

# Ozone systems for koi ponds



Koi Water Garden Ltd

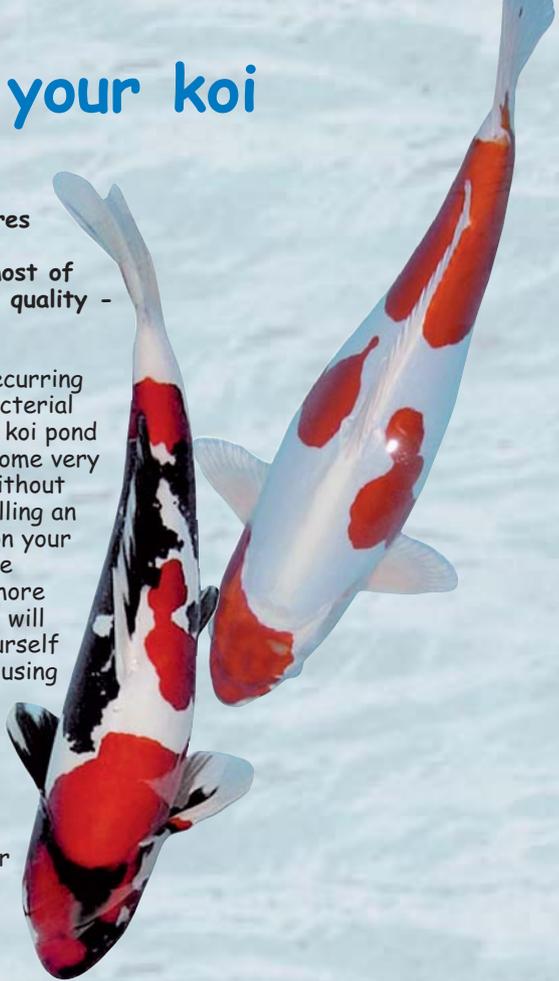
Introducing Europe's first  
complete range of ozone  
systems designed specifically  
for koi pond applications

# The health of your koi

Koi are beautiful but expensive creatures and each year thousands of koi die needlessly from all kinds of illnesses most of which are simply caused by poor water quality - nothing more.

In any koi pond one of the eternal and recurring problems that we have to overcome is bacterial disease and in a well stocked and mature koi pond the bacterial load on the system can become very high especially in the summer months. Without doubt the single biggest benefit of installing an ozone system is that the bacterial load on your system (and therefore on your koi) will be drastically reduced. Ergo less disease - more healthy koi. Unquestionably water quality will also be transformed using ozone. Ask yourself why have marine/tropical aquarists been using ozone to help manage water quality for the last 20 years or so? Why is the koi fraternity always the last to catch on?

The saying that we are not koi keepers - we are water keepers is absolutely true. If your pond water quality is superb, your koi are more likely to be healthy and live longer. It's as simple as that.



# Is ozone important?

Ozone provides the ultimate weapon in the koi keeper's armoury in the constant fight against disease and the struggle to maintain superb water quality.

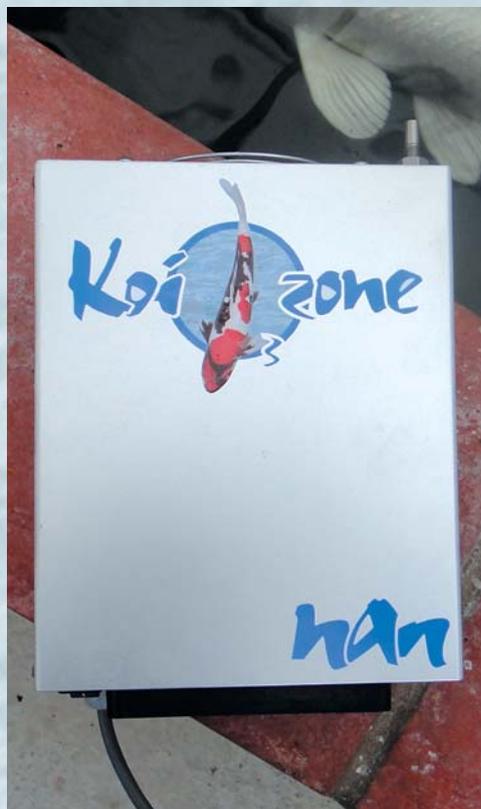
We have seen many advancements in koi system filtration in recent years - new filters, new media, Bio UVs, new probiotic filter products all designed to improve water quality and filtration and thereby ultimately koi health. None of these however comes close to delivering the benefits of ozone systems, the advantages of which have long been recognised in aquatic circles by marine hobbyists worldwide and like so many other great ideas, only in recent years being accepted by the koi industry.

