



# Fogco FogCannon™ HD 160 / HD 230 / HD 300 Pole / Trailer



## **FOGCO Environmental Solutions**

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## PURPOSE OF USER AND MAINTENANCE MANUAL

- Make the operators aware of safety issues;
- Install, handle, and use the Machine in safe conditions;
- Gain in-depth knowledge on its operation and limits;
- Perform maintenance work, correctly and safely,

This document assumes that the safety and hygiene work regulations are observed in the plants, where the Machine has been located.

The instructions, drawings and documents contained in this Manual are of a confidential and technical nature, of strict ownership of the manufacturer and cannot be reproduced in any way without prior consent from the manufacturer.

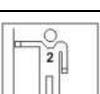
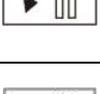
The Instruction Manual should be kept with the Machine at all times. Copies available at [www.fogco.com](http://www.fogco.com).

The Manufacturer reserves the right to modify the design and make improvements to the Machine without communicating it to the Customer and without updating the manual already delivered to the user.

## PICTOGRAMS



**The descriptions preceded by this symbol contain important information regarding safety. Failure to respect them can result in danger for the physical safety of the operators; lapse of warranty; elimination of any manufacturer's responsibility.**

Sym.	Description	
	<b>General unskilled worker:</b> operator with no specific skill, able to perform simple tasks upon orders of qualified technicians.	
	<b>Operator of lifting and handling:</b> operator familiar with the use of lifting and handling of materials and machines (following the instructions of the manufacturer), in accordance with the laws in force in the country of use of the machine.	
	<b>Machine operator - 1<sup>st</sup> level:</b> operator without specific skill, able to perform only simple tasks such as the operation of the machine using the buttons on the Machine panel or Remote, operations of loading and unloading the Machine with the protection guards installed and active.	
	<b>Machine operator - 2<sup>nd</sup> level:</b> operator able to perform tasks of 1 <sup>st</sup> level operator and also able to perform simple functions of start, stop and reset following stoppage and adjustment of the Machine.	
	<b>Mechanical maintenance worker:</b> qualified technician able to operate the machine in normal conditions, intervene on mechanical parts to perform adjustments, or maintenance work and necessary repair work but. <b>Not able to work on wiring systems when live.</b>	
	<b>Electrical maintenance worker:</b> qualified technician able to operate the machine in normal conditions, intervene in electrical work of adjustment, maintenance work and necessary repair work and <b>is capable of working in the presence of voltage within electrical cabinets and junction boxes.</b>	
	<b>Manufacturer's technician:</b> qualified technician made available by the manufacturer to perform operations of a complex nature in specific situations, or in any case, when agreed with the user. The skills are, depending on the case, mechanical and/or electrical and/or electronic.	

## PICTOGRAMS RELATING TO MACHINE STATUS

- The pictograms contained in a square / rectangle provide **INFORMATION**.

Sym.	Machine status;	
	<b>Machine off:</b> with electrical and pneumatic power cut off.	
	<b>Machine on:</b> with electrical and pneumatic power connected and in safe stop condition through mobile protection guards open (specifying which ones); fixed protectors closed.	
	<b>Machine on:</b> with electrical and pneumatic power connected and in safe stop position through mushroom emergency button in a held position or other control for this purpose, located close to the intervention zone (specifying the mushroom or part to use).	
	<b>Machine in movement:</b> with automatic function, mobile protection guards closed with relevant blocking device activated and fixed protector guards closed.	
	<b>Machine in movement:</b> mobile protector guards closed with relevant blocking devices activated and fixed protector guards closed.	
	<b>Machine in movement:</b> one or more mobile excludable protection guards open (specifying which) with relevant interlocking devices deactivated, any remaining mobile protector guard closed with relevant interlocking devices activated and fixed protection guards closed.	
	<b>Machine on:</b> stopped and ready to start (standby condition) through activation by functional consent (e.g. presence of product), mobile protection guards closed with safety device included and fixed protection guards closed.	

**PICTOGRAMS RELATING TO SAFETY**

- The pictograms contained in a triangle indicate **DANGER**.
- The pictograms contained in a circle impose a **RESTRICTION OR OBLIGATION**.

Sym.	Name	
	Dangerous electrical tension.	
	Crushing of upper limbs.	
	Getting caught.	
	Dragging.	
	Access forbidden to unauthorized persons.	
	Do not remove safety devices.	
	Prohibited to clean, oil, grease, repair or adjust moving parts by hand.	
	General danger.	
	Protection gloves required.	
	Safety shoes required.	
	Hard hat required.	
	Obligation to cut off power before starting repair work	

## **MANUFACTURER DATA**

WLP S.r.l.  
Via Broletti, 18  
38050 Castelnuovo (Trento)  
www.wlpdust.com

### **Exclusive US Partner:**

**Fogco Environmental Solutions**  
**600 S 56<sup>th</sup> Street, Unit 9**  
**Chandler, AZ 85226**  
**www.fogco.com**

## **IDENTIFICATION DATA AND MACHINE PLATES**

Each Machine is identified by a metal plate that provides the following information:

Machine Product Range  
Machine Model Number  
Year of Manufacture  
Serial Number  
Power Requirements  
Horsepower  
Amp Load

## **INFORMATION ON TECHNICAL ASSISTANCE**

The Machines are covered by warranty as required by general conditions of sale. If the Machine should stop working smoothly or parts become faulty according to the cases indicated by the warranty, the Manufacturer, after having made appropriate verifications on the Machine, will repair or replace the faulty parts.

