

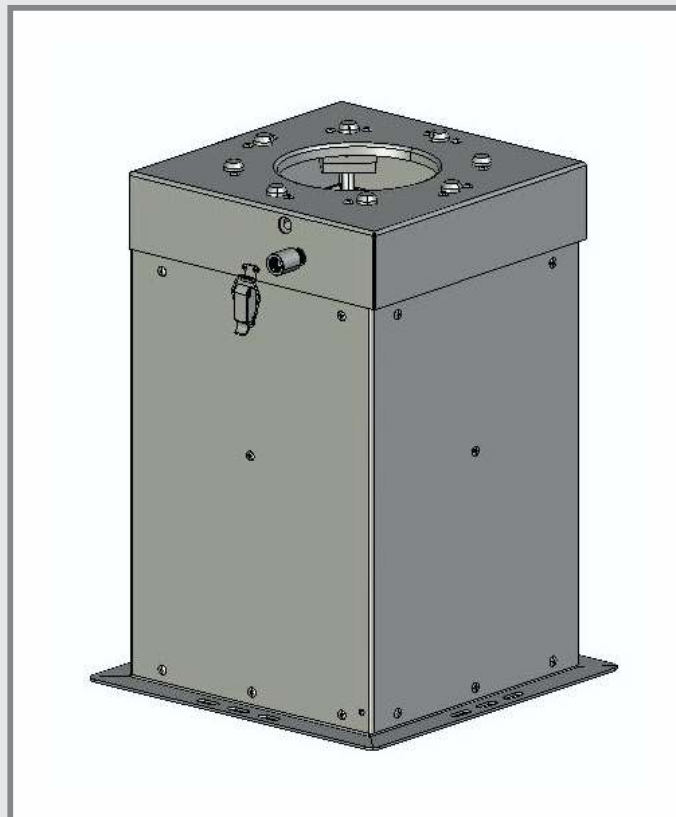


Happy Dynamics Inc

SERVICE MANUAL  
O-1710-00, Oct 2017

# AC8/AC5000 Applicator Cleaner for Bell Atomizers

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Keep this service manual for future reference.  
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# The AC8/AC5000 Applicator Cleaner

## Unique Safety Features only the AC8/AC5000 has

### *There is no source of ignition*

- The AC8/AC5000 Applicator Cleaner has no moving parts
- There is no contact between the AC8/AC5000 Applicator Cleaner and the atomizer
- ATEX DOES NOT APPLY

**! DANGER**

**It is important to turn off Kv when the atomizer is in the applicator cleaner.**



When plastic hoses are used, the plastic hoses must be according to EN13463-1 (anti-static). There is no self ignition source in the AC8/AC5000 Applicator Cleaner.