Without dispute, ozone is the most effective natural bactericide and viricide of all disinfecting agents available to the koi keeper and improves both mechanical and biological water quality substantially.

## Our range of ozone systems

### Features

- Ozone systems for ponds from 500 gallons to 100,000 gallons
- All ozone generators now feature Titanium and quartz cell technology
- Low purchase costs and low service costs
- All systems will operate on ambient air or oxygen
- Optional Redox controllers for all systems
- Range of ozone mixers - from ozone reactors, protein skimmers and venturi injectors
- Full after sales support and maintenance service provided.



Model Han super ozone generator, for ponds up to 1500 gallons.



Model Ni super ozone generator, for ponds up to 5000 gallons.

# Benefits of ozone

# How ozone systems work

In our pond environment ozone:

- Is highly effective in removing organics, and reducing ammonia and nitrites.
- Reverts back to oxygen quickly, leaving no detrimental residues and provides ultimate water clarity.
- Is economical and non-polluting.
- Is used as a disinfecting agent to kill viruses, bacteria and other pathogens.
- Improves biological and mechanical filtration by oxidises proteins, ammonia and nitrite straight to nitrates and by enriching our pond water with oxygen.
- Lowers biological oxygen demand (BOD) and raises the REDOX potential in the water (the ability of the water to oxidise pathogens).
- Removes toxic pollutants, such as hydrocarbons and other toxic substances from our pond water which cannot be achieved by any other form of mechanical or biological filtration.
- Reduces the need for water changes.

Ozone systems work by converting oxygen into ozone gas. This is achieved by passing air or oxygen through a high voltage electrical cell. The ozone thus created is then drawn into or pumped into a special protein skimmer, ozone reactor or a 'reaction vessel' especially designed for the purpose. When the ozone mixes with water it quickly oxidises polluting organic material and then breaks down back into oxygen.

As well as disinfecting the water and killing bacteria, viruses, fungal spores and free swimming parasites, ozone also kills algal cells. The disinfected water returned to the pond is also saturated with oxygen so that the biological filter is able to work at its full potential. Also, as ozone oxidises proteins and organics, water clarity is improved enormously and the water sparkles to the point where the colour of the koi is not impeded in any way by the depth of water.

Whilst not a Utopia, since even with the use of ozone koi can still need individual medication and treatment if required, the other major advantage of ozone in our pond systems is that it virtually eliminates the risk of cross infection between koi. So even if a fish is introduced into the pond environment which itself is ill, e.g. carrying a bacterial disease, this is much less likely to be transmitted to other koi. Further, any treatment employed to an infected koi, whether this be a topical or pond treatment has a much improved chance of working effectively as the koi are living in a much cleaner environment, biologically speaking - i.e. in an environment containing fewer harmful pathogens.

Koi that become physically injured, even in a minor way, and especially when stressed, are always at risk from infection in a normally filtered pond, but in an ozone treated system any injury or minor damage that may occur is most unlikely to become infected and the koi will normally heal without any intervention or treatment simply because water quality is so much better.



Oxygen generators suitable for all makes and models of ozone generators. Increases efficiency of any unit to which it is connected by a factor of between 200 and 500 %.



KoiOzone satellite Redox controller



Right: Single venturi injector assembly - for efficient mass transfer of ozone into water feed.