Work performed by the user to alter the machine, without explicit written authorization of the manufacturer, shall void the warranty and the manufacturer shall not be held liable for damage caused by the faulty product.

## **ARRANGEMENTS TO BE PROVIDED BY CUSTOMER**

The following are the sole responsibility of the end user:

- Arrangement of the site, including any structural work and/or channelling required;
- Electrical power of the Machine, according to the laws in force in the country of use;
- Grounding of the electrical power when a generator is being used;
- Hydraulic power of the Machine, according to the laws in force in the country of use;
- Any Pneumatic Power with compressed air.
- Pre-filtration for non-potable water use

## **TRANSPORT AND HANDLING**

Before carrying out any operation, it is mandatory to read the entire Instruction Manual.

The transport and the handling of the Machine must be performed in one of the following ways:

HANDLING WITH FORK LIFT: suitable for both TRAILER and POLE versions with base.  
A fork lift with lifting force of at least 2200 lbs. and with minimum fork length of 55 inches must be used.  
Insert the forks in the proper roll over protective spaces.

**HANDLING WITH CRANE:** suitable for both TRAILER and POLE versions with or without base. Use chains or bands with lifting force of at least 2200 lbs. and complete with two lifting hooks. Verify that the bands or the chains are long enough to avoid them touching the metal parts of the Machine. Hook and fix the band or the chain to the provided blocking pins only.

## **INSTALLATION**

Before the installation, verify that the ground is adequate to support the weight of the Machine and in the case of POLE versions verify that the ground is flat and even. The installation must be carried out only by qualified and authorized staff.

## **OPERATING PRINCIPLE**

The HD 160, HD 230, and HD 300 are dust suppression systems. These machines use water atomization to capture dust particles (including silica) in the atmosphere.

## **MAIN COMPONENTS**

The machine includes a Cannon, a Multi-Zone Crown, a Column Frame, a Filter, Zone Valves (electric versions are optional) a PLC Control Panel, and a Pump.

### **Cannon and Multi-Zone Crown**

The ventilation and spray system unit have sufficient water flow to accommodate the air volume and thrust created from the cannon propeller. The water spray nozzles are located along the circumference of the crowns. A heating kit (optional) can be installed in order to prevent icing.

### **Column Frame**

The FogCannon is installed on a column frame where the raising and rotation devices are also mounted. These devices, which can be controlled electrically, manually or in Remote mode, serve to adjust the rotation angle and to make the fogcannon work within the selected angles set up at the user's own discretion.

### **Filter**

The unit is fitted with a 100 mesh filter that removes impurities that can clog the nozzles. An additional pre-filter may be recommended for some applications.

### **Zone Valves**

Manual or electric (optional) valves control the water flow to the various zones on the crown. The HD range includes a crown that has 2 or 3 zones depending on the machine design. The unit can operate with individual zones or all zones simultaneously. The water flow depends on the number of zones working, the nozzle size in each zone, and the operating pressure of the pump. See the **OPERATING FLOW OPTIONS** table below.

The electric zone valves (optional) are controlled from the PLC panel or from the Remote Control Transmitter. When the electric valves are turned off, they automatically drain any remaining water in the zone lines. It is recommended to open all drain ports on the unit after each use.

### **PLC Control Panel**

The PLC control panel allows the starting of the fan, the pump, the electric zone valves (optional), and control the electric oscillation and electric tilt (optional) of the FogCannon. The panel also allows for programming the cycling of the unit.

### **Pump**

The pump is housed on the outer column frame and is used to increase the water supply pressure. Increased pressure will improve the atomization of the water droplets and the effectiveness of the unit. The pump is equipped with a pressure gauge and pressure switch which will terminate the pumps operation if the water supply is insufficient.

## CONTROL PANEL DISPLAY

The System status can be viewed on the various pages of the control panel display. Push the  key on the keypad to select the page to view.

### PAGE 1

SYS	EV1:0	EV3:0
MAN	EV2:0	ACQ:0

**SYS** (System): shows if the system is in Manual (MAN) or Automatic (AUT) mode

**EV** (Electric Valve): shows if the electric valves (1,2,3) are On (1) or Off (0).

**ACQ** (Acquisition): shows the positions of the acquired rotation points; (0) the machine will search for the 0 point; (1) first point of the angle; (2) second point of the angle.

### PAGE 2

PMP	RADIO	HEATER
OFF	OFF	OFF

**PMP** (PUMP): Shows if the pump is Off (OFF), On (MAN) or in Auto (AUT)

**RADIO** (RADIOCOMAND): Shows if the radio is On (ON) or Off (OFF)

**HEATER** (HEATING SYSTEM): Shows if the heater is On (ON) or Off (OFF).

### PAGE 3

TIM	TIM.ON	05 00
OFF	TIM.OFF	05 00

**TIM** (TIMER WORK/PAUSE): Shows if the timer is On (ON) or Off (OFF)

**TIM.ON** (WORKING TIME) The first column shows the working time in minutes (from 5 to 30 minutes). If the timer is On, the second column shows the remaining On time.

