged with oxygen, and moved on.



● Oxygen Deficit

Oxygen deficit is the difference between actual oxygen content and the saturation value of the water. The greater the difference the greater the oxygen deficit.

Continuous renewal of the contact area is critical because the highest rate of oxygen solubility occurs when oxygen deficit is greatest.

Advantages & **Benefits**

● Save energy

aerdisc® sets a new standard of oxygen transfer efficiency with a guaranteed SAE of 2.3kgO₂/kWh. Every percentage gain in efficiency equates to the same percentage reduction in energy consumption.

● Eliminate ragging

aerdisc® will not rag even when installed in un-screened, or un-dredged plants with a build-up of settled deposits. The unique disc design has no capacity to harvest rag and the pontoon design has an open discharge with nothing to intercept the flow.

● Prevent short-circuiting

Maximising Hydraulic Retention Time (HRT) is critical for any flow-through lagoon. Short-circuiting equates to a reduction in process volume because it reduces the theoretical average time a molecule of water should reside in the lagoon.

● Increase volume turnover

Maximising volume turnover is essential for optimum performance of any mechanically aerated lagoon. The lagoon volume divided by the total pump rate of all aerators in operation provides the turnover rate. aerdisc® has a pump rate exceeding 2.5m³/s or 9,000m³/h.

● Non-scouring

aerdisc® will not scour the floor of earthen constructed lagoons because the high energy discharge velocity is targeted horizontally.

● Low aerosol

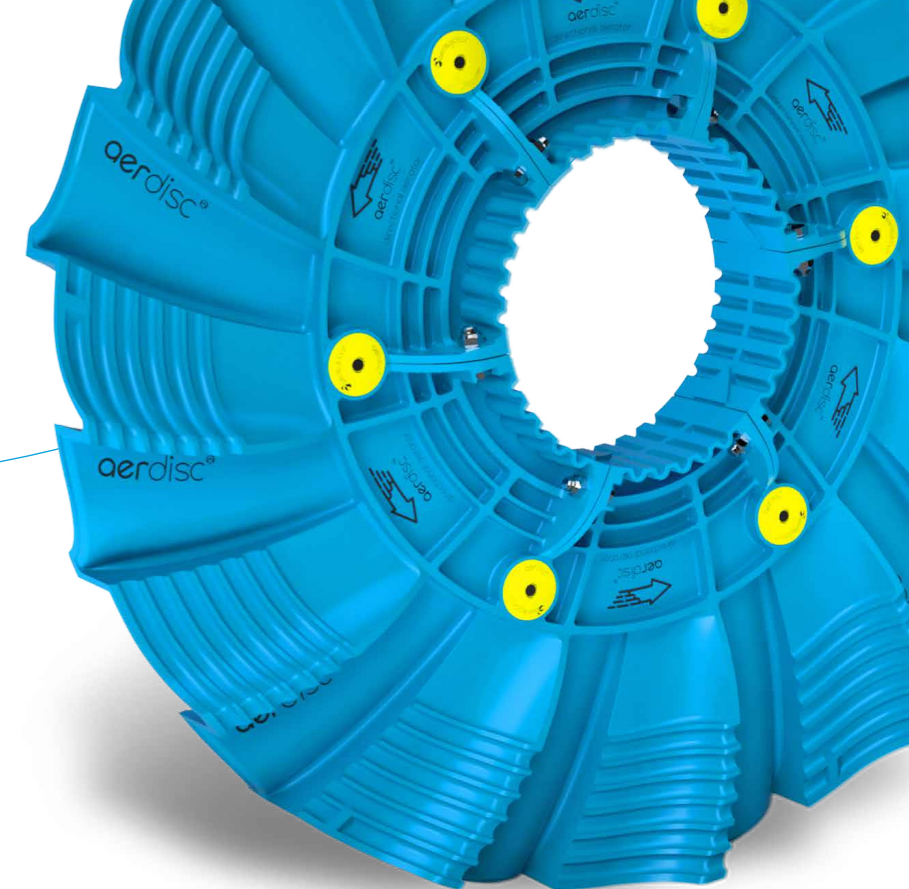
aerdisc® is designed to push, not lift. The reverse curvature of the disc blades ensures a smooth exit and therefore minimum carryover and water throw.

● Low maintenance

aerdisc® is designed for ease of maintenance and long service intervals. The rotor bearings are sealed for life and rated for 100,000 hours. The SEW-Eurodrive geared motor features synthetic oil and Viton seals allowing 3-year oil change intervals.

