PLEASE READ THIS MANUAL
(even if you don't read manuals)

We know you're excited and eager to use the mister, however, before you connect it learn few basics contained here.

Seriously, read the manual first.
You will set things up on the first try!
Thank You for purchasing a MistKing system. A Versatile solution to all your misting needs. The quality choice of professionals at ZOOs, Botanical Gardens, institutions around the world. For more information on systems and parts please go to www.MistKing.com

Please read the entire booklet to familiarize yourself with your new product.

Should you have any issues with your MistKing system or any of the parts please contact us directly via www.MistKing.com website or email us at info@mistking.com. We will do our best to provide you with the fastest, worry free customer experience.

DO NOT contact the store where you made the purchase.
COMMON SENSE

Misting system is a device that sprays water. Like with any other water appliance, parts may break, burst, leak, etc. Ensure you always rely on your good design and common sense and not your product. Drainage capacity should ALWAYS be larger than your reservoir misting capacity. In case of trouble the worst that will happen is that you will over mist and possibly run the pump dry. Don’t worry, our equipment can run dry without problems and if properly set up, it will start misting as soon as you add water. Remember, water and electricity don’t mix. Do not mist onto your other electrical appliances and keep your reservoir away from receptacles plugs and power bars. Install GFI outlets where necessary and provide drains where possible.
These are must know before you start.

1. DO NOT try to siphon water into the pump, DO NOT install the pump above the reservoir or it will not prime properly 100% of the time. Even if it works, it's not the way to do it. Install the reservoir bulkhead with 1-2ft leading to the pump. Always gravity feed water to the pump. Read more about a proper design below.

2. DO NOT force fittings apart or rip tubing out of the fitting. Very easy to take them apart, press on the collet and gently pull. They will not come out simply by pulling apart. See this video if you don’t know how http://www.mistking.com/RemovingTubing.html

3. Don’t ever unscrew the tip of the nozzle when you receive the system. We test them twice so they come fully functional. If it’s not working, it’s probably something with the setup and not the misting assembly. Touching the delicate cone in the middle of the misting nozzle will alter the spray pattern and possibly damage the spray. Be careful and don’t touch the center!

4. Remember that misting assemblies are for high pressure application and have a check valve built in. You cannot blow through the nozzle. Even if you could blow through it, the flow is so little you would not feel it.
5. When connecting tubing to fittings or pump don’t take shortcuts. Use fresh utility knife/blade or MistKing cutter to make perfect cuts. Never use scissors or anything that will pinch the tubing before cutting.

6. Push the tubing into the fitting. Sometimes it will feel like it already connected, but if you turn on the pump and connection leaks, push harder until the tubing passes the o-ring and makes a proper seal.

**GOOD DESIGN.**
In order to have a properly configured system there are few things to keep in mind. Most are outlined in previous 6 points. Remember you need a bit of finesse and this is not like plugging in a toaster. If you do not follow the steps you will have a poor install so understanding the basics is very valuable. It will save you time, so connect it right!

Always remember that this is a water appliance and treat it as such. Take proper precautions in order to avoid mishaps. We don’t ship reservoirs with our systems as you can buy one for just a few dollars at any hardware store. Painter’s buckets work great, have lids, large capacity and are food safe. You can also use any reservoir you wish that fits into your design.
You absolutely must install a reservoir bulkhead into your reservoir. It’s a matter of drilling a hole and screwing in the bulkhead. Once that is done, plug in the tubing and **always gravity feed water to the pump.**

**WHY DON’T YOU WANT TO INSTALL PUMP ABOVE THE RESERVOIR?**

This is something that we are answering all the time as most really want to mount the pump high. Having the pump above the reservoir is just not what you want in a misting system.