**TIM.OFF** (PAUSE TIME) The first column shows the pause time in minutes (from 5 to 30 minutes). If the timer is On, the second column shows the remaining pause time.

## CONTROL PANEL BUTTONS



Turns the fan ON or OFF. Also turns the pump ON or OFF if the pump is in AUTO mode.



Turns the system to AUTO or MANUAL mode.



Turns the pump OFF, AUTO, or ON. **AUTO is the recommended default setting.**



Raises the cannon if fitted with Electric Tilt.



Changes the Page view between pages 1, 2, and 3.



Turns the electric valve for zone 1 ON or OFF (1/0) if fitted with Electric Valves.



Turns the Radio Control ON/OFF if fitted with REMOTE CONTROL.



Oscillates the cannon to the left.

-  **ACQ** Sets the auto oscillation rotation angle (See **SET THE ROTATION ANGLE** instructions below).
-  Oscillates the cannon to the right.
-  Turns the electric valve for zone 2 ON or OFF (1/0) if fitted with Electric Valves.
-  Turns the timer ON/OFF.
-  **F1** Initiates the system at start up and resets any Alarms.
-  Lowers the cannon if fitted with Electric Tilt.
-  **S** Shows the required Service.
-  Turns the electric valve for zone 3 ON or OFF (1/0) if fitted with Electric Valves.
-  **Tim ON** Sets the Time ON for cycling operation.
-  **Tim OFF** Sets the Time OFF for cycling operation.
-  **F2** Changes the Heating System settings (when included) only from Page 2.
-  **F3** Shows the required Service.

**Raising and lowering of the cannon and opening and closing of the valves is done manually if the unit is not equipped with Electric Tilt or Electric Valves.**

Manually raise/lower the cannon by loosening the cannon Tilt Handle located on the tilt assembly next to the main control panel; raise or lower the cannon as needed; tighten the Tilt Handle.

Manually open/close the valves for the individual zones on the crown.

## CONFIRM FAN ROTATION

**After CONNECTING TO THE APPROPRIATE POWER AND WATER SUPPLIES, verify that the primary selector switch on the FogCannon is ON. Press the blue button on the control panel and press the F1 button on the keypad. The red Tower light stops flashing and the machine is ready for use**

**Before using the machine, confirm the correct direction of rotation of the Fan by pressing the Fan ON/OFF key and verify that it turns counter-clockwise or in the direction of the arrow on the backside of the cannon. If not, pull the plug from the power source and reverse two of the wires. This should only be done by a qualified electrician.**

## SET THE ROTATION ANGLE

It is possible to set a rotation angle anywhere between 0° and 340° where the fogcannon oscillates automatically.

Start by pressing the ACQ  key. The fogcannon will rotate clockwise until point 0. Once the cannon stops at Point 0, press and hold the Left Arrow  key until the desired RIGHT stopping point is reached. Press the ACQ  key to set first set point. Press and hold the Left Arrow  key until the desired LEFT stopping point is reached. Press the ACQ  key to set the second set point. The ACQ value shown on the control panel display will show 0 meaning that the desired angle has been set up correctly and that the machine is ready to operate in the AUTO mode.

After setting the rotation angle, the machine will oscillate automatically when the System (SYS) is set to the AUTO mode.

## OPERATE THE SYSTEM IN MANUAL MODE (manual oscillation)

Use the  key to toggle between the 3 pages.  
Check the settings on Page 1. SYS should be MAN and all EV should be set to 0;  
Check the settings on Page 2. PMP should be AUTO and RADIO should be OFF  
Check the settings on Page 3. TIM should be OFF

Press the FAN  key to turn the Fan and Pump ON  
Press the Electric Valve , , and/or  keys (or rotate the manual zone valves if the unit is not equipped with Electric Valves) to open the appropriate zone(s) on the crown.

The cannon can be rotated by pressing the LEFT  and RIGHT  arrows. The cannon can be raised/lowered by pressing the UP  and DOWN  arrows (or raised and lowered manually if the unit is not equipped with Electric Tilt).

To terminate the operation, press the  FAN key once and press the appropriate Electric Valve , , and/or  keys once (or rotate the manual zone valves if the unit is not equipped with Electric Valves).

## OPERATE THE SYSTEM IN AUTO MODE (auto oscillation)

**The Rotation Angle must be set before operating the system in the AUTO mode.**

Use the  PAGE key to toggle between the 3 pages.  
Check the settings on Page 1. SYS should be in MAN; and all EV should be set to 0;  
Check the settings on Page 2. PMP should be in AUTO and RADIO should be OFF  
Check the settings on Page 3. TIM should be OFF.

Press the Electric Valve , , and/or  keys (or rotate the manual zone valves if the unit is not equipped with Electric Valves) to open the appropriate zone(s) on the crown.

Press the  SISTEM key to change the system from MAN to AUTO.