● Ease of installation

aerdisc® is assembled in-situ and after the swing-arm is attached to the mooring bollard it can be lifted and placed in the lagoon. The swing-arm mounting allows aerdisc® to be installed in lagoons of any shape or size because transverse mooring cables are not required.



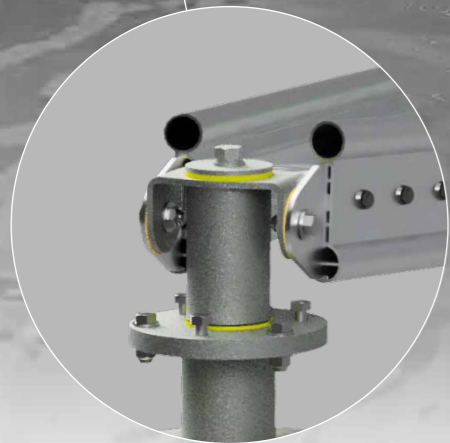
aerdisc[®] is revolutionary

aerdisc[®] sets new standards of oxygen transfer efficiency; has no capacity to harvest rag, nor scour the floor of earthen lagoons, and is purpose-designed to prevent short-circuiting.



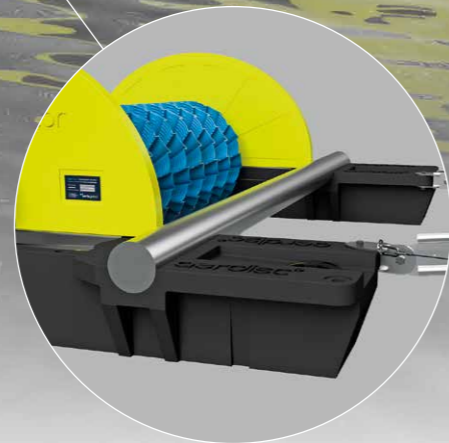
Disc

The unique interlocking, segmental disc is designed to maximise collection and release of air, whilst generating a powerful horizontal velocity.



Bollard

The bollard allows the aerator to swivel to suit the required vector of thrust, and rise and fall in accordance with water level variation.



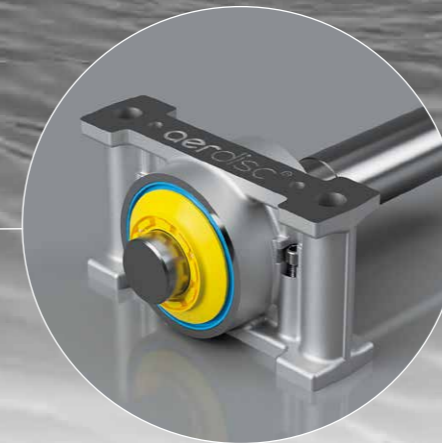
Spar

The pontoon features a lateral spar to achieve an open discharge. The spar allows each float to move independently, whilst remaining parallel.



Drive

SEW-Eurodrive, helical gearmotor with hollow-shaft torque arm mounting. No belts, pulleys, chains, sprockets, or couplings.



Bearing

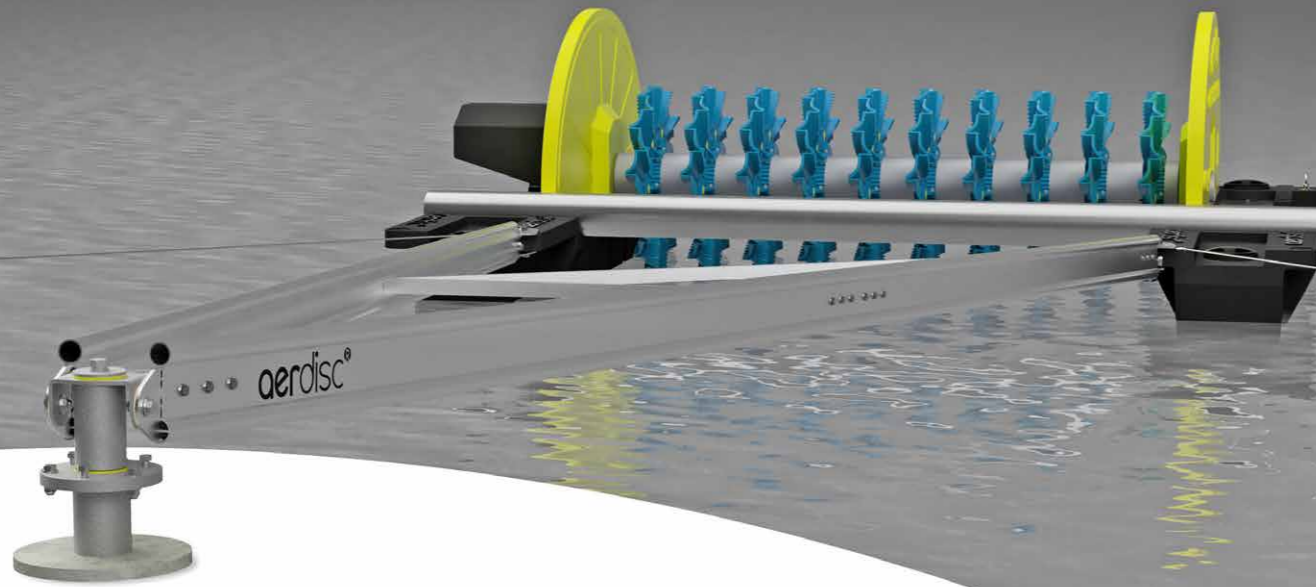
Cast stainless steel, split bearing housing with double-row spherical roller bearing. The housing doubles as a torque arm mount for the drive.



