

Zigmont Magic FX Effectspecialist.com 813 689 6269  
**Please read this manual fully before using equipment**



#### **CAUTION !**

1. Dry-ice should be stored in an insulated container to reduce sublimation.  
The released gas can lead to a dangerous pressure build-up if it is stored in a sealed container.
2. At no time must the dry-ice be handled, or brought into contact with bare skin. Solid CO<sub>2</sub> will lead to frostbite unless handled with protective gloves.
3. Do not engage in demonstrations which could lead to swallow CO<sub>2</sub> or allow it to sublimate in the mouth, this can lead to severe internal injuries.
4. When breaking solid blocks of dry-ice always use eye protection. Cover the ice with a piece of cloth to prevent fragments from flying. Use of a hide hammer is recommended.
5. Do not use or store solid CO<sub>2</sub> in confined spaces. Where solid CO<sub>2</sub> is used there should be adequate ventilation to ensure that low lying CO<sub>2</sub> gas does not cause dangerous concentrations. CO<sub>2</sub> gas is heavier than air and will sink to lower areas.

#### **Supplied**

**Dry Icer machine**

**Safety Glasses**

**Gloves**

**GFI plug**

**Temperature probe**

### **'DRY - ICE' EFFECT GENERATING MACHINE**

#### **Operating Instructions**

The machine has been professionally built in strong high density cross-linked polythene using only the best materials and should give trouble free use and an excellent effect if the following instructions are read carefully.

**It has a LED fill and heater on light that works in conjunction with a float inside the unit**

#### **The 'Dry-Ice' Principal**

'Dry-Ice' is, in fact, solid carbon dioxide (CO<sub>2</sub>) which in this form reaches a temperature of minus 87.5 C. When the dry ice is immersed in boiling water it evaporates quickly, turning directly into CO<sub>2</sub> gas without going through an intermediary liquid stage. The refraction between the air and steam loaded CO<sub>2</sub> gas, gives the well-known 'fog' effect. **No one should lay or place their heads on the ground as it could take your breath away**

#### **The Generator Principal**

'Dry-Ice' is loaded into the basket where, when the handle is lowered, is immersed in boiling water. Immediately the 'fog' will be produced and expelled through the nozzle at the front of the machine.

#### **To Operate**

1. **Connect a standard 15 amp plug** to the mains lead supplied (or a 15 amp plug which is connected into a circuit with suitable fuse protection). The current consumption is 15 amps. **CAUTION - THIS MACHINE MUST BE GOUNDED. We supplied a Ground fault Plug GFI use it if you don't have a GFI in the wall plug.**

2. Stand the machine on a reasonably firm, level surface in the place where it will be used, take off the lid and fill up with hot or cold water to Gallons - **DO NOT OVERFILL - until the Red light comes on. Fill with 5.5 Gals or with the basket in the up position fill water just below the basket.**

3. Plug into electrical outlet with our GFI.

4. While the machine is heating up (**it will take 45-60 minutes to reach the ready and hot point**), raise the basket to its highest level by raising the black handle on the side of the machine and lock it in place at the highest stop.

**We supplied a temperature probe to know when the water is ready. 180 % or above. WATER IS VERY HOT AND CAN BURN.** When you boil the machine up, leave the lid off. This prevents the lid handles from getting hot

5. **When the water has reached boiling point (this will be determined after approximately 45-60 minutes by a large amount of steam coming from the front nozzle hole) the machine is now ready for use.**

6. Load the basket with dry-ice, CO<sub>2</sub> in pellet form, it is best to use a mug or small saucepan. The basket size has been carefully designed to give one large 'show' from each bag or block of dry-ice if filled to approximately 1-1½" from the basket rim. **The loading of the dry-ice should be done at the last possible moment.** Due to the steamy atmosphere in the machine, it will start evaporating very slowly if put in too long beforehand.

7. **Place the lid on, and secure a tight seal by turning the two arms inward on the lid.**

8. When the 'fog' is required, grasp the basket lever and slowly lower the handle. A full basket should not be plunged into the hot water. This would result in dangerous pressure build up due to the violent action of the dry-ice sublimating. A ratchet stop is provided to allow the basket to be stepped into the water. As the CO<sub>2</sub> is immersed a 'fog' will be produced in thick clouds from the front nozzle. To increase the rate, lower the handle to the next stop. Raising the handle fully will quickly stop the effect, thus it is possible for an ON & OFF type of effect. 8. When the fog has finished being expelled through the nozzle, and the water is still warm, another basket full may be loaded as required. Once finished turn off the machine to prevent it from boiling dry.

**ON NO ACCOUNT MUST THIS EVER BE TAKEN OUT OR REMOVED. IF THE BASKET IS IMMERSSED COMPLETELY THERE WOULD BE A DANGEROUS PRESSURE BUILD-UP. Slowly lower the handle (not all the way at first) and the 'fog' will be produced** in thick clouds from the front nozzle. To increase the rate, lower the handle to the stop. Raising the handle sharply will immediately stop the effect, thus it is possible for a ON/OFF/ON/OFF type of effect if required.