The buzzer will sound for 3 seconds and the cannon will rotate to the 0 position. The cannon will then rotate to the 1 position. The fan will turn ON. The cannon will continue to rotate to the 2 position. The Pump will turn ON.

The system will continue to oscillate between position 1 and position 2 until the SISTEM key is pressed again.

Once the SISTEM  key is pressed again, the oscillation, the Fan, the Pump will turn OFF immediately. All valve (Electric and Manual) must be turned Off separately.

### NOTES:

When the system is in AUTO, only the following keys on the display key pad will operate:

- The UP and DOWN arrows for raising and lowering the cannon (if equipped with Electric Tilt)
- The Electric Valve (EV) keys (if equipped with Electric Zone Valves)

## SETTING THE TIMER

It is possible to set up TIME ON and TIME OFF times for the system.

Press the  PAGE key on the keypad to select Page 3.

Press the  TIM ON key to increase the TIME ON setting (left-hand column) in 5-minute increments from 5 to 30 minutes.

Press the  TIM OFF key to increase the TIME OFF setting (left-hand column) in 5-minute increments from 5 to 30 minutes.

After setting the TIM ON and TIM OFF, the timer can be activated by pushing the  TIMER key.

While the machine is operating, the value in the right-hand column for the TIM.ON decreases starting from the maximum value shown on the left until 0 is reached. Identical procedure is valid for the pause time.

## SETTING THE PUMP FUNCTION

Use the  key on the keypad to toggle between the 3 pages  
Check the settings on Page 1. SYS should be MAN and all EV should be set to 0;  
Check the settings on Page 2. PMP should be OFF and Radio should be OFF  
Check the settings on Page 3. TIM should be OFF

Press the  PUMP key to switch between OFF, AUT, and MAN

When the PMP is set to OFF, it will be deactivated.

When the PMP is set to AUT, it will start automatically whenever the fan is activated and will continue to run until the fan operation is terminated.

When the PMP is set to MAN, it will start immediately and run until the PMP is set to OFF.

**NOTE: The Electric Valves will NOT be automatically activated whenever the pump is running. They must be turned on separately by pressing the appropriate EV key on the keypad. The electric valves will NOT be deactivated when the pump is turned OFF. They must be turned OFF manually by pressing the appropriate EV key on the display.**

## SETTING RADIO CONTROL

Transmitter Button controls:

First Row: Tilt UP and DOWN

Second Row: Oscillate Left and Right

Third Row: Fan ON/OFF and Electric Valve 1 ON/OFF

Fourth Row: Electric Valve 2 ON/OFF and Electric Valve 3 ON/OFF

Fifth Row: Not Used

Sixth Row: ON/SYSTEM AUTO mode and Pump ON/OFF

Use the  PAGE key to toggle between the 3 pages.

Check the settings on Page 1. SYS should be in MAN; and all EV should be set to 1.

Check the settings on Page 2. PMP should be AUTO and Radio should be OFF.

Check the settings on Page 3. TIM should be OFF.

Press the  key on the keypad to select the page 2.

Press the  RADIO key to switch from OFF to ON.

Once the RADIO on the machine control panel is set to ON, only the PAGE and RADIO keys will function.

Insert a fully charged battery into the Radio Transmitter

Pull out the red tab on the top of the Transmitter.

Briefly press the Transmitter ON button (bottom left hand position on the Transmitter)

Then hold the same button down until the LED light begins flashing green.

The transmitter is now ready to use and provides the following functions:

SYSTEM AUTO mode is initiated by pressing and holding the SYSTEM AUTO button for 3 seconds.  
 SYSTEM AUTO mode is terminated by pressing the SYSTEM AUTO button again.  
 Turn OFF the RADIO mode by pressing the RADIO button on the control panel keypad.  
 Turn OFF the Radio Transmitter by pushing the red tab on the top of the Transmitter inward.

## OPERATING FLOW OPTIONS

The individual zones on the crown can be operated separately or simultaneously creating a wide range of flow options for the unit. The table below provides approximate flow given the standard nozzles and the number of zones being used.

**GPM Flow Using Various Zones**

	<b>HD 160</b>	<b>HD230</b>	<b>HD 300</b>
<b>Zone 1</b>	6	4.2	4.2
<b>Zone 2</b>	9	8.3	8.3
<b>Zone 3</b>	N/A	12.5	12.5
<b>Zone 1/2</b>	15	12.5	12.5
<b>Zone 1/3</b>	N/A	16.7	16.7
<b>Zone 2/3</b>	N/A	20.8	20.8
<b>Zone 1/2/3</b>	N/A	25	25

HD 160: Dual Zone with 36-10 GPH and 36-15 GPH nozzles

HD230: Triple Zone with 50 - 5 GPH, 50-10 GPH; and 50-15 GPH nozzles

HD300: Triple Zone with 50 - 5 GPH, 50-10 GPH; and 50-15 GPH nozzles

## ALARMS



### EMERGENCY STOP

The page EMERGENCY STOP indicates that the emergency stop button, which is placed on the side of the control panel, has been pushed manually or that a malfunctioning occurred causing the safety relay to stop the machine. The red Tower Light starts flashing.