Seal

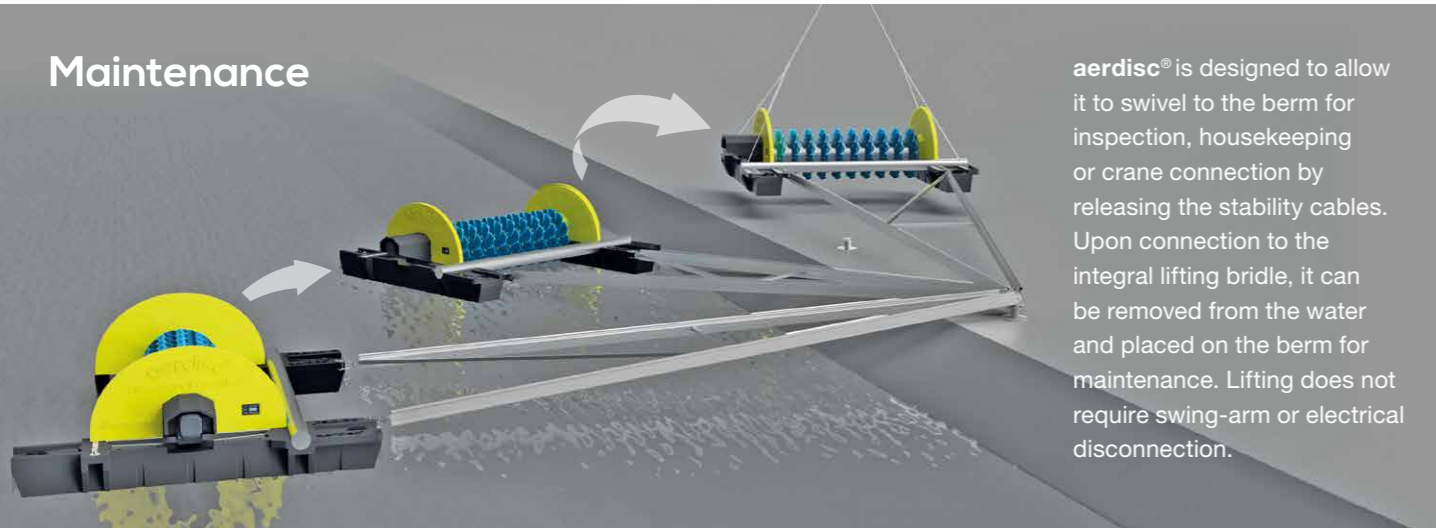
Unique triple-rotor/double-stator, spherical labyrinth seal provides a tortuous path to prevent contamination reaching the bearing.

Moorings



aerdisc® features a 9m extruded aluminium A-frame swing-arm attached to a fully articulated mooring bollard and two stability cable anchors. The swing-arm doubles as a power cable conduit.

