SUBMERSIBLE POND PUMP GUIDELINES

1 SAFETY FIRST! Water and power can be fatal!

All installations should be constructed, commissioned and maintained according to any relevant government laws, by-laws and regulations and according to the instruction manual provided with the product. Operating garden pumps on extension leads is illegal. An earth leakage (RCD) device must be fitted. Any 240V electrical work must be carried out by a licensed electrician.

RECOMMENDED USAGE FOR LENGTHS OF POWER CABLE/CORD ON PUMPS:

3 pin plug – 2m or 3m cable .....Minimum length for outdoor use (patios, decks, courtyards)
3 pin plug – 10m cable.....Recommended length for outdoor installations; Lengths of more than 2m should be covered by conduit or similar. Cable must not be left tightly wound in a coil
2 pin plug – 1.8m cable.....Indoor use only, aquariums and table fountains

TIP! Pumps don't last forever. Always install to allow easy access and replacement!

2 CHOOSE THE RIGHT FLOW RATES

TIP! Use a garden hose to do a mock-up of the installation to get a rough idea of what flow you are trying to achieve.

SUGGESTED FLOW RATES:

Wall and table fountains.....200 to 300 L/Hr
Small statues up to 400mm high.....400 to 500 L/Hr
Medium statues up to 800mm high.....600 to 750 L/Hr
Large and tiered statues up to 1.5m high.....1000 to 1200 L/Hr
Statues over 1.5m and pond cascades.....1200 to 2000 L/Hr
*Waterfalls and streams up to 0.4m wide.....3000 to 4000 L/Hr
*Large waterfalls and streams up to 1.0m wide.....6000 to 12000 L/Hr

*See our waterfall pump and tubing size guide for further information.

TIP! Add 20% to required flow rates to allow for friction loss in pipework.

3 DON'T FORGET THE HEAD HEIGHT!

Measure head height from the water level to the highest outlet. Add together the flow rates required, add 20% to allow for friction loss. If more than one function is being performed by the one pump, then choose a pump that can give the total flow at the highest height.

TIP! Remember it is easier to throttle back an oversized pump, but there is nothing you can do with an under-sized pump!

4 POND SIZE – TURNOVER RATES

Suggested turnover rates:

Ponds up to 1000L	once per hour
Ponds 1001 - 5000L	once every 2 hours
Ponds 5001 - 15000L	once every 3 hours
Ponds over 15000L	once every 4 hours

TIP!
High fish stocks and koi ponds will require higher turnovers. Discuss this with your dealer for further advice.

5 TUBING SIZE AND LENGTH

Undersized tubing severely restricts the performance of the pump. Long runs and high waterfalls may require larger tubing diameters, or multiple tubing. Please enquire if you are unsure.

Flow in L/Hr	Tubing Ø (dia.)	Flow in L/Hr	Tubing Ø (dia.)
300 - 600	12mm	5001 - 8000	32mm
601 - 1200	16mm	8001 - 15000	40mm
1201 - 2000	20mm	15001 - 20000	50mm
2001 - 5000	25mm	over 2000	Please Enquire

6 COST TO RUN PUMPS - The Cheapest pump is not necessarily the best long term option!

Example: A REEFE RP18000 L/Hr filter and waterfall pump (250W) costs approximately $550.00 per year, run continuously. In comparison, a ¾ hp pool pump 15000 L/Hr (550W) would cost approximately $1220.00 per year, run continuously. So a short-term saving becomes a long-term liability!
TIP! Have an electrician set up a daylight sensor switch on waterfall pumps so the pump turns off at night - this saves power and money!

7 PUMP DIMENSIONS

We have included the dimensions of all our pond pumps in this catalogue. The sizes are in mm (unless otherwise specified) and include the cable exit in the length, and outlet height in the overall height.