**SOLUTION:** Verify the origin of the malfunction and if necessary, contact Fogco Technical Assistance. Only after that the malfunction is solved, pull the emergency stop button and reset the internal breaker as described below.



### WRONG ROTATION Invert Phase

The alarm WRONG ROTATION – INVERT PHASE indicates that one of the electrical phases is inverted. In this case, the angle cannot be set up in automatic mode.

**SOLUTION:** Contact a qualified electrician to invert the phases.



### ANGLE IS NOT SELECTED

The alarm appears when the automatic mode had been selected and the angle had not been set up.

**SOLUTION:** Follow the SET THE ROTATION ANGLE instructions above.



### WATER IN FAULT

This alarm indicates that the pump is not supplied with enough water. The pump stops and the red and yellow Tower Lights mounted on the frame start flashing for three minutes.

**SOLUTION:** The machine starts working again automatically if the pump receives the correct water quantity again within three minutes. The machine stops automatically if the water flow is not restored within three minutes. Verify the origin of the malfunction. Press the F1 to reset key only after solving the malfunction.



### OVERLOAD CURRENT

This alarm appears when a problem at one of the motors arises. The corresponding safety switch blows.

**SOLUTION:** Check the origin of the malfunction and contact a qualified electrician. If the malfunction can be attributed to a loss of current, restore the machine by turning the motor start selector switch in position 1. If the malfunctioning persists, contact the authorized Technical Assistance Service.

## SWITCH-ON THE CIRCUIT-BREAKER

When the machine is stopped with the emergency stop it requires to switch-on the circuit-breaker with the following procedure:

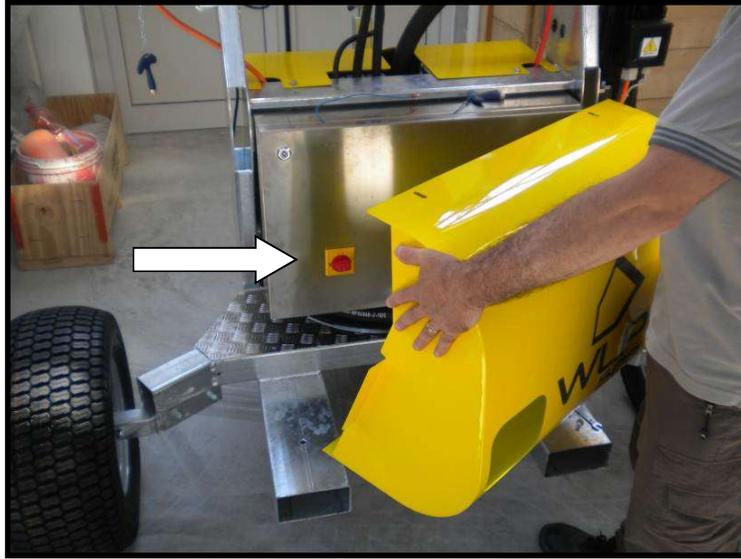
Restore the emergency stop.



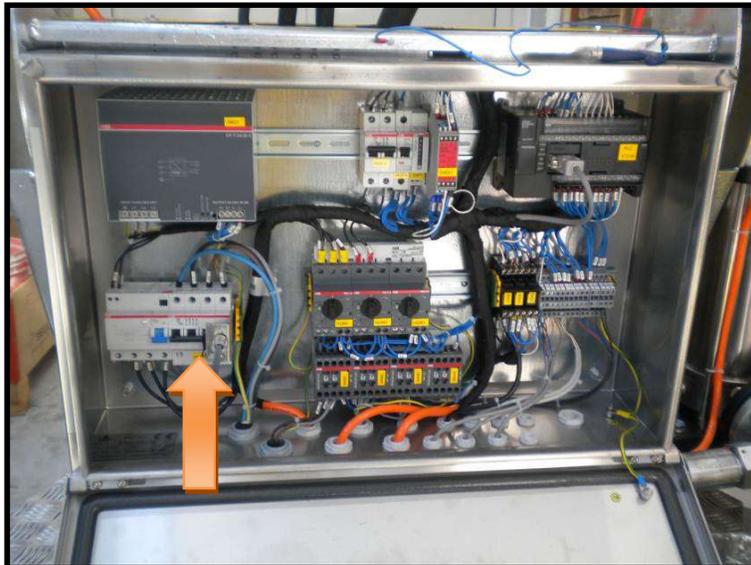
Dismount the front protection using a 10 mm wrench



Remove the front protection and switch off the main switch (white arrow)



Open the electric cabinet and look for the blue colored circuit breaker (orange arrow)

