



FREE RESOURCE — NO ACCOUNT NEEDED

The Complete NanoJet™ Product Guide

Not sure which model is right for you? This guide covers every NanoJet™ system, how to size your tank, which water problems each model solves, and a step-by-step installation overview.

EcoShear™

Vortex™

Fusion™

Cyclone™

Tank sizing

Installation steps

In this guide

01

[What is the NanoJet™ System](#)

03

[Water problems it solves](#)

05

[Tank sizing guide](#)

07

[Step-by-step installation](#)

02

[How it works](#)

04

[The four NanoJet™ systems](#)

06

[Which model is right for you?](#)

08

[Frequently asked questions](#)

What is the NanoJet™ System?

The NanoJet™ System is a chemical-free aeration and hydrodynamic mixing system engineered to be the essential first step in water treatment — for boreholes, potable storage, irrigation, industrial tanks, and wastewater. It uses the Venturi eductor effect to inject nano- and micro-bubbles into your tank, oxygenating and circulating the entire water body with no moving parts and no chemicals.



Instant oxidation

Oxygenates raw borehole water the moment it enters the tank — precipitating dissolved iron and manganese and starving anaerobic bacteria before they can establish.



Total tank circulation

Eliminates stratification and dead zones. The whole tank volume is kept moving, oxygen-rich, and resistant to biofilm and bacterial growth — not just the water near the inlet.



Self-cleaning by design

The eductor draws from the bottom of the tank, lifting and suspending settled solids so sludge is flushed back into circulation instead of fermenting on the floor.



Zero chemicals, no moving parts

Passive hydrodynamics powered by your existing pump pressure. Nothing to dose, nothing to wear out — one of the lowest-cost, lowest-maintenance oxygenation technologies available.

How it works

Every NanoJet™ reactor is a hydraulic eductor: water from your existing pump is forced through a narrow Venturi throat, which accelerates it and creates suction that entrains air. That single mechanism does three jobs at once.

1

Acceleration & entrainment

Water velocity through the nozzle jumps from under 2 m/s to 15–25+ m/s, drawing in and shearing air into a dense stream of nano-bubbles (<200 nm) and micro-bubbles (10–50 µm).

2

Plume & entrainment ratio

The jet re-enters the tank and entrains surrounding water at roughly a 10:1 ratio, generating a large, slow-rising convection cell that mixes the entire tank — not just a local jet of turbulence.

3

Off-gassing & oxygenation

As bubbles rise and coalesce, they strip CO₂, H₂S and excess ozone out of the water while leaving it supersaturated with stable, long-lived dissolved oxygen.

Why the 45° upward angle matters: reactors are installed 10–20 cm off the tank floor, angled 45° upward. This orientation maximises plume height and vertical gas contact — giving the best off-gassing and oxygen retention of any mounting angle. A secondary row angled 45° downward can be added where sediment scouring is the priority. Engineers wanting the full nozzle-selection tables, pressure curves and Reynolds number calculations should see the [full Technical Specification sheet](#).

Water problems the NanoJet™ System solves

Most of the contaminants and nuisances found in stored or borehole water share one root cause: low-oxygen, stagnant conditions. Restoring movement and dissolved oxygen addresses them at the source.



Iron & manganese staining

Oxidises dissolved $\text{Fe}^{2+}/\text{Mn}^{2+}$ so it precipitates out instead of staining basins, laundry, and fittings.



Bacteria & biofilm

Suppresses iron bacteria, sulphate-reducing bacteria and anaerobic pathogens that thrive in stagnant, low-oxygen water.



Sludge & sediment

The bottom-draw eductor action lifts and suspends settled solids so they're flushed and filtered instead of building up.



Dead zones & low dissolved oxygen

Full-tank circulation eliminates stratification, keeping every litre oxygen-rich instead of only the water near the inlet.



Odours & H_2S

Off-gassing strips hydrogen sulphide and other volatile gases as bubbles rise and burst at the surface.



