AIOLITH

Glacial Gust AI30

User Manual

FOR AFTER-SALES SUPPORT
contact: techsupport@aiolith.com
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DRY ICE BLASTING MACHINE

Instructions for operation and maintenance

Dear Customer,

We are delighted that you have selected the AIOLITH AI30 Dry Ice Blasting Machine (hereinafter referred to as "AI30"). Prior to operation, please thoroughly review the user manual and adhere to the safety guidelines to prevent accidents and reduce the risk of unnecessary damage. Our aim is for you to utilize the equipment in a manner that is safe, rational, and efficient, ensuring its peak performance and longevity.

This product adheres to the "JB/T 6284-2007 Adjustable Cleaning Machine" standard and encompasses the pertinent technical specifications in accordance with the product's functional and performance criteria.

For any post-purchase support and maintenance, please reach out to our Quality Assurance Department.

We are dedicated to the ongoing enhancement and refinement of our product designs. Should there be minor variations between the technical specifications detailed in this manual and the actual product, please accept our apologies for not providing individual notification.

Warm regards,
The AIOLITH Team

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Cautions

- **Verify Power Supply:** Ensure the machine's power supply is appropriate. The power line's current carrying capacity must exceed 10A. The power supply must be properly grounded and equipped with a leakage protection device and a fuse. Professional installation is recommended.
- **Do Not Modify Plugs:** Do not alter the "non-reconnectable plug" on the original product.
- **Safety Precautions:** Keep the machine away from flammable and explosive materials. Disconnect the power supply before performing routine maintenance. For any malfunctions, consult professional repair personnel. Do not attempt DIY repairs to avoid potential hazards.
- **Voltage and Frequency Compatibility:** Confirm that the voltage and frequency indicated on the power supply match those on the machine's nameplate. Adhere to local electrical regulations when wiring and installing grounding cables or residual current devices to prevent electric shocks.
- **Secure Installation:** Ensure the machine is securely mounted during use to maintain stability.
- **Dry Ice Hopper Maintenance:** Use all the dry ice pellets added to the hopper completely; do not leave any inside to prevent melting and water accumulation. Keep the hopper interior dry at all times. Only place required dry ice particles in the hopper; do not introduce other substances.
- **Pipeline Sealing:** Ensure all pipeline connections are properly sealed.

Overview

Section 1: Product Application

The AI30 Dry Ice Blasting Machine effectively cleans carbon deposits in automotive parts and removes residues from coffee roasters and food processing equipment. Versatile across industries like automotive, food, and manufacturing, it tackles contaminants like oils, greases, adhesives, and more, ensuring optimal equipment performance.

Section 2: Product Features

- Clean and hygienic, low noise, emission-free.
- Easy to operate with a user-friendly interface.
- Compact and space-saving design for efficient storage.
- Equipped with a leakage protection device for safe and reliable operation.
- Leaves no secondary residue or waste material, energy-efficient and eco-friendly.

Section 3: Main Technical Specifications

- Model: AI30
- Product Name: Dry Ice Blasting Machine
- Voltage/Frequency: 110 V/60Hz
- Dry Ice Hopper Capacity: 33 lbs (15 kg)
- Dry Ice Output: 0.66 lb/min ~ 1.32 lb/min (0.3 kg/min ~ 0.6 kg/min)
- Compressed Air Input Pressure: 87 ~116 psi (0.6 MPa ~ 0.8 MPa) (Adjustable)
- Compressed Air Input Flow Rate: 71 ~141 CFM (2 m^3 /min ~ 4 m^3 /min) (Ensure air pressure of above 87 psi (0.6MPa) for continuous operation)
- Allowable Dry Ice Pellets Diameter: 3 mm and below
- Dimensions (L*W*H): 28×24×37 inches (705×610×940mm)
- Weight: 135 lbs (61 kg)
- Air Compressor Power Recommendation: ≥7.5KW (10HP)

Working Principle

Dry ice cleaning is a cutting-edge method in the cleaning industry, gaining popularity around the globe for its efficiency and environmental benefits.

How It Works: This innovative process involves propelling dry ice pellets at high speeds using a specially designed blasting gun and high-pressure air. When these pellets strike the surface being cleaned, they rapidly exchange heat with the surface, causing the solid carbon dioxide (CO2) to sublime into gas almost instantaneously. This transformation results in an impressive expansion of the dry ice—up to 800 times its original volume—creating a "micro-explosion" effect upon impact.

This powerful reaction effectively loosens and dislodges dirt and contaminants without leaving any secondary waste behind. The intense cold from the dry ice makes the remaining grime brittle, allowing it to be easily removed by the force of the high-pressure airflow.

As a result, dry ice cleaning not only delivers superior cleaning performance but also does so in a way that is completely free from harmful chemicals, making it a safe and sustainable choice for a variety of applications.

Unpacking and Preparation

Unpacking

Remove the fastening screws and take the machine out of the wooden box. Check the accessories against the packing list to ensure that everything is complete.

Preparation

Due to the high noise level of 75 dB or above generated during operation, it is necessary to wear protective earmuffs, goggles, and gloves beforehand.

