



## THE **TURBO-MIST** EVAPORATOR SPECIFICATIONS

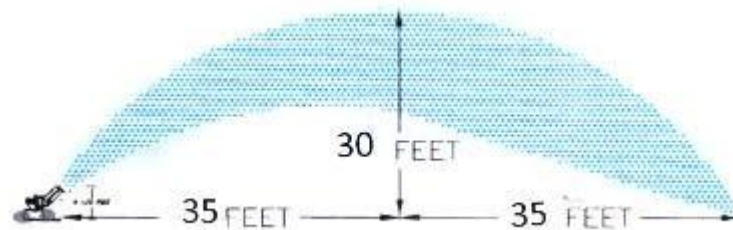
### OVERVIEW **Model S24P Mini**

This unit is a smaller (24 inch turbine) unit with less nozzles (20), capable of lower volumes only and can be utilized in smaller ponds where our standard large S30P cannot due to the pattern of spray. This mini unit is mounted on 3 wheels, and includes a 5 hp submersible pump to feed it at a rate of 40 gpm at 95 psi.

This unit is less efficient than its larger brother due to the lower elevation of the spray pattern and the small volume pumped. Creates less drift and can be utilized in much smaller ponds



**THE STANDARD MINI will throw waste approximately 70 feet to an elevation of 30 feet**



**The S24P Mini is built in the same way to the same standards with the same material utilizing a smaller electric motor (25 HP custom built) and smaller turbine (24") for smaller situations**

**The S24P mini can be ordered with a 5 hp submersible pump to feed it.**



## **OVERVIEW Model S30P**

***The evaporator design incorporates our patented 30-inch diameter axial flow turbine, which we have used successfully for 35 years in our agriculture division. This proven turbine is connected by a elastomer type coupling to a custom built 40 horse power electric motor with dual inpro seals™ and utilizes a 100,000 hour precision matched bearing system. This combination is mounted on a frame, which is designed to allow 360degree rotation at the base.***

***Our evaporator was designed from the ground up to be just that, an evaporator. This unit is not a snowmaker or a conversion from another application. The design maximizes efficiencies of airflow and maximizes evaporation thru shearing of water droplets in the air stream. The more droplets that can maintain “hang time”, meaning the time they are airborne, before falling back to the pond, the greater the evaporation rate, of the total amount pumped aloft, will be!***

***This product which now has over 600 installations worldwide, it is designed to operate 24 hours per day, 7 days a week, with a minimum of maintenance. To achieve this we generally over spec most features of the unit, to ensure the product exceeds expectations in use.***

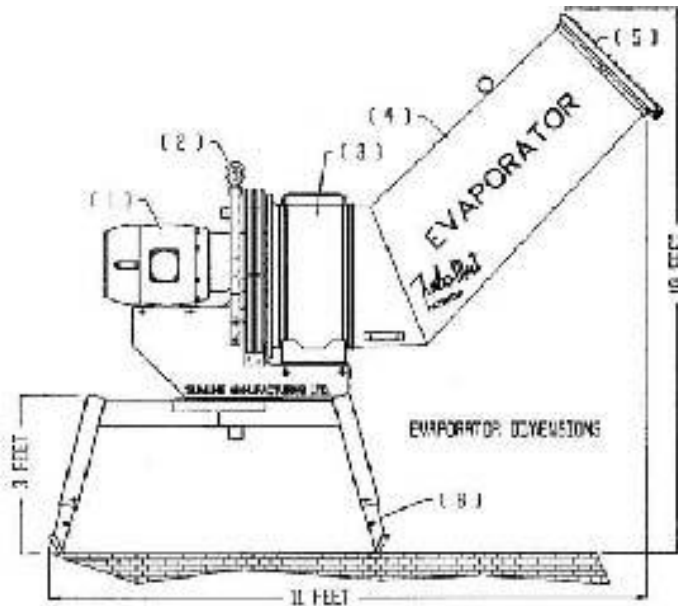




## EVAPORATOR DESIGN FEATURES SIZE OF S30P

The unit as shipped on a deck, without the crate, weights 1575 lbs, if crated the unit requires 7 feet cubed, that is 7' x 7' x 7'.

When the stainless steel wind tunnel is attached to the turbine making the unit operational, this increases the size to 7' x 7' x 10'8".

