

# Low Energy Electric Aerator/Mixer



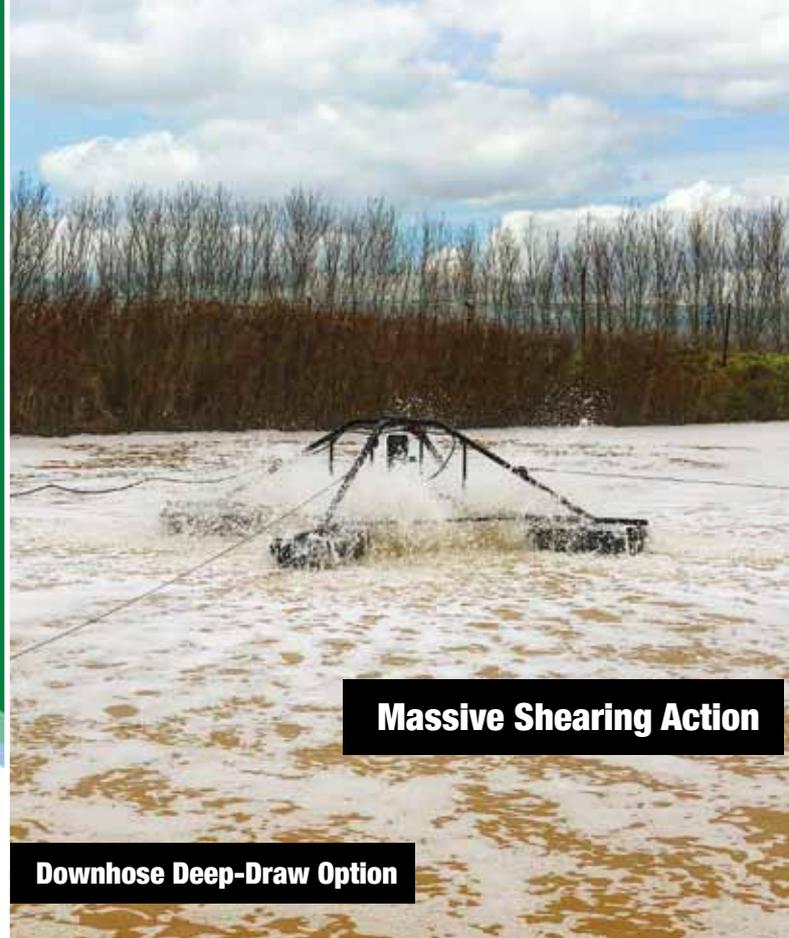
## The SERIES 5

'Tarantula' by Gurney Environmental are electric-driven aerator/mixers that go beyond typical surface aerators incorporating unique dual-turbine impeller systems with surface slinger action to provide for a maximum clean water  $O_2$  transfer rate and hi-volume induced flows. The unique design allows a variety of settings for different applications including either slow-mix or highly aggressive surface aeration.

The open design of the flotation system allows a greater radial dispersion of water, increasing the area of influence and thereby allowing a single aerator/mixer to cover up to 14 ha in some applications. The unique deep-mixing capability with the optional flexible downhose kit allows either aggressive or gentle deep-mixed oxygenation of the water down to almost unlimited depths where it is most needed. Actual in-field  $O_2$  transfer rates and  $BOD_5$  reductions can be dramatic.

- Reduce energy costs
- Cover larger areas per unit
- Mix deeper and better with high induced flows
- Achieve better actual oxygen transfer rates
- Use aeration and mix in applications where previously not practical

The SERIES 5.1, a slow-mix aerator with a 1.5 hp/ 1.1 kW drive, is useful for deep-mix and destratification in water impoundments requiring aeration and possibly deep-mix, but not necessarily aggressive surface action. This can be especially useful for facultative primary cells where the slower mix action won't upset the lower anaerobic layer the way typical aggressive surface aerators can. While the 5.1's clean water transfer rate spec might seem nominal, the actual field transfer rate can be impressive. The 5.1 can



**Massive Shearing Action**

**Downhose Deep-Draw Option**

cover a very large, deep area 24 hours per day for very little energy. The 'Tarantula' 5.1's results can be very impressive when used in correct applications, sometimes outperforming equipment many times its size.

The SERIES 5.2, 5.4 and 5.8 are more aggressive 2.25 kW/3 hp, 4 kW/5 hp and 8 kW/10 hp models that can be used in more typical total-mix aeration cells for wastewater treatment and other aeration/mix applications. While still providing the deep-mix capability and wide coverage area per unit, these models provide an excellent nominal clean water oxygen transfer rate and outstanding field transfer rates under many conditions. These units can be used in existing aeration applications where normal surface aerators are not reaching deep enough, thus providing a lower energy method of getting complete top-to-bottom mix, destratification and aeration, and dramatically increasing the actual in-field net oxygen transfer in deeper than normal impoundments.