Here’s Why:

- You never have water available instantly when you need it. If you have the pump above the reservoir you first need to suck up the water to the pump, then mist. Always gravity feed and be ready to mist right away!
- All our nozzle tips contain a check valve, meaning that they will stop majority of the dripping right at the nozzle after the misting. This is a great feature but makes it more difficult for the pump to self prime when the pump is above the reservoir.
- Remember, the pump does not act as a valve. If you have the pump above the reservoir, water from the lines can drain over the hours between spraying, leaving a pump full of air. This makes it even more difficult (or impossible!) to self prime.
- Always, gravity feed water to the pump for years of worry free service!
WHY MISTKING OR JUNGLE HOBBIES LTD?

We continually strive to perfect the products we sell. We don't use anything commonly available as most copycats do. We stand behind our products 100%. Virtually everything is custom made for us, starting with pumps, timer circuitry, fittings, tubing etc. Our list of customers includes major ZOOs, Universities, Botanical Gardens, Institutions and Hobbyists around the world. Many business owners recognize our constant dedication to quality and distribute our products all over the world. We offer ALL products directly through MistKing.com. Should you ever be dissatisfied with anything we do, please contact us directly. We simply do not accept anything less than a 100% satisfaction.
DISSASSEMBLING THE NOZZLE OR FITTINGS

We already mentioned that all fittings and tubing can easily be removed. Never force them apart, press on the collet (ring around the tubing) and pull gently while the ring is pressed. Watch this video to see how it's done http://www.mistking.com/RemovingTubing.html

PROGRAMMING THE TIMER

We are constantly contacted regarding the programming needs for your specific application. If you’re misting plants or animals be sure to research misting and humidity requirements in your favourite online community. Keep an eye on things and adjust your settings as needed. Remember to plug in the timer, charge it for a few hrs and press reset with a pen while plugged in. Then use the timer as per the included instructions.
INSTALLING A MISTING SYSTEM

Now that you have learned how to properly use the nozzles, how to unlock the tubing or fittings, here are the steps to put the misting system together.

**STEP 1.** Install the reservoir bulkhead, shown by the red arrow. For detailed instructions on how to do install the bulkhead refer to **BULKHEAD INSTALLATION INSTRUCTIONS** further down.

**STEP 2.** Identify which version of a misting system you have. Blue arrows identify the direction of the water flow.
**Version 1:** Connect the reservoir bulkhead (A) to the pump (B) with a piece of tubing. Notice the flow direction on the pump label. Never put the pump higher than the reservoir.
Version 2: Connect the reservoir bulkhead (A) to the manual ball valve (C), then connect the valve to the input on the pump (B).
**Version 3:** If your system includes a ZipDrip valve (D), plug the male end of the ZipDrip "T" into the pump (B) intake. Use a piece of tubing to connect the reservoir bulkhead (A) to the manual ball valve (C) and then into the other end of the ZipDrip "T" as shown in the photo. Please note that the output of the pump goes to the misting assemblies, then comes back into the input of the ZipDrip forming a loop. *(HINT: ZipDrip valve has a small arrow on the underside showing flow direction)*
STEP 3: Installing misting assemblies

We offer a multitude of misting assemblies that can be utilized for various applications. Remember NEVER to touch the middle of the nozzle or unscrewing the nozzle tip. If you received the assembly from us or a distributor assume that it works and you don't need to take it apart. If you cannot get the system to produce fine mist, please re-read this manual. Understand a proper way to set the system up is crucial. If you still can't get things working please contact us. Send us few photos to make things easier.

Installing Most Common Value misting assembly. Similarly install other assemblies.

Value Misting Assemblies can be installed through a 5/8" hole. Other assemblies may require different size holes. If you're installing the assembly into a screen top we suggest that you also purchase a screen top wedge to make installation much easier (shown below). Carefully, take the misting assembly apart, without ever forcing fittings out.
Feed the bulkhead through the hole. Install the top nut to hold the misting assembly securely in place.

Plug in the included fitting and push in the tubing to finish the misting assembly install. You can connect multiple assemblies together as needed. Remember to push the tubing in all the way so it passes the rubber o-ring inside the fitting. If the connection leaks, simply push it harder to ensure a proper seal.
If your misting assembly does not include a bulkhead and if you're installing it in a greenhouse type environment, use 2 tubing clips to secure the tubing. Be careful not to install the clips too close to the misting assembly as that may break the seal causing dripping at the connection.