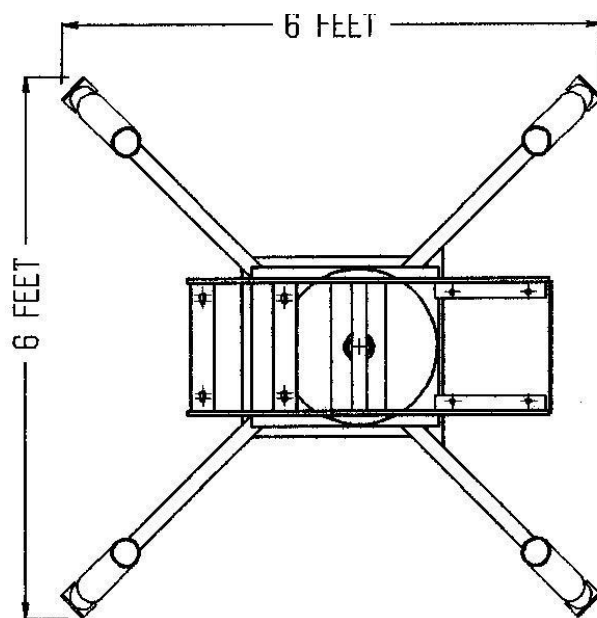


1	891 PLUS BUILT BY U.S. MOTORS, 48 HP 575 VOLT OR 480 VOLT
2	MAIN LIFT POINT, TOTAL WEIGHT APPROX 1550 LBS
3	DIAMETER 30" AXIAL FLOW TURBINE, STAINLESS STEEL HOUSING, ALUMINUM FAN FAN IS DYNAMICALLY BALANCED
4	STAINLESS STEEL AIR NOZZLE
5	WATER MANIFOLD, 30 NOZZLES, TOTAL GPM = 53.3 @ 200PSI, 80.7 @ 150PSI OTHER CALIBRATIONS AVAILABLE
6	CARBON STEEL STAND, LEGS ARE ADJUSTABLE, LEGS UP TO 10 FEET LONG AVAILABLE



## LEGS:

- ***Our four-leg design allows for storage of the wind tunnel during shipment, or the ability to span objects that one might encounter in severe terrain.***
- ***The legs are adjustable in length to allow for traverse ground, so the machine may be leveled for operations.***
- ***The legs can be ordered with either spike feet (shore legs) for setting in soil or with flat plate feet (barge feet) for bolting to a barge or float or concrete pad. Suggest 7' x 7' pad is sufficient for each machine.***
- ***The adjustable legs are open on both ends so that they do not trap contaminated water in the legs.***





## **FRAME:**

***The frame design allows the ability to rotate the unit in a 360 degree horizontal circle, which means it can be set up to avoid or take advantage of prevailing winds.***

***The 360-degree feature has 8 preset lock out positions to avoid rotation of the cannon accidentally.***

***A large bearing surface area, complete with grease inserts makes ease of rotation of the unit a one-person job.***

***The stand is constructed of 3/16 steel tubing members and cross braces which are completely sealed from outside contaminants, which is extremely important when operating in such a wet and corrosive environments.***

***The motor base was designed with the service mechanic in mind by locations of the highly visible grease ports in easily accessible exterior positions and requires no guards be removed for grease maintenance. The motor is supplied with purge port extensions, installed for easy accessibility and cleaning.***





## **MOTOR MOUNT & COUPLING:**

***The motor utilized is a custom-built super hostile duty 40 horsepower electric motor, available in 230/460 volt or 575 volt models and naturally is CSA and UL approved.***

***The unit is custom designed with dual VBX inpro seals™ to make this unit as close to***

***water tight as can be obtained on the market and is custom built for Slimline Manufacturing Ltd by US MOTORS. See section on motor for information***



***The motor mount base is designed with push rods for alignment. Each unit has 8 separate push bolts, 4 for the actual motor and 4 for the turbine housing. This is to ensure that our alignment sequence of the motor and turbine are easily achievable during and after manufacture. The bearing mounting area in the turbine is machined to insure alignment during manufacture and maintenance.***

***The coupling manufacturer states the maximum parallel misalignment is 0.015 inches, angular misalignment is 0.025inches. Slimline Manufacturing Ltd specs are tighter at parallel misalignment of .007" an angular misalignment of .010". To ensure these specifications are met, each machine is quality inspected and the actual misalignments are recorded for each unit by serial number.***

***To ensure the unit is ready to go upon delivery, each unit is PDI at the factory, that is grease lines have been purged and bearings are greased correctly.***

***Then each unit is run to full rpm and vibration analysis is done and recorded, before shipping.***

# STANDARD EVAPORATOR MOTOR



Slimline Manufacturing Ltd has this motor custom built for use on our evaporator. The utilization of VBX inpro/seals in the motor make the unit virtually waterproof and allows it to operate in extreme conditions.