Connecting the Air Hose

Connect one end of the air hose to the machine and the other end to the air compressor.

Connecting the Dry Ice Hose

Connect one end of the hose to the machine.

Assemble the Dry Ice Blasting Gun

First, assemble the gun handle.
Then, choose the appropriate nozzle and install it on the gun handle according to your cleaning needs.
Finally, attach the ice shield to the handle.

Connect the Dry Ice Gun Handle to the Dry Ice Hose

Open the waterproof cover of the leakage protection switch on the side of the machine. Check if the leakage switch is in the closed position. Then, ensure that all switches on the control panel are turned off.

Power Connection

Open the hopper cover of the machine and slowly pour dry ice pellets into the hopper using an ice shovel (fill the hopper with dry ice pellets to about 3 cm from the top, but do not overfill to prevent vibration during operation). Then, close the cover.

Cleaning Operation

Power On Operation

1. Hold the dry ice gun handle with one hand and close the leakage switch on the side of the machine.
2. Press the "Air" button to turn it on and wait for stable compressed air to be released.
3. Press the "Ice" button, then the "Ice Output Adjustment" button. After a moment, a high-pressure airflow mixed with dry ice particles will be emitted.
4. Use the “Ice Output Adjustment” button to regulate the dry ice output: turn it clockwise to increase and counterclockwise to decrease.
5. Press the trigger on the handheld dry ice gun to start the operation. For continuous operation, press the black button on the handle.

Power Off Operation

When the cleaning operation is complete, you need to shut down the machine:

1. Turn off the "Ice" button to allow the high-pressure air to blow away any remaining dry ice particles in the pipes.
2. Turn off the "Air" button to stop the output of high-pressure air.
3. Disconnect the power supply and unplug the power plug.
4. Remove the dry ice hose and air hose, then insert the dry ice gun into the gun holder on the side of the machine.

Cleaning Procedures for Different Objects

Cleaning of Combustion Chamber Carbon Deposits

1. Wait for the engine to reach operating temperature, then remove the spark plug.
2. Choose an appropriate nozzle for the dry ice gun and insert it directly into the combustion chamber.
3. Start the Dry Ice Blasting Machine and begin the cleaning process.
4. While the piston is at the bottom dead center, rapidly move the nozzle up and down while slowly rotating the gun handle.
5. Repeat the process for approximately 1-2 minutes to clean one cylinder. Then, proceed to clean the next cylinder.

Cleaning of Intake Valve Carbon Deposits

1. Disassemble the engine intake manifold and close the intake valves.
2. Use the appropriate nozzle to directly spray and clean the intake valve chamber.

Cleaning of Throttle Body Carbon Deposits

1. Use the appropriate nozzle to clean the throttle body directly.
2. This process typically takes about 2 minutes to complete.

Cleaning of Engine and Turbocharger

1. Use the nozzle to spray and clean the contaminated surfaces of the engine and turbocharger.
2. Maintain a distance of approximately 1-2 inches (3-6 cm) between the nozzle and the surface for optimal results.

Cleaning of Molds

1. Place the mold steadily on a flat surface. Select the appropriate air pressure, typically

around 6 bar,using the cleaning nozzle.

2. Set the machine parameters and check the hose, ensuring that the ice cutting chamber is not rotating abnormally.
3. Use the nozzle to clean the surface of the mold.

Cleaning the Coffee Roaster Chamber

1. Ensure that the coffee roaster has cooled down before opening the chamber door. Prepare the dry ice cleaning machine.
2. Aim the nozzle of the dry ice cleaning machine at the soiled areas inside the chamber and start the cleaning process.
3. After cleaning, wipe down the inside of the chamber with a clean, dry cloth.

Troubleshooting

	Fault	Reasons	Troubleshooting Steps
1	No Dry Ice Output	1. Compressed air may not be properly turned on.	Open the air valve switch to ensure compressed air is flowing.
		2. The air solenoid valve may be closed.	Inspect the air solenoid valve to ensure it is open.
		3. The dry ice delivery system may not be running.	Check if the motor of the dry ice delivery system operates correctly.

Maintenance and Care

After one month of use, remove the filter from the gun handle for cleaning. Clear any debris from the filter and gently wash it with a soft brush to prevent clogging and ensure proper dry ice output.

After completing each cleaning operation, do not immediately turn off the machine. Use up any remaining dry ice particles in the machine's hopper before shutting it down. Then, unplug the power.

After each use, remove the dry ice hose and air hose, and place them in a well-ventilated area away from direct light to dry and eliminate any condensed water vapor inside the hoses.

Regular maintenance and care will help ensure the optimal performance and longevity of the dry ice blasting machine.