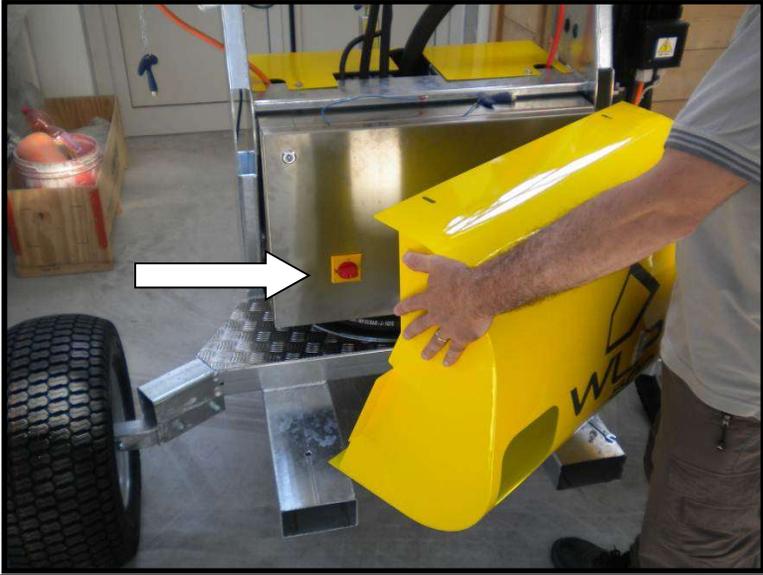


Lift –up the switch as shown in picture (blue arrow)



Close the electric cabinet and the front protection.

Switch –on the main switch (white arrow)



### **3. DIMENSIONS**

MODEL	WEIGHT (Lbs)	DIMENSIONS (inches)		
		H	L	W
HD 160 Pole with iron base	1455	103	48	48
HD 160 Trailer	950	88	98	75
HD 230 Pole with iron base	1630	103	48	52
HD 230 Trailer	1125	88	98	75
HD 300 Pole with iron base	1720	103	48	52
HD 300 Trailer	1215	103	98	75

### **ENVIRONMENTAL CONDITIONS**

The Machine does not need to work in specific environmental conditions. It can be installed in an industrial building where the electrical equipment has at least IP55 protection, the ventilation is good and the floor is solid and level.

ATTENTION – the machine must not be used in environments with an explosive or corrosive atmosphere.

The machine may be used in environments with:

- Temperatures between 40° F and 100° F, with a mean temperature of 90° F;
- Relative humidity ranging from 30 to 95%.

The machine may not be used in environments with:

- A corrosive atmosphere;
- A risk of fire;
- An explosive atmosphere;
- A risk of stones being ejected;
- Water and chemical substances that could mix and create hazards.

### **LIGHTING**

The installation area must be illuminated in accordance to the local codes or regulations in force. The lighting should ensure good all-round visibility, create no dangerous reflections, make it possible to read the writing on the control panels clearly and easily and locate the emergency buttons without trouble.

### **VIBRATIONS**

The vibrations do not generate any risk of danger if the machine is used properly according to the manual instruction. If you are planning to install the machine in an area where there is a strong risk of vibration, you should fit vibration dampeners of adequate size between the machine and the source of vibration. The dampeners require a written declaration of approval issued by Fogco.

## **TECHNICAL DATA**

<b>Description</b>	<b>HD 160</b>	<b>HD 230</b>	<b>HD300</b>	<b>Volts</b>
Fan Motor HP	7.5	15	25	480 VAC / 60 Hz
Pump Motor HP	3	5	5	480 VAC / 60 Hz
Oscillation Motor HP	.1	.1	.1	24 VDC
Full Load Amps	21	32	45	

## **STANDARD SUPPLY**

The machine is supplied ready for use and includes the User's Manual and Data plate with Machine technical information;

## **GENERAL SAFETY WARNINGS**



**Before putting the Machine into operation carefully read the instructions set out in this Manual and follow the indications provided in it.**

The manufacturer has done his utmost in designing this Machine to be INTRINSICALLY SAFE and is fitted with all necessary protective and safety devices and is supplied with the information for its proper use.

The user can appropriately integrate the information provided by the manufacturer with supplementary work instructions to ensure safe use of the Machine and must not be in contrast with the instructions given in this Manual,

- It is forbidden to operate the Machine in Auto mode with the fixed/mobile protection devices dismantled;
- It is forbidden to inhibit the safety devices installed on the Machine;
- It is forbidden to stand in front of the Machine when it is in operation;
- Before carrying out any repair or maintenance, the Machine must be switched off and disconnected from the water and power supply networks;
- All maintenance operations must be performed by qualified and authorized staff;
- It is mandatory to wear the necessary personal protection devices;
- It is mandatory to respect and observe all alarms and warnings;
- In the event of a malfunction of a component, the failed component must be replaced with an exact duplicate. The manufacturer shall not be held liable for the consequences when generic parts are used to replace factory authorized parts. Modification requests must be directed to the manufacturer;
- Clean the machine, panels and controls with soft dry cloth or slightly soaked in a neutral detergent solution. Do not use any type of solvent, such as alcohol or petrol, as the surfaces could be damaged;
- The washing operations must be performed with the electrical and pneumatic separation devices cut off; it's strictly forbidden to use high pressure systems for washing the machine and/or its inner parts.
- **It is absolutely forbidden to move the machine when operating with lifting means of any nature and kind. The machine can be moved exclusively with hydraulic and electrical devices uncoupled and the frame must be blocked with the appropriate pins to the lift forks. The spring pins must be inserted into the blocking pins.**
- **USE POTABLE WATER ONLY**



**IMPORTANT ! The Manufacturer shall NOT be liable for any damage caused by the Machine in case of:**

- use of the Machine by staff without necessary training;
- improper use of the machine;
- faults in electrical, hydraulic or pneumatic power;
- incorrect installation;
- failure to perform maintenance work required;
- unauthorized alterations or work;
- use of spares that are not original or not specific to the model;
- partial or total failure to observe the instructions;
- use contrary to national specific legislation;
- calamities and force majeure or extraordinary events.