BULKHEAD RESERVOIR INSTALLATION INSTRUCTIONS

Every system comes with hardware required to convert any container into a reservoir.

Steps showing how to install the bulkhead

1. Select a reservoir that will fit into your setup. Always a good idea to get one with a lid.
2. For STARTER and ULTIMATE systems drill a 9/16" hole for a very tight fit (for loose fit use 5/8" bit). For an ADVANCED system based on larger diameter tubing drill a 3/4" hole for very tight fit (for loose fit use a 7/8" bit) about an inch from the bottom.

Use tight fit for plastic buckets that you can force the fitting into and use loose fit for hard containers (ie. acrylic, glass)

3. Take the bulkhead and put the rubber o-ring onto it so it sits tight against the non-moveable side. Insert the bulkhead all the way, as far as it will go, so the o-ring sits on the outside of the container, squeezed between the bulkhead and the container surface.
4. On the inside of the container, put the nut over the bulkhead and hand tighten as much as you can. Then use a wrench to gently turn half rotation. There should be a small marked compression on the o-ring. Remember, only slight! DO NOT over tighten or you will skip the thread and possibly damage the bulkhead.

5. Once you install the reservoir bulkhead it will look like in the photo. Plug in a piece of tubing or a plug into the newly installed reservoir bulkhead. Test for leaks by filling up the container with water and leaving it for 30min. Connection should be completely water tight.
NOTE: if a leak develops between the reservoir and o-ring - tighten the nut by quarter turn inside the reservoir. If a leak develops when you insert tubing, (between tubing and fitting) you probably didn't insert the tubing far enough and it didn't pass and seal the small o-ring inside the fitting. Insert further to fix and remember never to force things apart.
SYSTEM WITHOUT ZIP DRIP

Systems that do not have a ZipDrip valve connected terminate with a final elbow misting assembly or a T-misting assembly that has been plugged. If you are connecting a single or multiple nozzles the idea will be the same. For illustration purposes, we are showing an install with 3 nozzles.

The instant when the pump stops, the pressurized water inside the tubing has nowhere to go and will cause your nozzles to drip a little.

Once pressure drops where the checkvalves in the nozzles can engage, the nozzle will close and dripping will stop. Nozzles, will never drip for an extended period of time after misting is done. Nevertheless you should expect more dripping than from a system equipped with a ZipDrip valve.
Systems that include a ZipDrip valve form a loop allowing rapid release of pressure that is trapped in the lines when misting stops.

Remember that misting system pumps run between 60-125psi depending on how many nozzles you are using and if the pump’s bypass is engaged during misting.

Nozzles already contain the built in checkvalves, which greatly reduce post mist drip, nevertheless little dripping is expected. A system equipped with a ZipDrip valve instantly releases pressure from the tubing, resulting in a clean finish with zero ... ZIP...DRIP! This is a great option in places that are not drained and only benefit from the added mist and not dripping.
In larger systems (20 nozzles+) the system may bottleneck on the input and on the output as the 1/4" tubing may not be able to handle the demands of the misting system. For this reason the pump has to be supplied with larger tubing. It also needs to properly supply all the misting assemblies with water.

The green line in the diagram refers to the system's "backbone" of 3/8" diameter tubing. From there you can run your 1/4" connections.

Remember our systems are all modular, therefore your system will probably look totally different, but the diagram should give you an idea on how to connect things together. You can install your system in a greenhouse, a barn, ZOO, rack, etc but the idea will be the same.
For simplicity fittings are not shown on any of the diagrams. Remember when connecting tubing:

- 3/8" to 3/8" you will need a 3/8" fitting
- 3/8" to 1/4" you will need a reducing fitting
- 1/4" to 1/4" you will need a 1/4" fitting

Plan accordingly and figure out the system before you cut and connect things together.