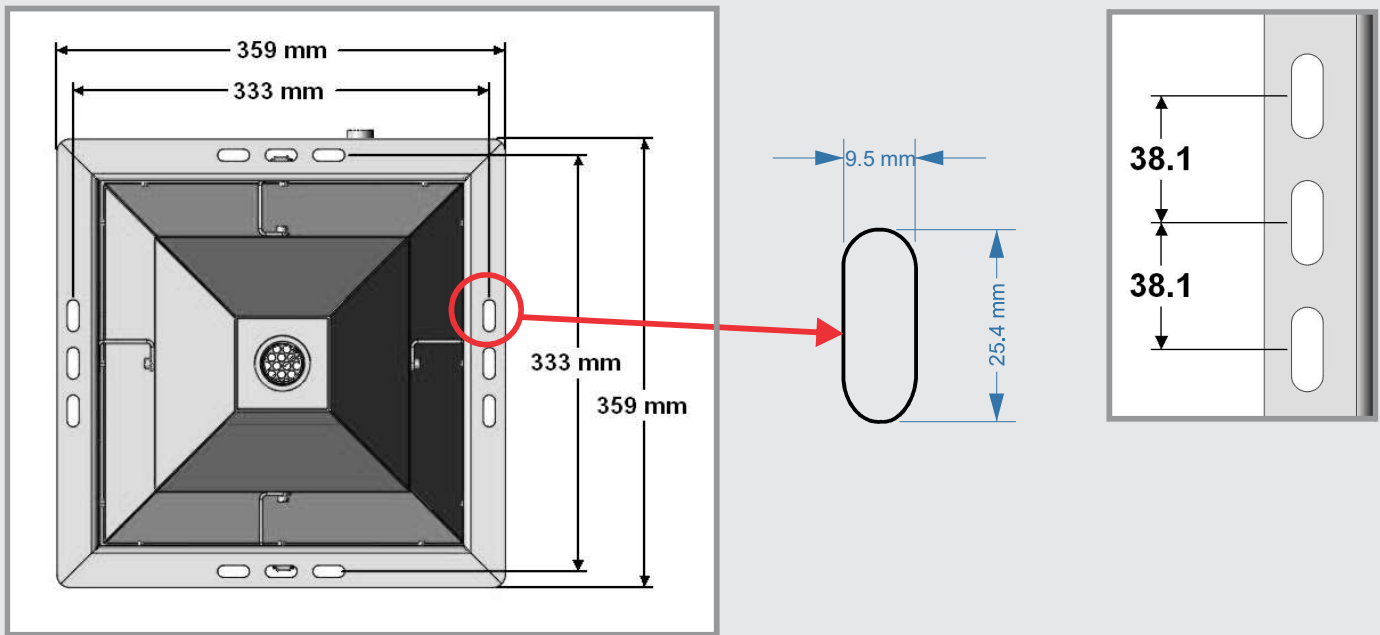
The user may wish to consult IEC TS 60079-32-1 which is the guidance document on prevention of ignition from electrostatic discharge.

The Applicator Cleaner is manufactured by following the standard EN12921 to ensure that **ATEX DOES NOT APPLY**.

# Mounting the AC8/AC5000 Applicator Cleaner

The AC8/AC5000 applicator cleaner should be securely installed in a location convenient to the robot.

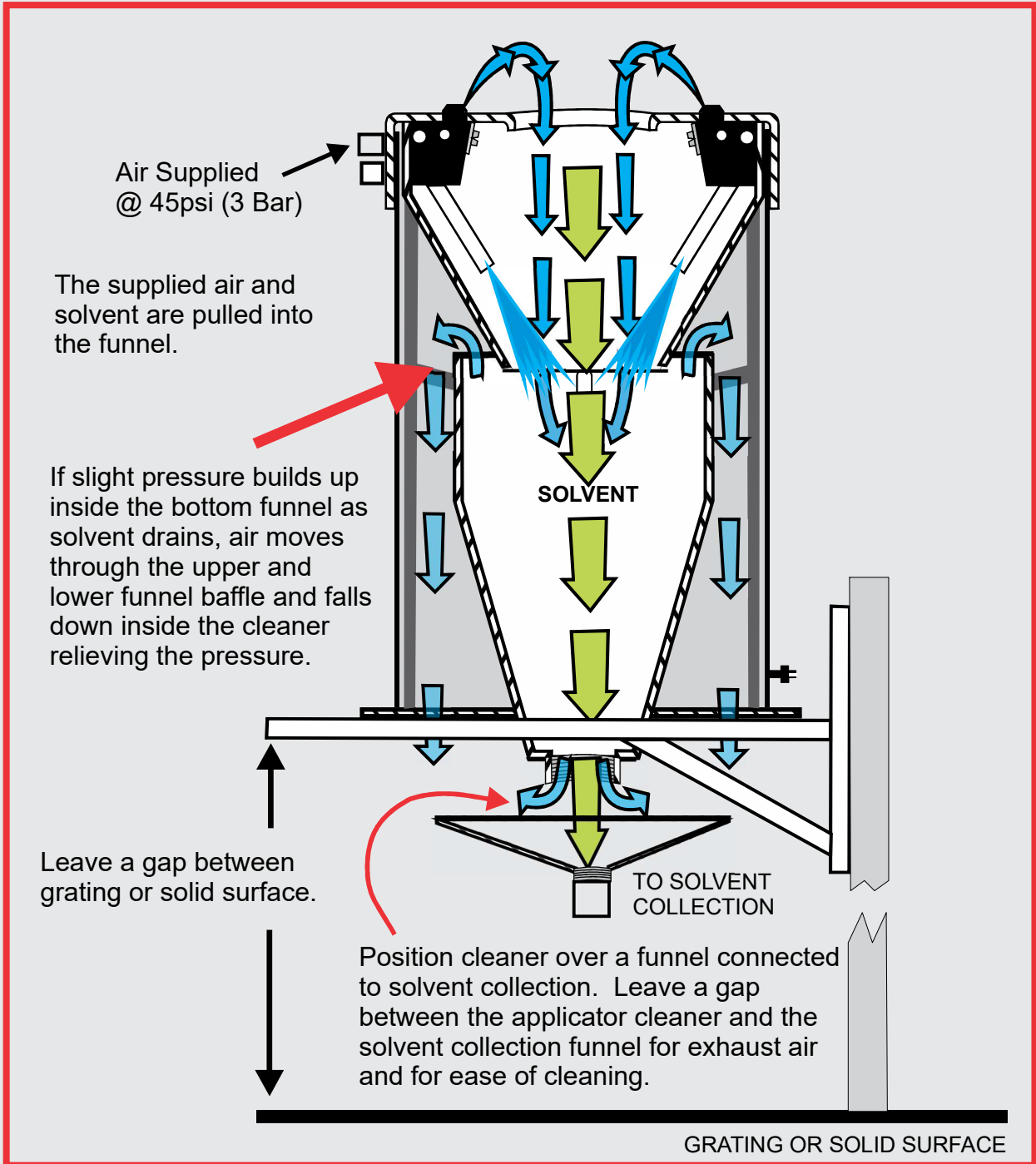
If a solvent collection system is not being used, take the cleaner from the box, install the lower funnel using the hardware supplied and bolt the cleaner to its mount. Connect a ground strap to the ground terminal.