**General instructions**

All the safety devices mounted on the mobile parts to avoid accidents and to ensure safety cannot be altered or removed and they must be properly protected. Users must inform immediately their employers or direct supervisors about any defect or anomaly found on the mobile parts.

**Checks and verifications**

The Machine must be thoroughly inspected prior to each use. If worn or faulty parts are not promptly replaced, the manufacturer will not be responsible for damage or accidents which could occur.

The verifications must be performed by qualified staff and must be of visual and functional kind, with the purpose of guaranteeing the machine safety. They include:

- verification of all the supporting structures, which must not present any crack, breakage, damage, deformation, corrosion, wear, or alteration compared with the original characteristics;
- verification of all mechanical parts;
- verification of all safety devices installed on the machine;
- verification of all the connections with pins and screws;
- functional verification of the machine;
- verification of machine status;
- verification of seal and efficiency of the pneumatic system.



**ATTENTION!**

**If anomalies are found, they must be eliminated before starting the machine again, and the expert who performs the verification must make a note of it on the repair sheet, giving his consent to use the machine.**

If the person performing the verification finds cracks or dangerous anomalies, he is obliged to give prompt communication of this to the manufacturer. The Machine must be taken out of service until operating anomalies are verified and corrected or repaired.

Certify that there are no objects between the Machine parts.

Check that no object remains between the moving parts after any maintenance work.

To guarantee the maximum safety in handling the Machine it is FORBIDDEN to:

- Alter any Machine part;
- Leave the moving elements unprotected;
- Use the machine in operation, but not in complete efficiency,
- Alter the machine to change the established original use, without explicit authorisation of the Manufacturer or without assuming full responsibility set by D.P.R. 459/96 (Machine Directives);
- Handle moving parts manually in case of lack of energy;

## **INTENDED USE**

The machine has been designed to work as a system to suppress dust on worksites and quarries by the exclusive use of potable water. Any use with products/materials other than that mentioned is considered incorrect or improper, can damage the machine and create dangerous situations for the operator and/or persons close to the Machine.

## **CONTRAINDICATIONS**

The Machine must not be used:

- For uses other than those set out in this Manual;
- In explosive or corrosive atmosphere, with oily substances in suspension in air;
- With water supply pressure greater than 140 PSI;
- In atmosphere with risk of fire;
- With safety devices cut off or not operating;
- With electric bridges and/or mechanical means which exclude utilities/parts of the Machine itself;

## **DANGEROUS ZONES**

Dangerous zones include but are not limited to electrical substation or areas where there are electrical parts with IP level lower than IP 55 and/or areas where there is the risk of explosion

## **SAFETY DEVICES**

In the Machine the following safety devices are installed:

1. Emergency shutdown from the main control panel as well as the other emergency shutdown devices of the Machine.

## **RESIDUAL RISKS**

### **DEFINITION OF RESIDUAL RISK:**

“ danger not totally traceable through the design and technique of protection, or rather, potential non evident danger”

It is necessary to pay attention to the following residual risks which are present upon use of the machine and cannot be eliminated.



### **CAUTION: DANGEROUS MOVEMENTS**

**No people other than the operator must stay around the machine. In the presence of third people, immediately stop the machine and force them to move away.**



### **CAUTION: ELECTRICAL RISKS FOR LIVE PARTS**



### **CAUTION: ELECTRICAL RISKS FOR RESIDUAL VOLTAGE**

Other residual risks can be identified by introducing bodies within the fan when it is in operation and when it is off. The introduction of solid bodies can cause immediate breakage of the fan with consequent projection of the parts outside the machine. This situation can endanger people and cause damage to things within the range of action of the machine.

### **GENERAL MAINTENANCE INSTRUCTIONS**



**Before putting the machine into operation, it is mandatory to read this manual carefully and to make sure you understand all the instructions.**



**All information and instructions provided in this manual must be respected and observed.**



**Record all maintenance in the maintenance table.**

**Contact the Technical Assistance Service or the Manufacturer before carrying out any repair, change of the Machine and/or extraordinary maintenance operations.**