**ABOUT THE PUMPS**

When connecting the pump for the very first time, please let the water run through it for about a minute or two. This way, if there was any debris trapped during the manufacturing process it will be flushed out and it won’t clog your nozzles. We've never heard of anything being stuck as the pumps are all tested, but it's a good practice to follow. Notice the direction of the flow as indicated on top label.

Typically our pumps will prime themselves. However, never mount the pump above the reservoir. In conjunction with our check valved nozzles self priming will be virtually impossible. For that reason, **all pumps should always be gravity fed**. Always install the reservoir bulkhead. Read more about 'good design' to optimize your setup.
Our pumps operate on low voltage and draw very little power when running. In addition these are extremely quiet and robust that can run with or without water in the reservoir without damage.

**PRIMING THE PUMP MANUALLY**

When running the pump for the very first time, or after moving, it may start right away or it may need to be manually primed first. As always, Ensure that you're gravity feeding water to the pump with water from the reservoir bulkhead. Make sure the tubing leading to the pump is only about 1-2 feet in length. Siphoning water will not work. Pumps and ZipDrip valves will often break the siphon due to start and stop.

- Connect the system together in a permanent setup.
- Unplug the tubing leading to the first nozzle.
- Run the pump for a minute or two. During this time you should notice that water stream will become more solid and air will be purged from the system. (steam may never be 100% solid! You will not be able to stop the flow with your thumb - try it!)
- Turn off the pump and plug in the tubing back into the first nozzle.

**DO NOT EVER PUT THE PUMP INTO THE RESERVOIR OR IMMERSE IT IN WATER!!! THIS PUMP IS TO RUN OUTSIDE THE WATER CONTAINER. IT IS NOT SUBMERSIBLE.**
TYPES OF NOZZLES

We offer a multitude of various misting assemblies for different purposes. We currently have nozzle designs that are exclusive to us and are patented at the USPTO. We have nozzles that install through a surface, some that can be suspended, adjustable, straight, with shut off, with a tee, with an elbow, single, double quadruple and many others.

If your needs call for it and we don’t offer it for sale, we can probably design an assembly for you.

For a complete list of available misting assemblies please visit MistKing.com. We test all the assemblies that we sell directly or through distributors. Often you will receive them still wet from testing. Don’t worry, these are not used as we will never sell used parts to you.
**HOW TO CONNECT A SCREEN TOP WEDGE**

Some of our misting assemblies only require a hole to install. If you're trying to install a MistKing nozzle into something that is very flexible (ie. screen top), we suggest using a bracket for support. These can easily be crafted on your own if needed. For your convenience, we offer corner wedges that are ideal for this application and can be mounted to a corner of a screen top. These offer a perfect 90 degrees, provide a secure mounting point and strengthen the frame once installed. Wedges are black, injection moulded, made of PVC and are MistKing branded. These can easily be screwed to the frame with the included screws. Once installed, cut a small slit in the screen and install the nozzle. Nozzle installation above shows a sample install into a cage with a screen top.

**DISTRIBUTION OPPORTUNITIES**

If you run an online store or have a brick and mortar store and would like to sell Jungle Hobbies and MistKing products, please contact us at info@mistikking.com. We have a multitude of distributors through stores and websites across Canada, USA and the world.
Tired of the low end products available at your local retail outlets? Consider Jungle Hobbies Ltd. If you're serious and take your passion to the next level try some of our products that many are already relying on. We are constantly growing. For example,

**Advanced LED Lighting System** now comes in 2 sizes. Uses extremely bright 6500K LED, provides high PAR values, has a remote control, 5 daily cycles-Dawn/Sunrise/Day/Sunset/Night, it's low voltage and can be networked with other lights. If that's not enough yet, enjoy the 15,000 hr rating on the LEDs as well as lightning and cloud modes!