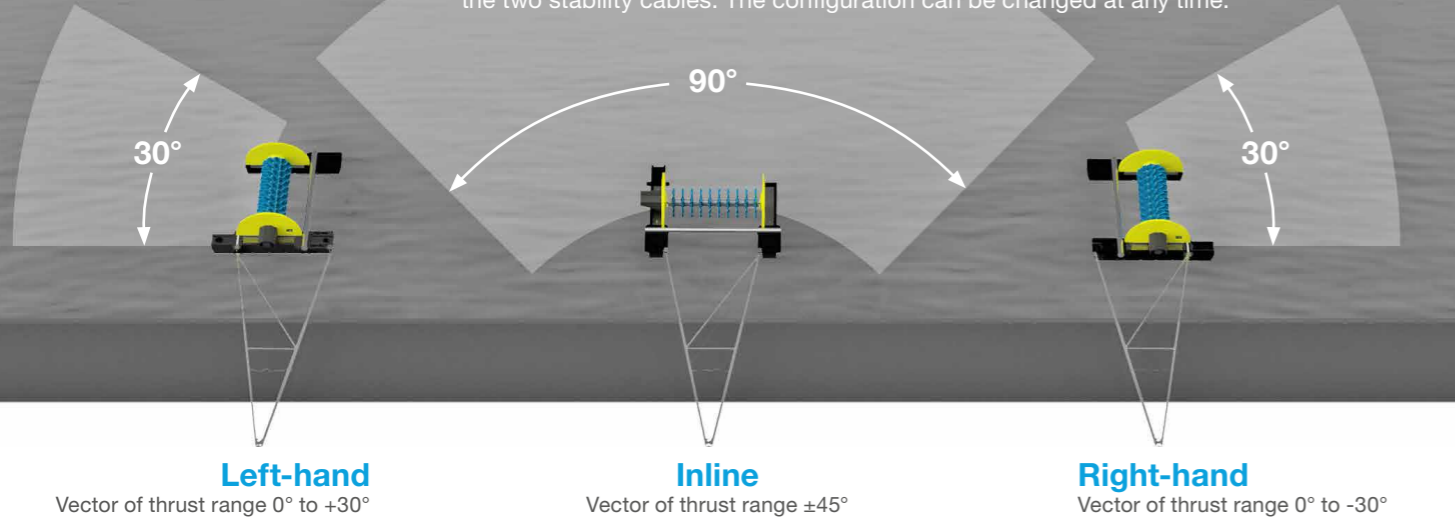
Maintenance



aerdisc® is designed to allow it to swivel to the berm for inspection, housekeeping or crane connection by releasing the stability cables. Upon connection to the integral lifting bridle, it can be removed from the water and placed on the berm for maintenance. Lifting does not require swing-arm or electrical disconnection.

Configurations

The swing-arm can be attached using any one of three configurations to suit the required vector of thrust. Adjustments to the vector of thrust are controlled by using the two stability cables. The configuration can be changed at any time.



Datasheet

aerdisc® DA-0750-50/10D, 7.5kW, 50Hz, 69rpm, 10-Disc - Gen 3

DRIVE

TYPE	DETAILS
MAKE	SEW-EURODRIVE
MODEL	FA77/G DRN132M4/DH
TYPE	PARALLEL SHAFT HELICAL GEAR MOTOR
FRAME / MOUNTING	IEC 132M / VERTICAL M1
NOMINAL OUTPUT / SPEED	7.5kW / 1468
TOTAL RATIO / OUTPUT SPEED	21.43 / 69rpm
OUTPUT TORQUE	1040 Nm
POWER SUPPLY	400V / 50Hz / 3Ph
RATED CURRENT	15.2 A
SERVICE FACTOR	1.35
EFFICIENCY AT FULL LOAD	90.4
THERMAL CLASS	155 (F)
STRIP HEATER	230V
HOLLOW SHAFT	55mm DIAMETER
LUBRICANT	SEW GEAROIL: CLP PG 220 SYNTHETIC OIL (-25 / +80 deg): 5.9L
PROTECTION CLASS	IP66
SURFACE PROTECTION	OS3 (HIGH ENVIRONMENTAL POLLUTION)
DRIVE WEIGHT	126kg