# Mounting the AC8/AC5000 Applicator Cleaner

## NOTE

*It is important that the cleaner is mounted on a bracket above any solid surface leaving sufficient gap for air to move through the bottom.*



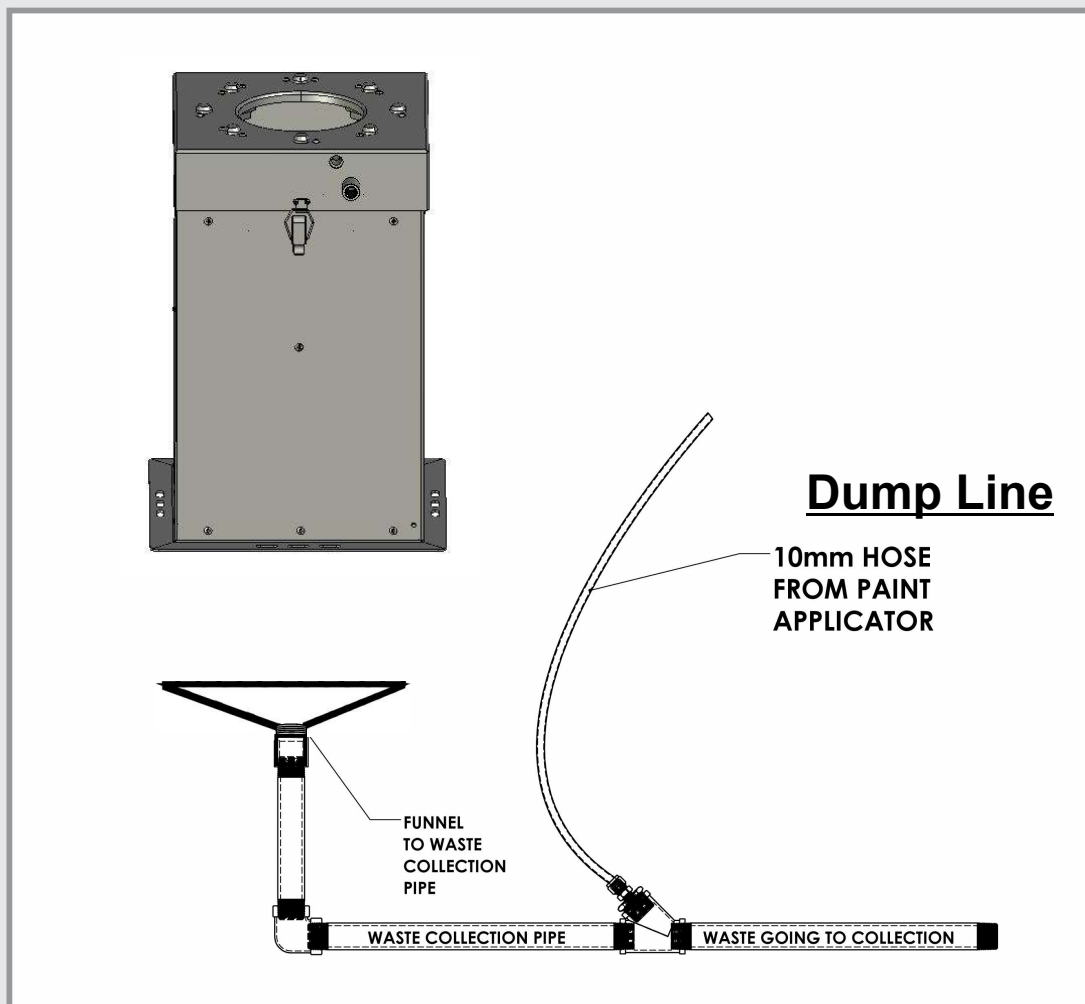
# Installing the AC8/AC5000 Applicator Cleaner and Waste Collection