This **Premium Efficient 841 Plus Motor** is remanufactured for **Slimline Manufacturing Limited** to new exacting standards. This severe duty motor originally developed for applications in petrol-chemical, pulp and paper plants. It has been specially adapted for the use in the **Turbo-mist Evaporator**, the dual inpro seal system and the upgrading of all exterior joints is crucial in the success of the evaporator durability.

The **841 plus** exceeds **IEEE 841**, **Espect "92"** and **NRCAN** efficiency legislation has been brought to a new level of severe applications standards. The following is just of few of the standards features of the Slimline 841 Plus;

- 841+Exceeds IEEE 841, Exceeds EPACT "92" and NRCAN efficiency legislation.**
- Fully complies with **NEMA MG-1 Part 31** specifications for **INVERTER DUTY MOTORS 1.15SF** on sine wave power (1.0 SF on inverter power)
- 40 C ambient **NEMA** design B, Class F insulation.
- Class B rise at full load on sine wave, Regreasable bearing, and internal bearing.

**EVAPORATOR MOTOR INFORMATION CONTINUED**

- **All grease ports have been extended for simplicity of greasing.**
- **All grease clean outs have been extended for easy access.**
- **Suitable for 10:1 variable torque and 5:1 constant torque on inverter power.**
- **Precision balanced rotors to <0.08 insec vibration, <0.005 in foot flatness from mounting hole to mounting hole. Conduit boxes twice NEMA volume standards. All cast iron construction.**
- **Paint withstands 250 hr. salt spray test.**
- **Inpro Seals on both drive and non-drive ends.**
- **In EXTREME DUTY SITUATIONS an optional 302 stainless steel shaft is available**

**THE FOLLOWING IS ACTUAL LOADED FAN OPERATING DATA**

<b>AMP FACTOR</b>	<b>KW</b>	<b>POWER</b>	<b>VOLT</b>	<b>KVA CODE</b>	<b>EFFICIENCY @</b>
23	10.45	.99	450	G	94.2

***In the three phase motors we utilize this translates to 17 kilowatts of power per hour.***

**POWER CONSUMPTION**

<b>POWER RATE (cents/hr.)</b>	5.0	8.0	10.0	12.0
<b>HOURLY RUN COST</b>	.85	1.36	1.70	2.04
<b>COST/24 HR DAY</b>	<b>\$20.40</b>	<b>\$32.64</b>	<b>\$40.80</b>	<b>\$48.96</b>

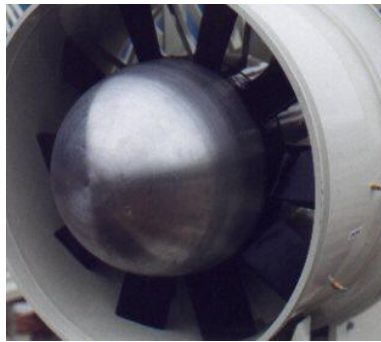
***All test data was recorded at 1200 feet above sea level at 40 degree F, by independent service agency. Chart recorder data available upon request.***

**SWITCH GEAR SUPPLIED WITH ALL MOTORS**



## **TURBINE & FAN ASSEMBLY:**

- ***The cast aluminum fan and air diffuser nozzle has been coated with a special anticorrosive powder. Each fan is precision balanced to within 1/2 mill and is machined to within 50 thousands clearance of the turbine housing, which is extremely important to insure maximum efficiency.***



- ***Stainless air straighteners, direct the air to the fan, allowing the fan to maximize every cubic foot of air and minimize horsepower.***
- ***The intake is protected by 1/2 inch solid round screen to keep objects out of the turbine, but allow for maximum intake efficiency.***
- ***Two (2) stainless steel covers have been installed, one covers the motor to redirect any water falling on the motor, the other over the coupling unit and turbine input shaft, keeps the water off the shaft but allows visual inspection of this area.***
- ***Each unit is equipped with a center lifting point to ease movement of the unit at the site by forklift or crane.***

