



## Air Pump sizing

In order to have a healthy pond environment you need a biological filter, good aeration, a circulation pump and adequate space. It is important to note that all of these elements must work in harmony with one another.

The filtration system purifies the water of wastes, bacteria and other toxins; an aerator supplies air to the water so the fish will have oxygen and the water does not stagnate; the pump moves the water through the filter and aerator. This cycle is the lifeblood of a pond.

Koi need oxygen and the beneficial bacteria that keep the water healthy also need oxygen.

The best place to add air into the pond system is directly into the bio-filter system as close as possible to where the bacteria are sitting. This is why OASE filters with their filter foams work so fantastically well together in any serious pond system.

Try to add as much air to your pond as you can using air pumps and air stones to distribute the air (especially recommended for ponds that are heavily stocked).

You can add the air directly to the pond, the filter, the waterfall or anywhere else you can think of.

The amount of oxygen water can hold is dependent upon atmospheric pressure; salinity and temperature. Water can hold less oxygen at higher altitudes.

Salinity is not important for most freshwater fish, the most important factor is water temperature, as it increases the amount of oxygen water can hold decreases.

This is why oxygen levels decrease in the summer season:

- 🌊 Water can hold less oxygen as it becomes warmer.
- 🌊 Respiration rates of both plants and animals increase with the warmer water, so more oxygen is used.
- 🌊 Summer's still, hazy or cloudy days may reduce the amount of oxygen produced.
- 🌊 Large amounts of feed given to fish at this time of year result in large quantities of fish waste which create a higher demand for oxygen.

### For normally stocked koi ponds (<1kg per 1000L)

<b>Pond volume</b>	950	1900	3800	7600	11400	15200	19000	22800	26600
<b>Air L/min</b>	10	20	40	80	120	160	200	240	280
<b>Air Stone</b>	3" ring	80mm	100mm	120mm	150mm	216mm	2 X 150mm	2 x 216mm	3x 216mm
<b>Air Pump</b>	APV10	APV20/ AC208	APV60/ AC318	AC009	AC009E	AC380	AC380	AC450	VB600

### Recommendations based on pond depth of 0.5m

### For heavily stocked koi ponds (>1kg per 1000L)

<b>Pond volume</b>	950	1900	3800	7600	11400	15200	19000	22800	26600
<b>Air L/min</b>	20	40	80	160	240	320	400	480	560
<b>Air Stone</b>	80mm	100mm	120mm	216mm	2 x 216mm	2 x 216mm	3 X 150mm	3x 216mm	4x 216mm
<b>Air Pump</b>	APV20/ AC208	APV60/ AC318	AC009	AC009E	AC450	VB600	VB800	VB1200	VB1200

**NEVER - NEVER** install an air pump **BELOW** water level! (Unless you install a check valve in the line!) If at any time your power supply to your air pump is interrupted, water will siphon back down the delivery tube and flood the pump workings, rendering the pump inoperative, to say nothing of the danger of water and electricity coming in contact.