If a waste collection system is being used:

1. Install a collection funnel connected to the waste collection system, below the cleaner
2. Install an npt pipe nipple to the coupling on the bottom of the cleaner.

It is recommended to leave the system open as shown in the diagram. In the event of a back-up in the solvent collection system, waste will overflow the collection funnel, allowing the cleaner to continue functioning.

If a dump line is used it is recommended to install the dump line downstream of the cleaner, directly into the waste collection system.

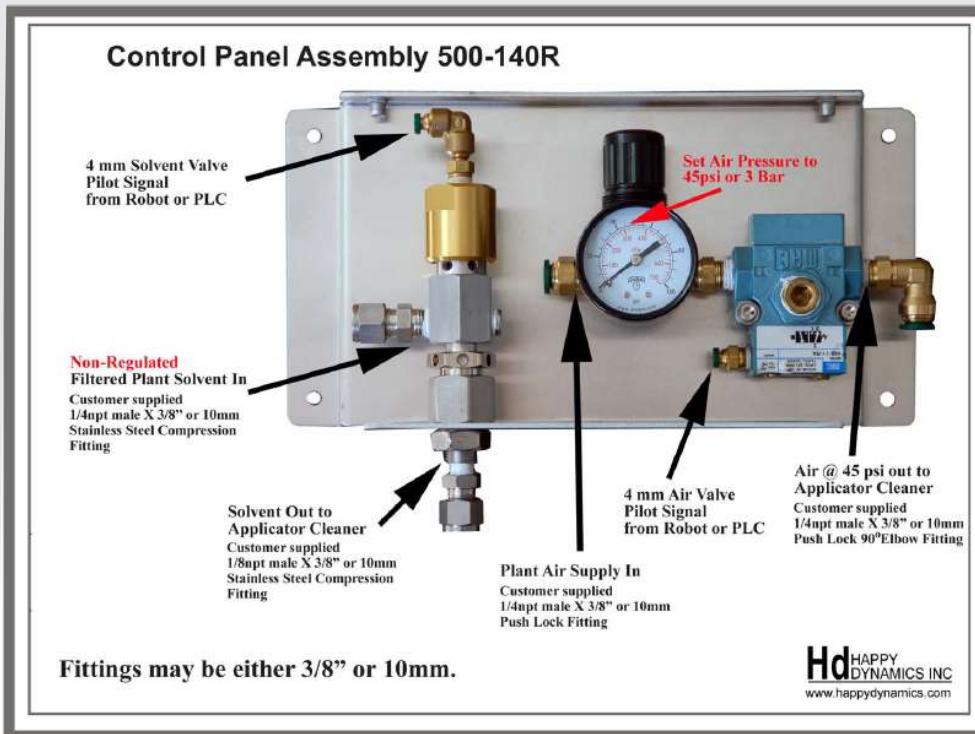


## **NOTE**

*The collection funnel and npt nipple are not supplied with the cleaner.*

# The AC8/AC5000 Control Panel, Part #900-140R

The AC8/AC5000 control panel consists of an air valve with a gauge and a regulator and a fluid valve mounted to an anodized, aluminum panel. A Flow Restrictor is mounted onto the Applicator Cleaner and eliminates the need for a fluid regulator.