**MistKing Ready Screen Cages** are already factory preinstalled with corner wedges suitable for installation of our nozzles. Like virtually all our products, these are custom made for us out of 100% aluminum and use stainless steel screws and hinges and will not rust. In addition XL offers a 3rd door suitable for feeding flying insects. Matching substrate and water trays are also available.

more cool products coming soon. Check MistKing.com and JungleHobbies.com for updates
FACEBOOK

Stay in touch with MistKing and Jungle Hobbies and always know what the latest news are. Like Us on Facebook www.Facebook.com/mistking We often offer special incentives to our loyal customers so be sure to like us!

TROUBLE SHOOTING

1. *Pump hums but no water comes out or the mist is very weak*
   - ensure that the pump is ALWAYS gravity fed and that you're using a bulkhead. Although it seems that it should work, don't forget that our misting assemblies are check valved preventing the pump from properly priming on its own. It's also a good practice to always have water available for the pump as soon as you energize the misting system.
2. **Brand new system nozzles don't spray**
   - Whatever happens, please do not try to "fix" the nozzle tips. We test them twice before shipping them out and these work just fine. Before doing anything to the misting assembly or the nozzle tip, correct your system setup, pump position, bulkhead install and test the system. **NOTE:** You cannot blow through the nozzle as they contain a check valve. Even if you could blow through it, the flow would be so low that you would not feel it. Pumps work at high pressure and open the check valve.

3. **Nozzles used to spray better, what happened? It worked before!**
   - always ensure that the bulkhead is installed and that the pump is gravity fed. Never install the pump above the reservoir.
   - keep the reservoir clean. You may have dust, debris falling into the reservoir making the clean water dirty
   - Use only Reverse Osmosis or demineralized water. Using tap water or water filtered though a small kitchen filter will still have minerals present which will eventually distort the misting pattern or clog the super fine opening in the nozzle.
   - Never tamper with the center of the nozzle tip as that will for sure damage it, instead soak the whole assembly in CLR or vinegar solution to dissolve the
minerals. If you’re clogged with minerals, it will work. If the nozzle is clogged with debris, you may want to try to unscrew it and clean the tiny filter or replace the nozzle tip.

4. **Cannot maintain pressure when misting, water only drips**
   - possible that you're not setup optimally, see notes on good design.
   - check the ZipDrip valve (if present) if the electrical connections are secure. It's possible that ZipDrip got disconnected and now allows water to be pumped in a loop.

5. **Pump is noisy**
   - Key to remember that the all our pumps are very quiet. Most of the noise is actually coming from the pulsation that the working pump transfers to the tubing and as it vibrates it's creating the noise hitting various objects. Easy fix is just to use tubing clips, zip ties, tape to secure the tubing so it is tight with no excess that is allowed to make noise.

6. **Tubing or fitting is stuck. How do I remove it?**
   - Once you know how to remove tubing or fittings this becomes easy and trivial. If you don't know how the push to connect fittings work you may end up damaging the fitting. Watch a video on how to remove tubing easily
If you cannot get to a computer, just remember that you can press the collet and remove the tubing gently, never forcing it apart.

6. **How to activate the timer to follow a set up program? Few things to know:**
   - the ON/AUTO/OFF/AUTO is a toggle switch that switches between the following:
     I. **ON** - permanently turns the pump ON
     II. **AUTO** - following ON will stay in the ON position until the next programmed event
     III. **OFF** - permanently turns the pump OFF
     IV. **AUTO** - following OFF will stay OFF until the next programmed event.
     **This is the setting that you want to use for a misting system**

7. **Why is there so many parts for a misting system? I'm confused.**
   - This is a question we hear often, typically by new people that feel a bit overwhelmed. Always remember that whatever you need, we're always there to help. Don't think that our systems are complicated, but rather open yourself up to the fact that this is like small scale plumbing, where things just click together and can easily be taken apart as well. One which can adapt to any situation. If one person has setup "A", they will need specific combination of tees, elbows, nozzles, etc that suits their needs. A person with much larger setup "B", will have a
different, larger combination of same parts, perhaps different pump that can accomplish the same misting goal on a larger scale. It's hard to include a specific diagram without knowing your setup. It's better to understand the idea behind MistKing systems rather than follow a specific design. We're able to adapt to any setup, being a terrarium, ZOO, university lab, greenhouse, cattle barn, patio, Air Conditioner. Remember, if you need to mist it, we can help you!