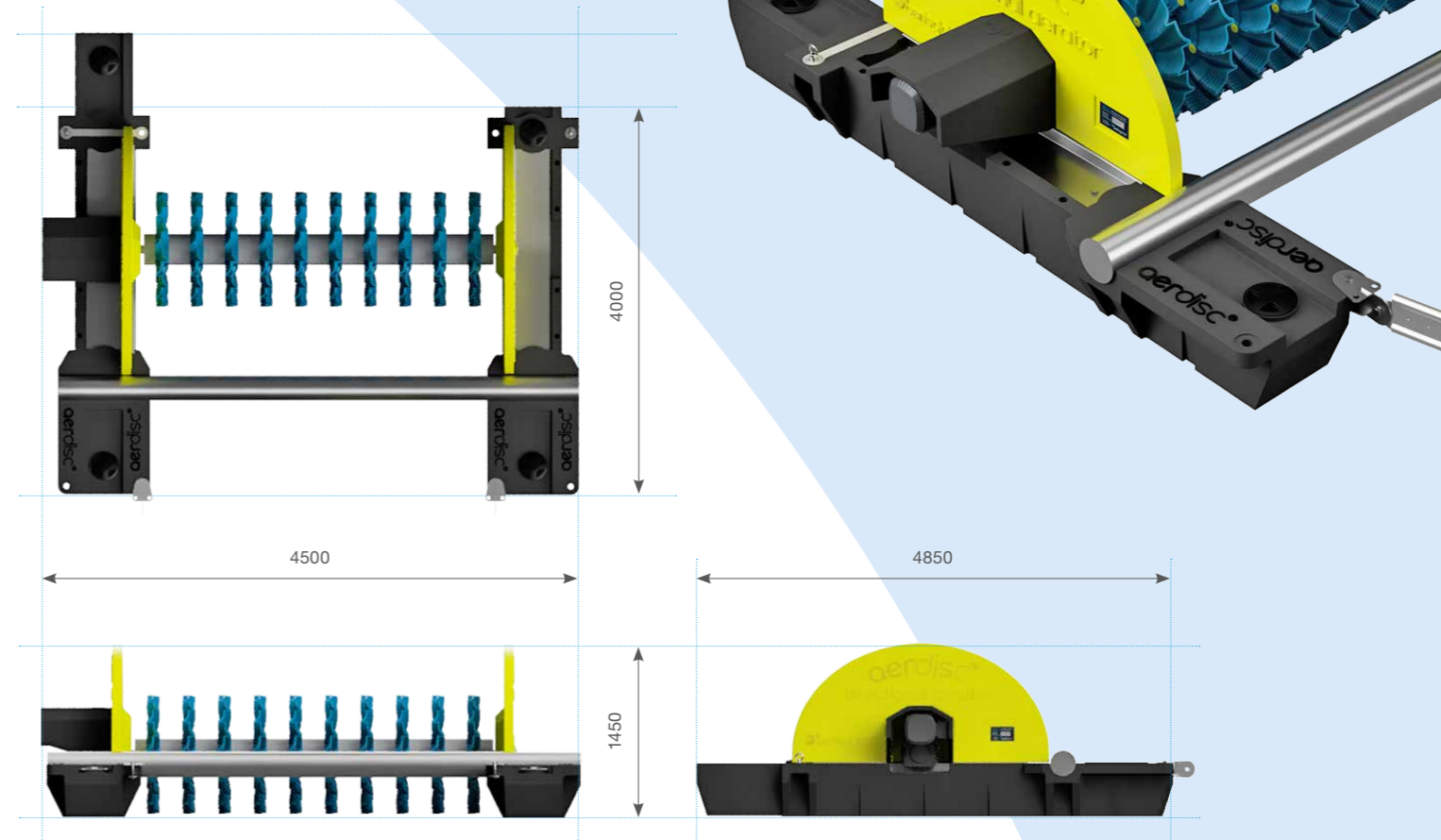
BEARING SPECIFICATIONS

TYPE	DETAILS
BEARING HOUSING	AERIS GLOBAL CAST 316 STAINLESS STEEL
BEARING	22213EAKW33EE
TAPER SLEEVE	H 313
LABYRINTH SEAL	AERIS GLOBAL PROPRIETARY
LABYRINTH INNER O-RING	60x3 N70
LABYRINTH OUTER O-RING	140x3 N70

GENERAL SPECIFICATIONS

TYPE	DETAILS
PONTOON	ROTATIONAL MOULDED MDPE
PONTOON FILLING	CLOSED CELL POLYURETHANE FOAM
PONTOON SPAR ASSEMBLY	304L SS CONSTRUCTION (316L OPTIONAL)
DRIVE SHAFT/TORQUE TUBE	304L SS CONSTRUCTION (316L OPTIONAL)
AERDISC SEGMENTS	POLYAMIDE THERMO PLASTIC RESIN
SPLASH SHIELDS	ROTATIONAL MOULDED MDPE
SWING ARM	EXTRUDED ALUMINIUM
FASTENERS	304L SS (316L OPTIONAL)
TOTAL WEIGHT	986kg