## NOTE

Customer to supply:

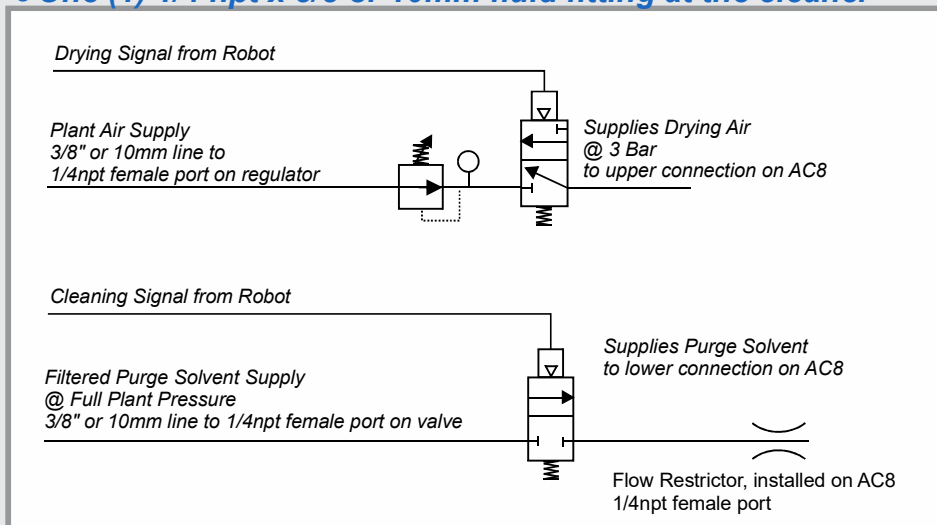
- 1/4" npt x 3/8" or 10mm fluid fitting
- 1/8" npt x 3/8" or 10mm fluid fitting
- 1/4" npt x 3/8" or 10mm air fitting
- 1/4" npt x 3/8" or 10mm 90° elbow air fitting