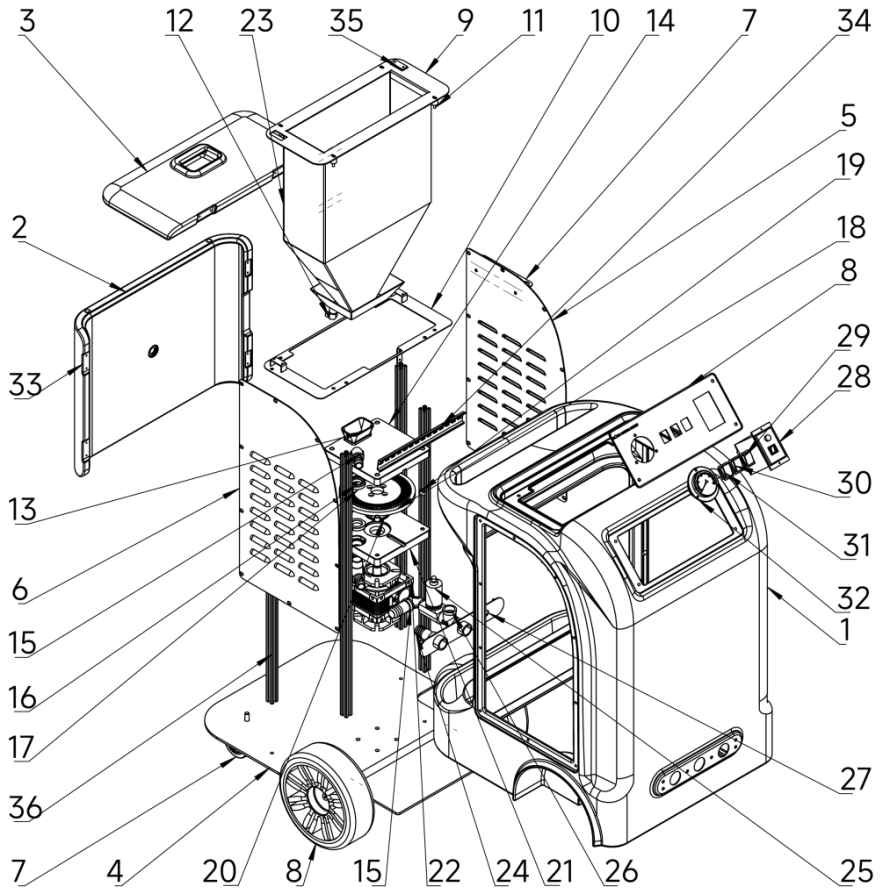
Packing List

Packing List for AI30 Dry Ice Blasting Machine				
	Name	**Specifications**	**Quantity**	**Notes**
1	AI30 Main Equipment		1	Includes frame, ice delivery system, etc.
2	Compressed Intake Air Hose	13 ft (4m)	1	
3	Low-Temperature Dry Ice Hose	13 ft (4m)	1	
4	Straight Blast Spray Nozzle	0.28”(7mm)	1	
5	30° Access Blast Spray Nozzle	0.28”(7mm)	1	
6	Soft Endoscopes Blast Spray Nozzle	0.28”(7mm)	1	
7	Blast Swath Spray Nozzle	1”(26 mm)	1	
8	Blast Swath Spray Nozzle	1.7”(45mm)	1	
9	Dry ice Spray Gun Kit with Controller		1	
10	Ice Shovel	0.3L	1	
11	Control Wire for Handheld Gun		1	
12	Anti-static Wire	9.8 ft (3m)	1	
13	Safety Equipment: Goggle, Acoustic Earmuffs, Anti-static Gloves		1 set	
14	User Manual		Included	

Packing, Transportation, and Storage

- Before packing, drain any accumulated water from the machine. Cover it with protective covers and ensure it is securely fastened to the bottom of the box.
- Spare parts, accessories, tools, and documents should also be properly packed.
- The packaging and transportation of the equipment should comply with the “GB/T 13384-2008 General Technical Conditions for Mechanical and Electrical Product Packaging” standard.
- The packaged equipment can be transported by land, sea, or air, with appropriate covering used during transportation.
- Avoid exposure to sunlight, rain, snow, wind, and sand when storing the equipment. Do not store it alongside flammable, explosive, corrosive substances, or materials.

Exploded View Diagram



1. Main Shell
2. Rear Cover
3. Upper Cover
4. Bottom Plate
5. Right Side Panel
6. Left Side Panel
7. 4-inch Swivel Brake Wheel
8. Solid Wheel
9. Hopper
10. Adsorption Plate
11. Shock Absorber Pad
12. 6mm Air Pipe Connector
13. Dry Ice Sealing Shock Absorber Block
14. Ice Mixer A
15. G3/4 Elbow Fitting
16. O-ring
17. Ice Mixer Wear Block
18. Ice Mixer C
19. Ice Mixer Mounting Sleeve
20. Ice Mixer D
21. Ice Mixer B
22. Reduction Gearbox
23. Vibration Motor
24. G3/4 Fitting
25. Solenoid Valve
26. G3/4 Three-way Valve
27. Solenoid Valve Control Plug
28. Motor Speed Controller
29. Ice Ejection Switch
30. Air Source Switch
31. Power Switch
32. Pressure Gauge
33. Hinge
34. Electrical Installation Rail
35. Magnetic Sheet

Where Aiolith Blows, Cleanliness Follows

THANK YOU FOR CHOOSING US

Aiolith Inc.