8. **Are the nozzles adjustable? Can I spray more or less?**
   - This question is little tricky and you may think that these are non-adjustable, however: YES you can adjust the amount of water that the system sprays. To answer it in more detail you have to understand that when you mist more or less in a given time you're most likely increasing the size of water droplets to make things more wet faster (think rain vs mist). This will result in less benefit as far as humidity goes. For this reason we opted only to use the lowest flow misting nozzles available, basically setting our starting point on extremely fine mist. In essence, you cannot make finer mist if you were to adjust it, as this is as low as it will go. To mist more, you simply mist longer.
9. **how fine is the mist ?**

Mist produced by our systems is extremely fine. The average droplet size is about 50 microns. How fine is 50 microns ???

- 5 microns - very fine fog
- 20 microns - heavy fog
- 50 microns - MistKing nozzle
- 100 microns - fine spray
- 240 microns - medium spray
- 400 microns - course spray
- 1000 microns - fine rain or drizzle
- 1000+ microns - rain

10. **WHAT ABOUT A CONTAINER ?**

We are asked this all the time. Why don't you include a reservoir, or why don't you build everything into a single enclosure, etc. Our idea is very simple. Our system should not be the center piece of your design. You want to build it into your design in such a way to hide all the elements and just enjoy what it offers - the mist! Clean and crisp finished product is our focus.
We don't offer reservoirs because for starters we have to ship an empty container which drives the cost up. You are forced to purchase a container, which may or may not fit into your setup. If you need something standard, you can pick up a painter's bucket locally at hardware stores for just a few dollars. Some ZOOs use specialized water tanks, some hobbyists use small tub. You decide, whatever works in your setup! Our systems come with reservoir bulkheads to convert any container into a reservoir. Ensure that you have a lid!

12. **Which water to use?**
We always recommend using demineralised water for use in our systems. Reverse Osmosis (RO) is ideal and is commonly used and sold as filtered drinking water. Using tap, well, spring or water treated by pitcher or faucet filters won't prevent the minerals from depositing in the nozzles and aside from improving the taste do nothing else.

A misting system is a convenience tool, so remember RO water doesn't clog your nozzles, dries perfectly clear with no water spots and is ideal for your daily misting. Make sure you don't subscribe to the bogus chain letters or urban legends that relate to RO water. Entire industries rely on RO with no ill effects!
13. **Cleaning**

Make sure that you always use RO water. This means that you'll virtually never have to clean or worry about deposits in the nozzle tips. Keep your reservoir lids closed to prevent dust and debris from falling in and clean it regularly.

In the event that you don't use the recommended water and after months or years of use you notice the degraded mist pattern due to mineral deposits, try soaking the entire nozzle in 50/50 solution of water and vinegar for 12 hrs. Sometimes you may be able to make it work better again.

14. **Components are wet when received**

Don't worry, we don't ship used parts and never will. We test most parts and they may be wet when you receive them.
**SATISFACTION**
If for any reason you are not satisfied with this misting kit or if you do not feel we are worth being recommended to others, we would like you hear from you. We value your opinion and would like to hear what it is that you're not happy with, and if possible, we will do our best to remedy the situation. Your satisfaction is of outmost importance to us.

**GUARANTEE**
If for any reason you're not satisfied with your purchase return the product within 14 days of your purchase date and we will refund you the purchase price, minus shipping. Contact us first to discuss the return. Product has to be purchased through us in order to be returned to us. Please note that in case of a return or a repair, you are responsible for shipping the product properly packaged to our location. Upon the receipt, your refund will be processed.

**Warranty**
Your system has a warranty of 2 years for pump and 1 year warranty for electronics (timer, pump, power adapter). Nozzles are not guaranteed at all due to the fact that people use variety of water through them. We test all nozzles twice before shipping them out. Should a nozzle not work properly when you get the system, contact us and don't try to fix it.