## Supply for the AC8/AC5000 Applicator Cleaner

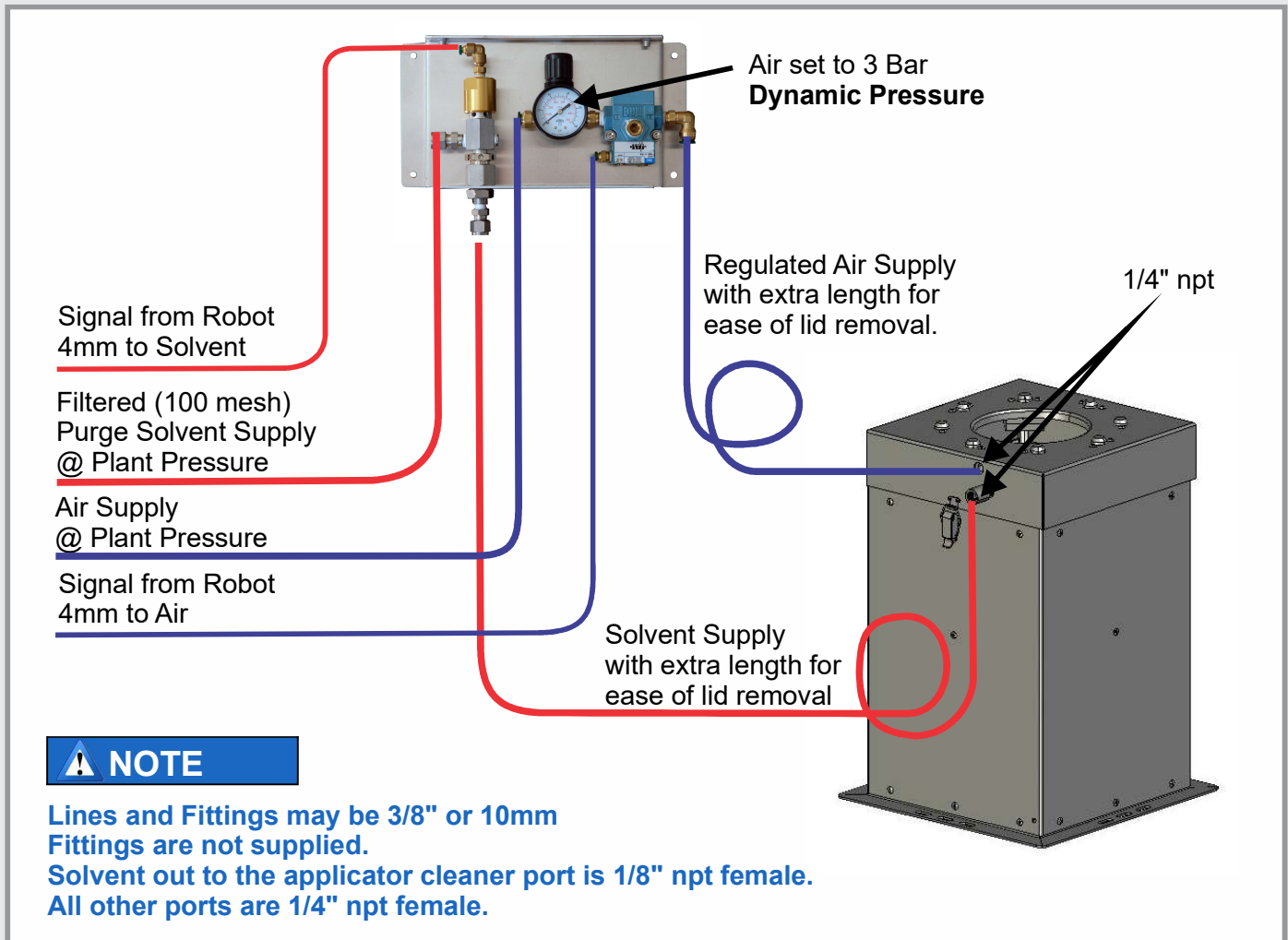
### NOTE

Customer to supply:

- 3/8" or 10mm Air Supply Line.
- 3/8" or 10mm Filtered (100 mesh) Purge Solvent Line.
- Two (2) 4mm Pilot Lines
- One (1) 1/4" npt x 3/8" or 10mm air fitting at the cleaner
- One (1) 1/4 npt x 3/8 or 10mm fluid fitting at the cleaner



# Connections for AC8/AC5000 Applicator Cleaner



## Air Connections

1. Connect a 3/8" or 10mm air supply line to the regulated Air Valve on the control panel.
2. Connect one 4mm pilot line to the air valve on the control panel.
3. Connect a 3/8" or 10mm line from the Air Valve on the control panel to upper supply port on the AC8 Applicator Cleaner. (port is 1/4" npt female)

## Solvent Connections

4. Connect a filtered purge solvent supply line, 3/8" or 10mm to the solvent fluid valve on the control panel.
5. Connect a 4mm pilot line to the solvent control valve on the control panel.
6. Connect a 3/8" or 10mm line from the solvent control valve on the control panel to the Flow Restrictor (the lower supply port) on the AC8/AC5000 Applicator Cleaner. (port is 1/4" npt female).

## Pressure Settings IMPORTANT

7. Set the air pressure to 3 Bar dynamic.
8. Solvent pressure supply should be greater than 4 Bar.  
Solvent pressure is set by the Applicator Cleaner.
9. Connect a ground strap.