8 DRY-MOUNTING POND PUMPS, IN-LINE USE

Pond Pumps are not designed to be self-priming, so when they are installed in a dry mount or in-line situation, they must have "flooded" suction. That is, the pump must be installed below the water level so that the water gravity-feeds into the inlet of the pump. When dry-mounting, it is also necessary to protect the pump from the sun to avoid over-heating, and install a prefilter to prevent particles entering the suction line and blocking the pump. Not all pond pumps can be dry-mounted, check the tables in this product guide, there is a column that is headed, "DRY-MOUNT FLOODED", if this says NO, then this pump is not designed for dry mount installations.

9 NOTE: THESE GUIDELINES ARE BROAD GENERALISATIONS & MAY NOT SUIT EVERY APPLICATION

Please consult your retail specialist for more information and advice. It is the user's responsibility to ensure that the product chosen is suitable for the users application. Incorrect use of products voids all warranty.

WATERFALL FLOW RATE CALCULATION

This calculation gives a recommended flow-rate for the height and width of your waterfall, for your chosen thickness of water flow.

1 Choose the thickness of water you want flowing over the top of your waterfall.

Generally, the higher the waterfall, the thicker the sheet of water should be. Our suggestions are:

Height of Waterfall	0.25m	0.5m	0.75m	1.0m	1.25m	1.5m	1.75m	2.0m	2.5m	3.0m
Suggested Thickness of Water Flow	5mm	7.5mm	10mm	12.5mm	15mm	17.5mm	20mm	22.5mm	27.5mm	30mm

2 Calculate the suggested flow-rate

by using the formula ***Width of Waterfall (in metres) x Thickness (in mm) x 1450 (constant) = Flow in L/Hr.***
Example:
For a waterfall 1.0m high, choose 12.5mm thickness, the waterfall is to be 0.8m wide.
0.8m (width) x 12.5mm (thickness) x 1450 (constant) = 0.8 x 12.5 x 1450 = 14,500 litres/hour

3 Choose a pump that is capable of providing the desired flow rate.

For the above example, select a pump that is capable of 14,500 L/Hr (or greater) at 1.0m head height. It is important to remember that the flow is at the height of the waterfall, so you need to look at the flow-charts to find a pump that can give this flow or preferably more, at 1.0m head height. To allow for friction losses etc., in pipework, it is always best to over-specify.

TIP! If you encounter difficulty with calculations, or cannot find a large enough pump, please phone 1800 807 604

PUMP & TUBING SIZES FOR WATERFALLS

The chart below will assist you in choosing the correct pump and tubing required for the width and height of your waterfall.
For larger waterfalls, phone our office on 1800 807 604 for assistance

Height of Waterfall	Width of Waterfall														
	0.25m			0.50m			0.75m			1.00m			1.25m		
	Flow L/Hr*	Pump Code	Tubing Size	Flow L/Hr*	Pump Code	Tubing Size	Flow L/Hr*	Pump Code	Tubing Size	Flow L/Hr*	Pump Code	Tubing Size	Flow L/Hr*	Pump Code	Tubing Size
0.25m	1815	12241	20mm	3625	12243	25mm	5440	12245	32mm	7250	12586	32mm	9060	9437	32mm
0.50m	2720	12243	25mm	5440	12245	32mm	8160	9437	32mm	10880	9468	40mm	13600	9468	40mm
0.75m	3625	12244	32mm	7250	9437	32mm	10900	9468	40mm	14500	9468	40mm	18200	9468	50mm
1.00m	4535	12245	32mm	9070	9437	32mm	13600	9468	40mm	18140	9499	50mm	22700	9499	50mm
1.25m	5440	9376	32mm	10900	9468	40mm	16305	9499	63mm	21800	9499	63mm	27200	enquire	63mm
1.50m	6345	9437	32mm	12700	9468	40mm	19100	9499	63mm	25400	9499	63mm	31800	enquire	63mm

IMPORTANT NOTES

1. Pumps specified use typical parameters to give generally acceptable waterfall flow rates. Please check that these flow rates suit your application.
2. Tubing sizes suggested are suitable for up to 5 metres of tubing length. For 5 - 10 metres, go up a size. For over 10 metres, please enquire!
3. Regulating valves should always be included in the pipe work setup.