CO_2 & pH instability

Stripping dissolved CO_2 raises and stabilises pH, reducing corrosivity and improving downstream treatment performance.

The four NanoJet™ systems

All four systems use the same EcoShear™ mixing reactor at their core — what changes is how many reactors and delivery arms are configured together, to scale mixing power to your tank size.



EcoShear™

100 – 500 L

The core reactor itself — an award-winning Venturi mixing nozzle that can be used stand-alone in the smallest tanks, or combined into the Vortex, Fusion and Cyclone assemblies.

- ✓ Single reactor, no moving parts
- ✓ High-velocity jet stream mixing
- ✓ Lowest-cost entry point

Best for: ponds, water features, small household or backup tanks.



Vortex™

1,000 – 4,500 L

A single angled delivery arm carrying one EcoShear™ reactor, sized for full-tank cavitation and circulation in residential and smallholding tanks.

- ✓ 1× EcoShear™ reactor, single arm
- ✓ Eliminates iron staining, sludge, bacteria
- ✓ Low power — runs off your existing pump

Best for: homes, smallholdings, and single-tank borehole setups.



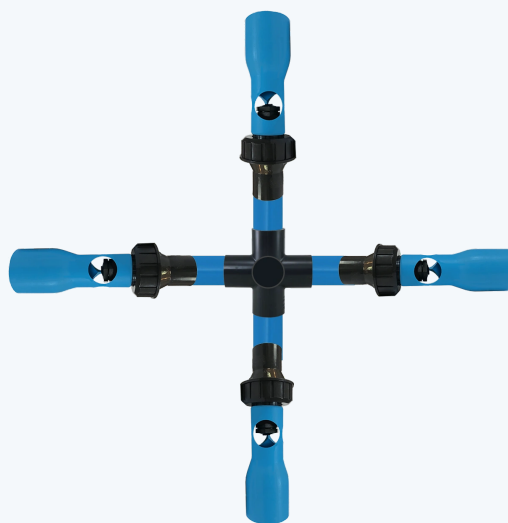
Fusion™

2,000 – 5,000 L

Two delivery arms, each carrying an EcoShear™ reactor, for stronger cavitation in medium-to-large tanks — and ozone-ready if you want to add disinfection later.

- ✓ 2× EcoShear™ reactors, dual arm
- ✓ Ozone-ready dosing point
- ✓ Stronger bacterial elimination for tough water

Best for: farms, small commercial sites, large residential tanks with severe iron or bacteria.



Cyclone™

10,000 L +

A heavy-duty quad-arm configuration built around two EcoShear™ reactors, engineered for high-flow industrial and commercial pre-treatment.

- ✓ 2× EcoShear™ reactors, 4-arm distribution
- ✓ High-flow industrial aeration & mixing
- ✓ Can replace chemical dosing in demanding applications

Best for: industrial and commercial pre-treatment, RO feedwater, cooling towers, process water.

Model	Tank size	Configuration	Ozone-ready	Ideal for
EcoShear™	100 – 500 L	1× reactor, no arm	—	Ponds & small tanks
Vortex™	1,000 – 4,500 L	1× reactor, single arm	—	Home & smallholding
Fusion™	2,000 – 5,000 L	2× reactor, dual arm	Yes	Farm & large home
Cyclone™	10,000 L +	2× reactor, quad arm	Yes	Industrial & commercial

Pricing varies by configuration and current stock — see store.capewatertech.capetown for up-to-date pricing on every model and accessory.

Tank sizing guide

Match your tank's capacity to the table below to find your system and the matching installation kit. If your tank falls between two ranges, size up rather than down.