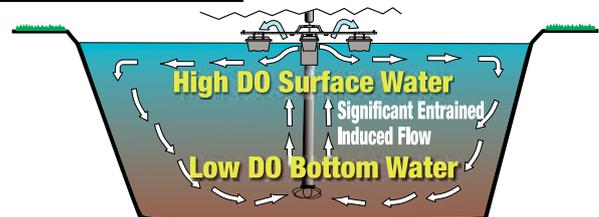
The SERIES 5 'Tarantula' when compared to many other conventional surface aerators, can use less electricity, cover a larger effective area per unit, circulate and mix deeper (if desired), are simple to install and service, and are often priced at or below many comparable solutions — particularly when energy costs are considered.

## Deeper Cells Experience Enhanced DO Transfer Rates



Optional catwalks shown.

The SERIES 5 'Tarantula' can offer extraordinary oxygen transfer in deeper cells through the use of a flexible downhose system. Lower-depth water is typically oxygen deficient, and based on Henry's Law, will uptake oxygen dramatically faster than the surface's higher DO water.

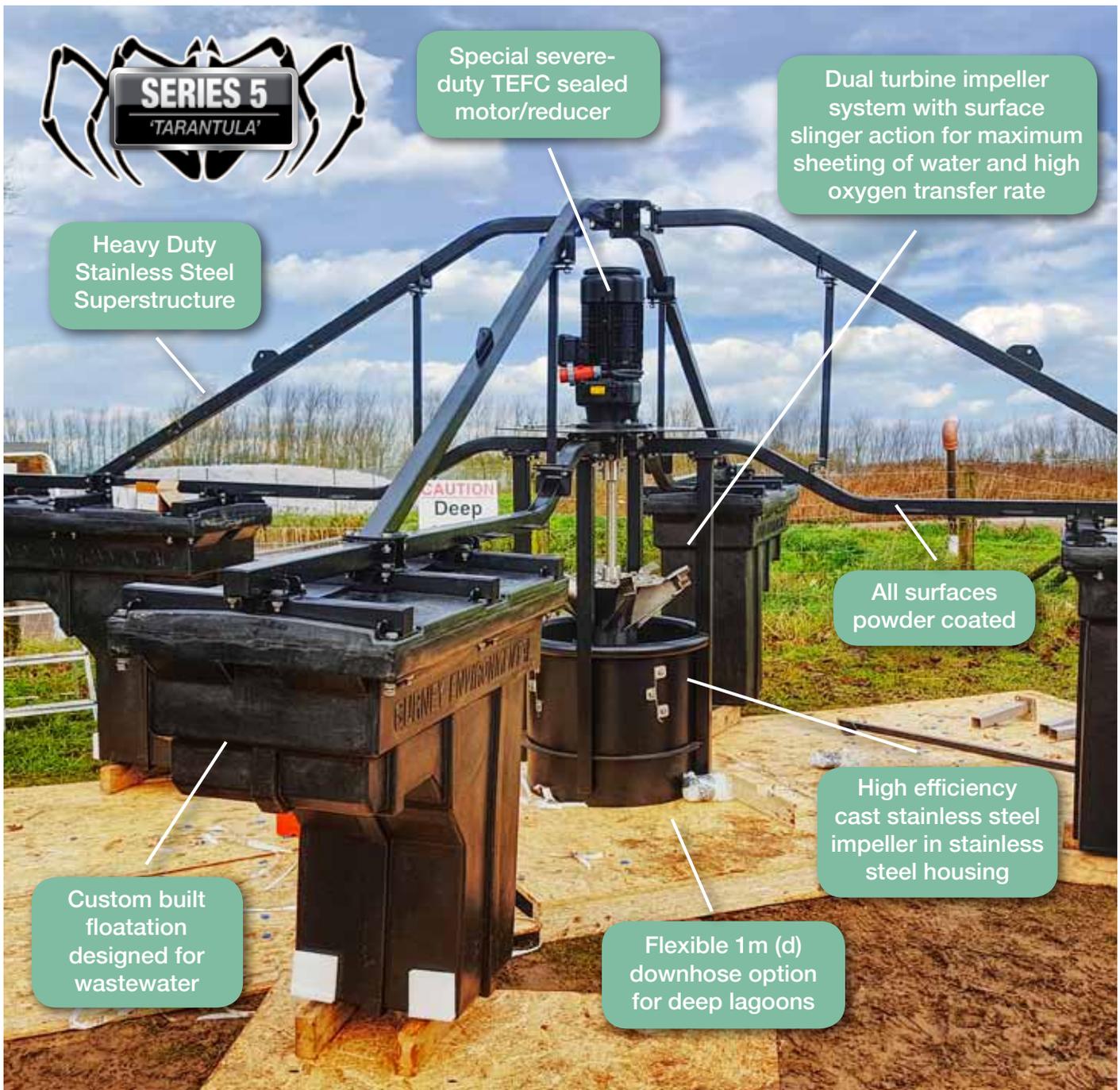


The SERIES 5 'Tarantula' intakes low DO water from near the bottom and returns it to the surface with a high shearing action. The high DO surface water is redistributed back to the bottom to satisfy biochemical oxygen demand and control odours. A significant entrained induced flow is created alongside the downhose thereby increasing actual flow rates in deeper impoundments.



**GURNEYENVIRONMENTAL**  
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Special severe-duty TEFC sealed motor/reducer

Dual turbine impeller system with surface slinger action for maximum sheeting of water and high oxygen transfer rate

Heavy Duty Stainless Steel Superstructure

All surfaces powder coated

High efficiency cast stainless steel impeller in stainless steel housing

Custom built floatation designed for wastewater

Flexible 1 m (d) downhose option for deep lagoons

**SERIES 5 'Tarantula' — Preliminary Specifications**

**MATERIALS:** All stainless steel construction with powder coated surfaces. Floats are UV and hydrocarbon resistant HDPE material.

**BEARINGS:** Other than the Motor Drive, none are used.

**DRIVE SYSTEMS:** Severe-duty, totally enclosed, fan-cooled (TEFC) motors. SERIES 5.1 = 1.1 kW; SERIES 5.2 = 2.25 kW; SERIES 5.4 = 4 kW; SERIES 5.8 = 8 kW. Minimum service factor 2.3-2.8. Severe-duty reducers. SERIES 5.1 = 120 rpm; SERIES 5.2 = 160 rpm; SERIES 5.4 = 210 rpm; SERIES 5.8 = 230 prm. 60 cm, dual-turbine impeller/slinger assembly in 60 cm housing.