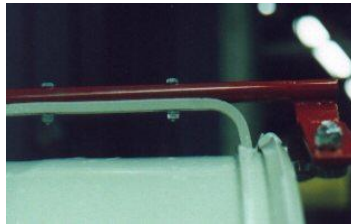


## **WIND TUNNEL & MANIFOLD**

***The wind tunnel, constructed of type 304 stainless steel, is easily adjusted to allow variable heights and loft to give control to the operator to ensure fallout is retained in the required containment area within the liner, if necessary.***

***A quick detachable 100 percent stainless steel water nozzle ring, with 30 stainless steel nozzles, give us the ability to vary the output rate to meet the customer pumping requirements.***

***Each unit is shipped with a hanger support unit, which can be utilized for positioning the evaporator wind tunnel on site without danger that the unit could fall off and enables one man to adjust the direction of the tunnel. (OSHA Compliant)***



## **WIND TUNNEL DIRECTIONAL ABILITY**

***The wind tunnel can be adjusted to accommodate prevailing winds or a combination of units on a float, to ensure containment by fallback within the liner.***





## **3M SCOTCHKOTE 134 POWDER COAT FINISH**

***Every unit sold, goes into different operating circumstances, that is, each of our customers have their own special requirements, related to their own special problems.***

▪ ***Scotchkote™ 134 -Fusion bonded epoxy coating (powder coating)***

***This product has been tested for over 165 chemicals, for resistance. In each case the coating has been tested for over two (2) years at 73 degrees F, with no effects shown. If you have a special problem, contact us for the complete list of chemicals tested to see if we can solve your problem***

### ***THIS IS OUR STANDARD FINISH***

***Some situations call for extra protection from the solution being evaporated.***

***Our standard evaporator has a type 304 stainless steel turbines and wind tunnel, in addition to all stainless steel bolts and stainless steel hoods.***

***For more aggressive environments, we offer, for an additional cost the following choices:***

- ***Type 316 stainless steel construction. Type 904 stainless steel construction.***



## **WATER ATOMIZER MANIFOLD**

**Slimline Manufacturing Ltd offers two different types of nozzles in the same manifold layout. Each type of nozzle has pros and cons and the type of solution being pumped will likely be the determining factor in making a choice for your project.**

### **The Teflon spiral nozzle: Option # 1010**

**Advantages: Smallest water droplet – average 65 microns after air shear effect Less likely to clog due to design Less likely to scale in many solutions due to Teflon One piece nozzle & ease of replacement.**

**Disadvantages: Cost – this is an industrial product and has limited volumes**

### **The Stainless Steel disc and core hollow cone nozzle system: option # 1020**

**Advantages: Cost – we can source this product through agricultural sources and because of the high volume are inexpensive in comparison to spiral industrial nozzles.**

**Disadvantage: Multiple pieces, very easy to confuse when replacing. Each nozzle consists of a disc and core, which fits inside a nozzle body and has a cap to hold it together. If incorrectly reinstalled efficiency is affected. In scaling type solutions, stainless steel is more likely to scale than Teflon.**

**Please note the output on these two nozzles are identical, the initial cost on a unit is only a difference of \$100.00 so the deciding factor in choosing which option is best for your solution, is the water quality and catch basin size.**

**The output for either nozzle is 66 gallons per minute at 100 psi, 80 gallons per minute at 150 psi. We can provide large nozzles that increase volume pumped aloft, however it is our opinion that this volume results in the most efficient evaporation. We are available for discussion and explanation on this point, at the factory during office hours.**

### **Spray system Spiraljet hollow cone flow rates**

**Pipe Spray Capacity Gallons Per Minute at PSI**

**Size Angle Size 100 PSI 150PSI 200PSI**

**1/4 90 degrees 7 2.2 2.69 3.11**



## **OPERATING NOISE LEVEL OF THE S30P EVAPORATOR**

**EVAPORATOR SOUND TEST** Technician: Gordon Spelay Test date: February 16, 1999

Location: AC Motor Electric, Penticton, BC Weather conditions: Overcast and calm Meter: No. 33-2055