Tank capacity	Recommended system	Recommended install kit
Up to 500 L	EcoShear™	Reactor only — no assembly arm required
1,000 – 2,500 L	Vortex™	Assembly kit for 1,000–2,500L tanks
2,500 – 5,000 L	Vortex™ or Fusion™	Assembly kit for 2,500–5,000L tanks
5,000 – 10,000 L	Fusion™ or Cyclone™	Assembly kit for 5,000–10,000L tanks
10,000 L +	Cyclone™ (or multi-nozzle array)	Custom-engineered — contact our team

Every installation kit includes a 140 µm inlet filter, ball valve, pressure gauge, Venturi injector, riser arm(s), 45° assembly, and all connectors needed for a complete plug-and-play install.

Which model is right for you?

Still unsure? Match your situation below — or use the interactive product finder on the homepage for a personalised recommendation.

A pond, water feature, or small backup tank under 500L

Choose **EcoShear™** — a single reactor is enough to keep a small volume oxygenated and mixed at the lowest cost.

A residential or smallholding borehole tank (1,000–4,500L)

Choose **Vortex™** — the most popular all-rounder, handling iron, bacteria, and sludge in one compact unit.

A farm or large home tank with severe iron and bacteria, or you want ozone-ready disinfection later

Choose **Fusion™** — two reactors deliver stronger cavitation for tougher borehole water.

An industrial, commercial, or municipal tank over 10,000L

Choose **Cyclone™** — high-flow aeration and mixing capable of replacing chemical dosing entirely in demanding applications.

A tank with heavy settled sludge on the floor

Any model can be paired with a secondary row of reactors angled 45° downward for extra sediment scouring, alongside the primary 45° upward row for oxygenation.

Step-by-step installation overview

Every NanoJet™ system installs the same way, regardless of model — only the number of reactors and arms changes. This is a general overview; full fitting instructions are included with your kit.

1

Choose your kit

Match your tank size to the sizing table above and confirm you have the correct assembly kit for your model.

2

Fit the inlet filter, ball valve & pressure gauge

Install the 140 µm filter and ball valve on your supply line ahead of the reactor, with the pressure gauge positioned to monitor incoming pressure (2–6 bar operating range).

3

Connect the Venturi injector

Plumb the Venturi injector into the line — this is what draws in air to generate the nano/micro-bubble stream.

4

Attach the riser arm(s)

Fit the riser arm(s) to reach the correct depth in your tank — single arm for Vortex™, dual for Fusion™, quad for Cyclone™.

5

Position the reactor(s) at 45°

Mount each EcoShear™ reactor 10–20 cm off the tank floor, angled 45° upward, for maximum plume height and gas exchange.

6

Purge & pressure test

Open the supply, purge trapped air, and confirm the gauge reads within the 2–6 bar operating range for your nozzle size.

7

Run & observe

Watch for a strong, steady plume rising from each reactor. No moving parts means once it's running correctly, it needs no further adjustment.



1,000L – 2,500L tanks

140µm filter

Ball valve

Pressure gauge

Complete kit for Vortex™ installations — filter, valve, gauge, Venturi injector, riser arm, 45° assembly and all connectors.



2,500L – 5,000L tanks

140µm filter

Ball valve

Pressure gauge

Complete kit for Vortex™ or Fusion™ installations, sized for the larger flow and second reactor arm.



5,000L – 10,000L tanks

140µm filter

Ball valve

Pressure gauge

Complete kit for Fusion™ or Cyclone™ installations, built for higher-flow commercial and light-industrial tanks.

Prefer a professional install? We can connect you with a NanoJet™ installer in your area — just send us your name and suburb.

[Request an installer →](#)

Frequently asked questions

Does the NanoJet™ System need its own power supply?



Do I need to add any chemicals?



How much maintenance does it need?



Can I combine multiple reactors for a bigger tank?



Is NanoJet™ a registered product?



Still need help choosing?

Our technical team can help you select and design the optimal NanoJet™ configuration for your specific water treatment needs.

[Contact Engineering Team](#)



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 Cape Town, South Africa

 +27 83 797 2847



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