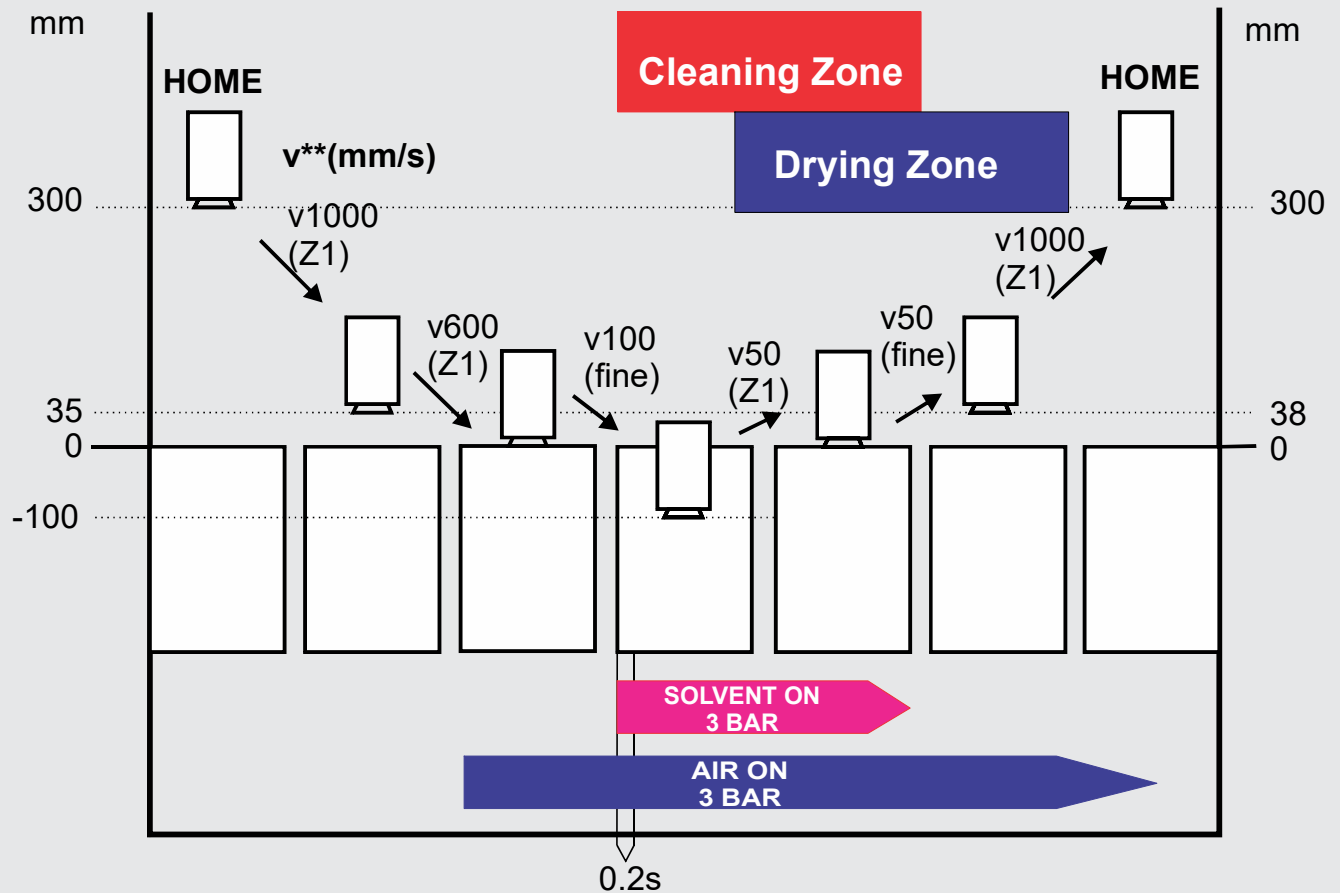




# Programming the Robot Path

## Bell Cup Wash

(a visual representation of the program from the previous page.)



Note the 0.2 second delay after the solvent turns on and before the applicator begins upward movement.

### NOTE

**Atomizer Conditions**  
**Bell Speed: 30 (krpm)**  
**SA1/SA2: 150/150 (NI/min)**  
**Hv: 0 (v)**

The programming instructions in this booklet are a starting point and results should be monitored to determine if adjustments to your programming are needed.

# Cleaning

After installation and initial start up of the applicator cleaner, it is important to inspect the applicator cleaner weekly for build up of waste inside the cleaner. A regular cleaning program should be set up based on the requirements of the individual paint line. Variables such as type of material, type of solvent, frequency of cleaning will affect how often the applicator cleaner requires cleaning. Regular inspection in the beginning will help determine the frequency of the cleaning program.