**DIMENSIONS:** H— 2.5 m, W— 5.2 m. (Subject to change without notice.)

**WEIGHT:** Shipping — 500 kg, shipped in one crate, knocked down.

**OPERATING DEPTH:** Minimum: 90 cm. Maximum: any practical depth with downhose option.

**ENERGY REQUIREMENT:** 1.1 kW—8 kW motordrives. Consult Applications Engineering Department for voltage/amps options and details.

**EFFECTIVE COVERAGE AREA:** Application dependent. Wastewater treatment: primary cell — up to 1.6 ha. Secondary cells — up to 4 ha. Consult Applications Engineering Department for details.

**OXYGEN TRANSFER RATE:** (Preliminary information.) Clean-water 20° C test-tank conditions, typical @ 94% efficiency: SERIES 5.8 = 1.83 kg O<sub>2</sub>/kWh; SERIES 5.4 = 1.83 kg O<sub>2</sub>/kWh; SERIES 5.2 = 0.97 kg O<sub>2</sub>/kWh (due to non-aggressive "mix" design); SERIES 5.1 = 0.97 kg O<sub>2</sub>/kWh (due to non-aggressive "mix" design).

**NOTE:** Actual real-conditions, in-field transfer rates have been shown to be significantly greater, particularly in deeper impoundments by constantly bringing oxygen-depleted/low-DO water to the surface (low-DO-water oxygen uptake rate is faster than higher DO surface water). Under field conditions, effective field transfer rates have been up to 3x or more than clean water transfer rates in certain applications.

**FLOW RATE:** SERIES 5.1 = 15,000 l/m; SERIES 5.2 = 25,000 l/m; SERIES 5.4 = 30,000 l/m; SERIES 5.8 = 35,000 l/m (preliminary and subject to change). Does not include significant induced flow in addition to main flow when using downhose option.

**REQUIRED MAINTENANCE:** Periodic visual inspection. Normal motor/reducer service as required and specified in O&M manuals. General cleaning and inspection of hardware on occasion, based on application.

**ESTIMATED LIFE OF UNIT:** 20+ years. (subject to maintenance, acts of nature, etc.)

**WARRANTY:** 1 year limited parts warranty. See warranty statement for complete terms and conditions.