Dimensional Drawings



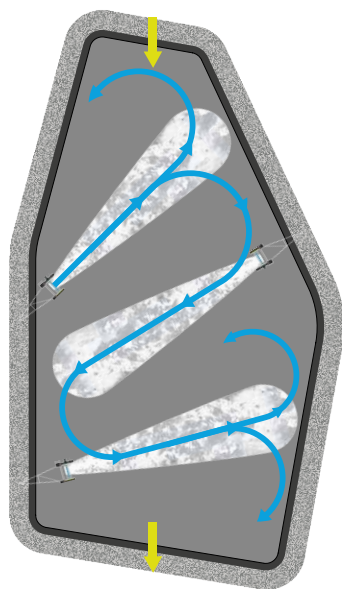
Any size, any shape, any configuration

aerdisc® allows an infinite range of layout options to suit all process objectives.

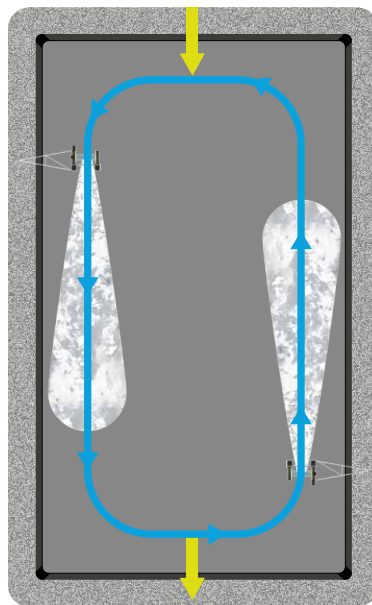
Any quantity and combination of Inline, Left-hand or Right-hand configured units can be positioned and orientated to achieve the desired effect.

aerdisc® creates and controls the flow pattern in a lagoon to generate recirculation, prevent short-circuiting and maximise hydraulic retention time.

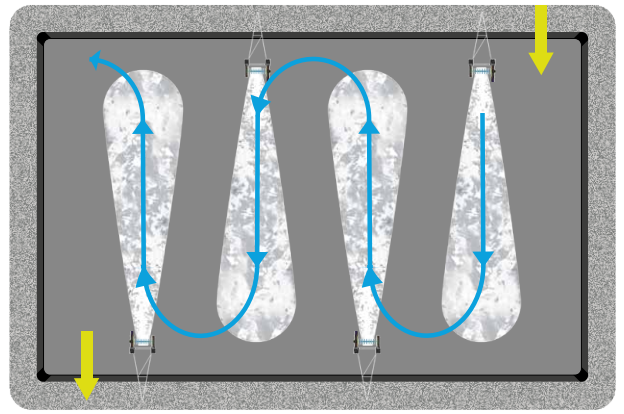
aerdisc® can eliminate the need for baffle curtains by using the strong horizontal plume to create a virtual curtain.



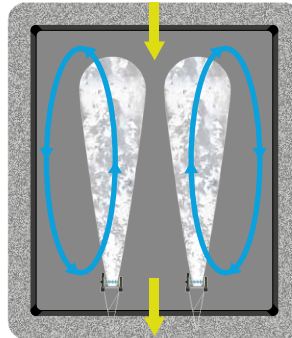
Irregular



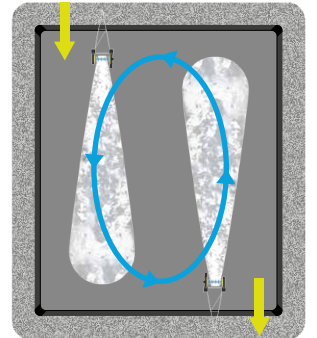
Peripheral



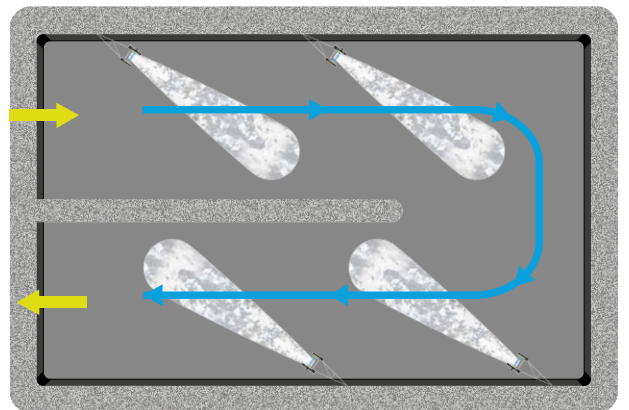
Serpentine



Countercurrent



Circular



Concurrent



Right-hand configuration illustrated



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