# Product selector

| Model                        | For pond sizes (litres) | Specification   | Dimensions      | Power                   | Weight |
|------------------------------|-------------------------|---|-----------------|-------------------------|--------|
| Han Super                    | 6,800                   | Single quartz/titanium cell, digital power controller. On/Off switch, 6mm hosetails. Shelf mount.   | 22 x 15 x 10cm  | max 0.75 amp<br>30 watt | 1.5 kg |
| Ichi Super                   | 11,350                  | Single quartz/titanium cell, digital power controller. On/Off switch, 6mm hosetails. Wall or shelf mount.   | 30 x 15 x 17cm  | max 1 amp<br>40 watt    | 3 kg   |
| Ni Super                     | 22,700                  | Single quartz/titanium cell, digital power controller. On/Off switch, 6mm hosetails. Wall or shelf mount.   | 30 x 15 x 17cm  | max 1 amp<br>45 watts   | 3.2 kg |
| Nana                         | 45,000                  | Dual quartz/titanium cell, digital power controller. On/Off switch, 6mm hosetails. Wall or shelf mount.   | 30 x 15 x 17cm  | max 2 amp<br>80 watts   | 5 kg   |
| Oxy3                         | n/a                     | 3 litre/minute pure oxygen at 5 psi   | 59 x 44 x 44 cm | max 5 amp<br>275 watt   | 18 kg  |
| Oxy5                         | n/a                     | 5 litre/minute pure oxygen at 5 psi   | 59 x 44 x 44 cm | max 5 amp<br>450 watt   | 25 kg  |
| Redox monitor/<br>controller | n/a                     | Satellite unit, LED display, set range -200 to +999 mV. Set and Run modes. Splashproof case and mains switch socket. Complete with probe.   | 15 x 10 x 5cm   | n/a                     | 0.5 kg |
| Redox probe                  | n/a                     | Plastic shaft, 2m probe cable, coaxial connection   | n/a             | n/a                     | 0.1 kg |
| Venturi injector assembly    |                         | For 1.5" pressure pipe, incorporates Venturi injector with non -return valve and compression fitting for 8mm Teflon, sight glass, 0.75 in. isolation ball valves and 1.5 in. flow control ball valve. | 50 x 25 x 10cm  | n/a                     | 8 kg   |

## Ozone dosing recommendations



| Start Point          | Using air as a feed gas                |           |            | Comments   |
|----------------------|--|-----------|------------|--|
| Recommended dosing   | 0.4 g ozone/1000 gallons (4500 litres) |           |            |  |
| Add/thousand gallons | 0 g                                    | 0.1 g     | 0.2 g      | Add this to the starting dose recommendation for each parameter  |
| Stocking density     | Low                                    | Medium    | High       | Average stocking density is 1 fish inch per 10 gallons   |
| Pond condition       | Clean                                  | Average   | Dirty      | Dirtier ponds, the higher the BOD (Biological oxygen demand)   |
| Planted              | No                                     | Somewhat  | Heavily    | Plants, including algae and blanket weed use oxygen and raise the BOD  |
| Temperature          | 10°C or less                           | 10 - 15°C | Above 15°C | The higher the temperature the higher the metabolism of all organic life forms in the pond so the higher the BOD |

| Start Point          | Using oxygen as a feed gas             |           |            | Comments   |
|----------------------|--|-----------|------------|--|
| Recommended dosing   | 0.1 g ozone/1000 gallons (4500 litres) |           |            |  |
| Add/thousand gallons | 0 g                                    | 0.05 g    | 0.1 g      | Add this to the starting dose recommendation for each parameter  |
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| Pond condition       | Clean                                  | Average   | Dirty      | Dirtier ponds, the higher the BOD (Biological oxygen demand)   |
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**Koi Water Garden Ltd**  
 The Old Rectory, Risborough Road  
 Great Kimble, Aylesbury  
 Bucks HP17 0XS, England  
 Phone/Fax: 01844 342390  
 e-mail: Sales@koicarp.org.uk  
 Web: www.koicarp.org.uk

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| <b>Distributor</b> |
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