Distance from the evaporator in feet                      Readings in db's

0 ft	99db
5 ft	98db
25ft	93db
50ft	89db
75ft	85db
100 ft	75db
200 ft	65db

### **NOTES**

- 1 Test site was flat and unobstructed.**
- 2 Test readings were also taken from behind surrounding buildings at a distance of approximately 150 feet. These reading ranged from 65 Db to 75 db.**
- 3 Normal speech pattern will register between 65-70 db's.**



MISCELLANEOUS EQUIPMENT UTILIZED

## SURE-FLO SELF CLEANING FILTERS

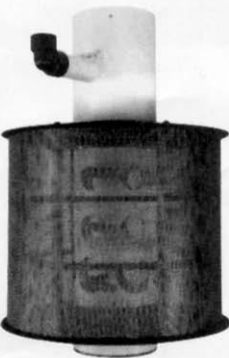
**These filters are built from PVC and stainless steel to withstand various solutions. The design utilizes high performance plastic wheels and wheel bushings, special drive cleaning nozzles provide a flat, wide hard-hitting uniform spray pattern. Flow controlling entry ports prevent hot spots on the screen, all fasteners are Stainless Steel.**

**Screens that revolve, past stationary internal nozzles, blows debris off the screen. They are built to last with low coefficient of friction, high mechanical strength, UV light resistant and very low moisture absorption.**

**The model we have chosen for use in our pumping package for one unit is a dual drive unit, model number SCS3-DD-SS which has a capacity of 190 gpm and requires 15 gpm to operate. The perforated Stainless Steel screen (.117" Perf.) 16ga. 316 SS, is 6 inches high by 10 1/2 inches wide with an overall height of 15 1/2 inches. This type of filter requires a minimum of 55 psi to operate. The package will include a stainless steel foot valve with loss of prime warning and a manual-priming pump.**

**Pictured below is the model SCS4-DD-SS often utilized by Slimline Mfg for multiple unit installs.**

with Stainless Mesh



Perforated Stainless Steel Screen  
.117" Perf. -- 50% Open  
16GA -- 316SS

### Dual Drive Perforated Stainless Steel Screen

Model Number	Strainer Capacity GPM	M <sup>3</sup> /Hr	GPM Used to Operate	Supply Line Size	Screen Dimensions Ht. x Width	Overall Height
SCS3-DD-SS	190	43	15	1"	6 x 10 1/2	15 1/2"
SCS4-DD-SS	380	86	30	1"	12 x 10 1/2	21 1/2"
SCS6-DD-SS	675	153	45	1 1/2"	14 1/4 x 16 1/2	26"
SCS8-DD-SS	1350	307	60	2"	21 3/4 x 20	33"
SCS10-DD-SS	1780	403	75	2"	24 x 24	35 1/2"
SCS10BB-DD-SS	2200	498	90	2 1/2"	30 x 24	41 1/2"
SCS10XL-DD-SS	2700	612	90	2 1/2"	30 x 30	41 1/2"
SCS12XL-DD-SS	2700	612	90	2 1/2"	30 x 30	41 1/2"

NOTE: Perforated Stainless Steel Screens require at least 55 psi to operate.



## **HOSES & CONNECTORS**

**When providing a pumping package, the hose supplied from the pump to the evaporator unit is GOODYEAR FABCHEM TRANSFER HOSE**

### **GOODYEAR FABCHEM TRANSFER HOSE**

***This product is a state of the art chemical transfer hose that will handle up to 98% of all known chemicals. Its slightly corrugated cover permits extra flexibility and ease of handling on site.***

***It is a lightweight hose that is highly resistant to kinking, weathering and abrasion. This product can safely be steam cleaned without affecting performance.***

***The temperature range of Fabchem transfer hose is -40 degrees C (-40 F) to 66 degrees C or 150 degrees F.***

***Construction: Tube, smooth, clear polyvinyl. Cover: slightly corrugated green wrapped EPDM. Reinforcement Synthetic fabric with two wire helix.***

***Normal size used unless sources differently for specific purpose will be inside diameter of 2 inches, outside diameter of 2.44 inches.***

***This product has a working pressure of 200 PSI, bend radius of 6 inches, and Weighs .94 lbs per foot. The standard price per foot in excess of 100 ft would be \$18.07 US per foot. This price is subject to change.***

***If you have questions about our design, please contact sales at  
1 800 495 6145***