9. When the **fog is finished and no more is being expelled through the nozzle, and the water is still warm, another basket full may be used if required. Otherwise it is suggested that the machine be turned off.** If not required for some time or (if another full basket load is required) be allowed to re-boil. **Check water level periodically, and top-up as necessary. Do not try to repeat the effect when the water is cold, this will only lead to the solid CO<sub>2</sub> mixing with the cold water and producing a solidified mass in the basket, requiring very hot water poured onto it to disperse.**

10. When the machine is to be emptied, it is advised that it is emptied into a bucket where it stands rather than carrying it to a sink, drain etc.

You can let the water pour out of the 4 inch front opening.

**ON NO ACCOUNT SHOULD THE MACHINE BE MOVED WITH HOT OR BOILING WATER IN.**

**GUIDANCE FOR USERS GENERAL:** Carbon Dioxide is produced by immersing solid CO<sub>2</sub> into boiling water. In its natural state this gas is colourless, but suspends water vapour when emitted from the machine giving the 'fog' effect. Although carbon dioxide is an inert gas, it does not sustain life. Because the gas is heavier than air and sinks there is no problem, although care must be taken to ensure nothing is below the 'fog' level, i.e. small pets, people lying down etc. CO<sub>2</sub> dissipates very quickly and there are no records of accidents, but it pays to be sure. Remember also, use of the machine creates a humidifying effects, so do not use it in the vicinity of electrical equipment, power sockets, or any item that may be damaged by moisture. In any event do not use the machines in rooms smaller than 10 feet by 10 feet.

**OVERFILLING: 99% of problems arise from putting too much water in the machine.**

**There should be no water from the nozzle except for some condensation.**

If too full adjust your water level accordingly. An overfilled machine can ruin parquet flooring, carpets etc. or spray boiling water over people.

### **DON'TS' IN USAGE**

1. Overfill or boil the machine dry.
2. Tip the machine in operation - especially if you are above an audience.
3. Put solid CO<sub>2</sub> into drinks for a "Laboratory" effect. If consumed solid CO<sub>2</sub> can cause severe internal injuries.
4. Use in a room less than 10' X 10'.
5. Handle solid CO<sub>2</sub> without gloves - this can cause severe frostbite. Protect your eyes when breaking up blocks of CO<sub>2</sub>. Cover the ice with a cloth to prevent chips flying.
6. Leave the machine in subzero temperatures when not in operation (to prevent damage to moulded shell).
7. Put dry ice into the machine when the water is cold.

DUCTING ADAPTORS: Remember fog output will decrease in proportion to the length of hose used. We recommend a max. of 10' although the operator should use as little as possible.

1. Make sure that the machine cannot be tipped. If water gets into the tube it will be sprayed under pressure. A "U" bend is advisable to help prevent this. 2. Try and have the end of the hose above the level of the machine.

3. Overfilling is very undesirable in any case, but particularly so when ducting is being used. The machine is capable of spraying boiling water quite far.

In general, if you are a nonprofessional and not familiar with ducting, DON'T USE IT!

**WARNING An overfilled machine will eject water. This will find its own level around the element housing. Continued abuse may cause power leakage to the earth circuit and in venues with an 'Earth Leakage Circuit Breaker' will shut off the mains supply.**

### MAINTENANCE & HINTS ON USE

1. The lid seal screws are heavily protected against corrosion. Keeping them lightly oiled will keep them loose and easy to use.
2. Make sure no dry ice is on the rubber seal. This will let gas escape through the lid gaskets.
3. **When you boil the machine up, leave the lid off. This prevents the lid handles from getting hot!**
4. Replacing the element or repairing a broken seal:
  - a. Remove element/replace or clean.
  - b. Renew rubber washer.
  - c. Coat shoulder of element liberally with a high quality silicone sealant, and replace.
  - d. Leave on the element side to set for 24 hours.

This is called "sublimation". If the CO<sub>2</sub> is required to be kept for any length of time (i.e. over the weekend) it should be stored in specially made containers, your dealer or distributor may have insulated containers sufficient to take 1-2 blocks or bags, or if more is required to be stored a container may be made from wood and insulated on top, bottom and sides with expanded polyurethane, if there is any doubt regarding

construction of this, your nearest CO2 sales office should be contacted. Your dealer/distributor may also stock solid CO2 but, if not look for the nearest depot. THE MORE THAT IS BOUGHT AT ONCE, THE CHEAPER IT BECOMES!  
IT IS EASIER TO OBTAIN AND STORE DRY-ICE THAN MOST PEOPLE IMAGINE.

#### SOLID CO2

Either a solid block may be purchased or (where available) it is recommended that CO2 in pellet form is used, this is easier to use as it requires no breaking. If a solid block is used, it must be broken up into small pieces preferably about 1" across. Below is a graph showing sublimation losses of dry-ice in relation to various methods of storage. If blocks are used, try and obtain "sliced blocks", as these can be laid on a flat surface and broken like a slab of toffee!

Temperature Gauge on the basket lowered to monitor temp