### **The HD 160, HD 230, and HD 300 require the following maintenance:**

- ✓ **Water filter:** Check the condition of the filter each time before starting up the machine. Unthread the filter cannister to access the filter. Clean the filter with a jet of water. As necessary, remove the O-ring and soak the filter in nozzle cleaner for 30 minutes. Flush with hot water. Re-install. Any traces of iron oxide (rust), scale or other form of oxidization on the surface of the filter are a result of poor water quality. Additional filtration may be needed.  
Remove any residue of organic substances, such as small algae, using neutral soap. Do not use cleaning solvents as these can damage the O-rings on the filters. Make sure the filter is properly in place before threading on the cannister. Check the condition of the seals before putting the machine into service.
- ✓ **Nozzles:** Remove the nozzles by hand using a 5/8" socket. Disassemble the nozzles using a 5/8" socket/wrench and a 5/32 Allen wrench. Brush slots on the top of the nozzle inserts with a stainless steel wire brush to remove all debris. Remove the O-ring from the nozzle body. Soak the nozzle body and insert in nozzle cleaner for 30 minutes. Flush with hot water and then compressed air. Re-assemble. Inspect nozzle threads Clean the nozzle and crown threads as necessary. Thread the nozzle into the crown (hand tight only).
- ✓ **Plumbing:** Flush with potable water and drain the unit after each use. Periodically (or under freezing conditions), clean and drain the unit plumbing by removing the hose that feeds the nozzle crown and flush the units plumbing by running the pump with potable water for 30 seconds. Remove the top nozzle from each crown and insert a pressurized water supply into the open nozzle port to flush the crown. Repeat with compressed air. Replace the nozzle. Replace the feed hose. Open all drain valves.
- ✓ **Water pump:** consult the respective manual.
- ✓ Keep the system clean at all times.





# Fogco Environmental Control Systems

## Limited Warranty

All Fogco FogCannons® are warranted against defects in workmanship and materials for a period of 2 years from the date of original purchase. All electronic components of the FogCannon, including PLC's and remote controls, are warranted for a period of 1 year from the date of original purchase.

Fogco does not warranty components due to normal wear including pump seals, filter cartridges, O-rings, diaphragms, gaskets, or nozzle clogging.

Warranty claims are subject to review and will not be covered in the case of misuse, abuse, inappropriate site conditions or improper placement of the products.

**Repairs Outside the Scope of the Warranty:** Problems with the Fogco FogCannon products can be due to improper maintenance, faulty installation, neglect, inappropriate additions or modifications or alterations to the unit, or other problems not due to defects in Fogco workmanship or materials. Machines whose trademark, name, or identification number has been changed or removed and failures of, or failures caused by parts or accessories not manufactured by Fogco are not covered. If the Fogco Service Center determines that the problem with the product is not due to defects in workmanship or materials, the customer will be responsible for the cost of any necessary repairs and any freight expense to return the product to the customer.

**Warranty Validation:** To activate the Warranty on Fogco products, customer must submit a Products Registration Form along with a copy of the product invoice within 30 days of purchasing the product

**Procedure to Receive Warranty Service:** To return products for warranty service, call the Fogco Service Center for a Return Authorization Number. All products must be properly packed and secured in the original shipping crate and shipped prepaid to the Fogco Service Center. An explanation of the defect or problem; a description of the way in which the FogCannon is used; the customers name, address and telephone number; the FogCannon model number and the serial number must be included with the shipment. The Return Authorization Number must be noted on the outside of the shipment or it may be refused and returned to the customer at the customer's expense.

**Repairs by Other than the Fogco Service Center:** Fogco must provide prior approval for any repairs done outside of the Fogco Service Center or the warranty will be void.

**Repairs or Replacement Within the Scope of the Warranty:** If a Fogco product is defective due to Fogco workmanship or materials and the defect occurs during the warranty period, then Fogco will either repair or replace the product at Fogco's discretion. Fogco is not responsible for removal labor and shipping of the system to the Service Center, the reinstallation labor of the system upon its return to the customer, or any incidental or consequential damages resulting from the defect, removal, reinstallation, or shipment of the product.

**Product Specification:** All product specifications, applications and other information provided in Fogco's publications are subject to change without notice and should be confirmed with Fogco prior to ordering.

**No Other Warranties and Liability Limitation:** This Limited Warranty represents Fogco's sole and exclusive warranty obligation with respect to the Fogco FogCannon products. Fogco's liability shall be limited to that set forth in this Warranty and Fogco shall not be held liable for incidental or consequential damage including damage to person or property. Fogco makes no other warranty of any kind, expressed or implied and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligation stated in this Warranty are hereby disclaimed and excluded.

Fogco Acquisition Co., LLC.  
600 S 56<sup>th</sup> Street #9  
Chandler, Arizona 85226  
Phone: 480-507-6478  
Fax: 480-838-2232  
Website: [www.fogco.com](http://www.fogco.com)  
E-mail: [info@fogco.com](mailto:info@fogco.com)

# Product Registration Form

Return registration form with a copy of the invoice within 30 days to activate warranty.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone #: \_\_\_\_\_ Email: \_\_\_\_\_

Purchased from: \_\_\_\_\_

Date of purchase: \_\_\_\_\_

FogCannon Model Number (on metal tag): \_\_\_\_\_

FogCannon serial number (on metal tag): \_\_\_\_\_

Manufacture date (on metal tag): \_\_\_\_\_

Are you interested in additional Maintenance information:      YES[  ]      NO[  ]

Description of the manner in which this product is used: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Fogco Acquisition Co., LLC**  
**600 South 56<sup>th</sup> Street**  
**Chandler, AZ. 85226**  
**Attention: Warranty Registration**

Phone: (480) 507-6478 Fax: (480) 838-2232 Website: [www.fogco.com](http://www.fogco.com) E-mail: [info@fogco.com](mailto:info@fogco.com)