## Recommendation

1. At break time and end of shift, the lid of the cleaner should be checked and wiped down with solvent to clear any over spray, if necessary.
2. Weekly the interior of the cleaner should be inspected for paint build up and cleaned if necessary. The drain should be inspected for blockage and cleaned, if necessary.

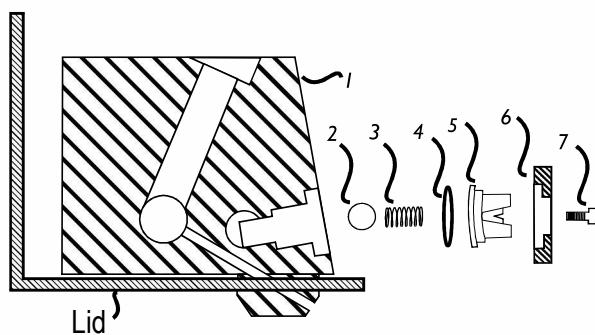
After the first month of production a regular cleaning schedule can be established based on the results of the above weekly inspections.

# Maintenance

Once per year it is recommended that the solvent spray nozzles and o-rings be replaced. Service Kits are available from Happy Dynamics Inc. Each AC8 Applicator Cleaner will require four (4) Service Kits to fully service the unit.

## PART #    DESCRIPTION

500-030    Service Kit for the AC8/AC5000 Applicator Cleaner



- |                 |                    |
|-----------------|--------------------|
| 1 - SPRAY BLOCK | 5 - NOZZLE*        |
| 2 - CHECK BALL* | 6 - RETAINER PLATE |
| 3 - SPRING*     | 7 - SCREW          |
| 4 - O-RING*     | *REPAIR KIT ITEMS  |

Turn the lid over. Do not remove the solvent nozzle spray block from the lid.

- Remove the 2 screws (7)
- Remove the retainer plate (6)
- Remove the nozzle (5), o-ring (4), spring (3) and check ball (2).
- Discard parts 2, 3, 4 and 5.

### Using the Service Kit:

- Replace the check ball (2) with new ball
- Replace the spring (3) with new spring
- Replace the o-ring (4) with new o-ring\*
- Replace the nozzle (5) with new nozzle
- Reinstall the original retainer plate (6) and original screws (7)

\*NOTE: Do not reuse the Teflon o-ring.

***Clean, dry applicators will improve the paint line process and reduce defects.*** Variables such as line speed, amount of down/side draft, type of material, type of solvent, type of applicator will determine how often to run your applicator clean program. Cleaning the applicator as often as cycle time allows is recommended.

## Trouble Shooting

### Example:

If the atomizer exits the applicator cleaner and is not dry:

1. Check that the blow off holes are not blocked.
2. Check the air pressures for the drying air.
3. Check the trigger points in the programming, that the drying air is on when the atomizer is moving up through the drying zone.
4. Check that the atomizer is centered in the cleaner during the drying cycle.

If the above checks are verified:

1. Try to reduce the atomizer speed during the drying portion of the program.
2. Try to dwell for 0.5 sec (or longer) at the position where the atomizer is still wet.

### Example:

If the atomizer exits the applicator cleaner and is still dirty:

1. Check that the solvent nozzles are spraying evenly and one or more nozzles are not blocked.
2. Check that the solvent filter is not blocked.
3. Check that solvent is exiting the nozzles.
4. Check the solvent pressure.
5. Check the trigger points in the programming, that the solvent is on when the atomizer is moving up through the cleaning zone.
6. Check that the atomizer is centered in the cleaner during the cleaning cycle.

If the above checks are verified:

1. Try reducing the speed that the atomizer moves up through the wash zone.
2. Try dwelling in the cleaning zone for 0.5 sec (or longer) where the atomizer is still dirty.
3. Try a stronger solvent.
4. Try running the clean program more frequently.

### **NOTE**

***Never trigger the solvent without first triggering the air.***

# Trouble Shooting

For further assistance, please contact your Sales Representative or Happy Dynamics Inc.

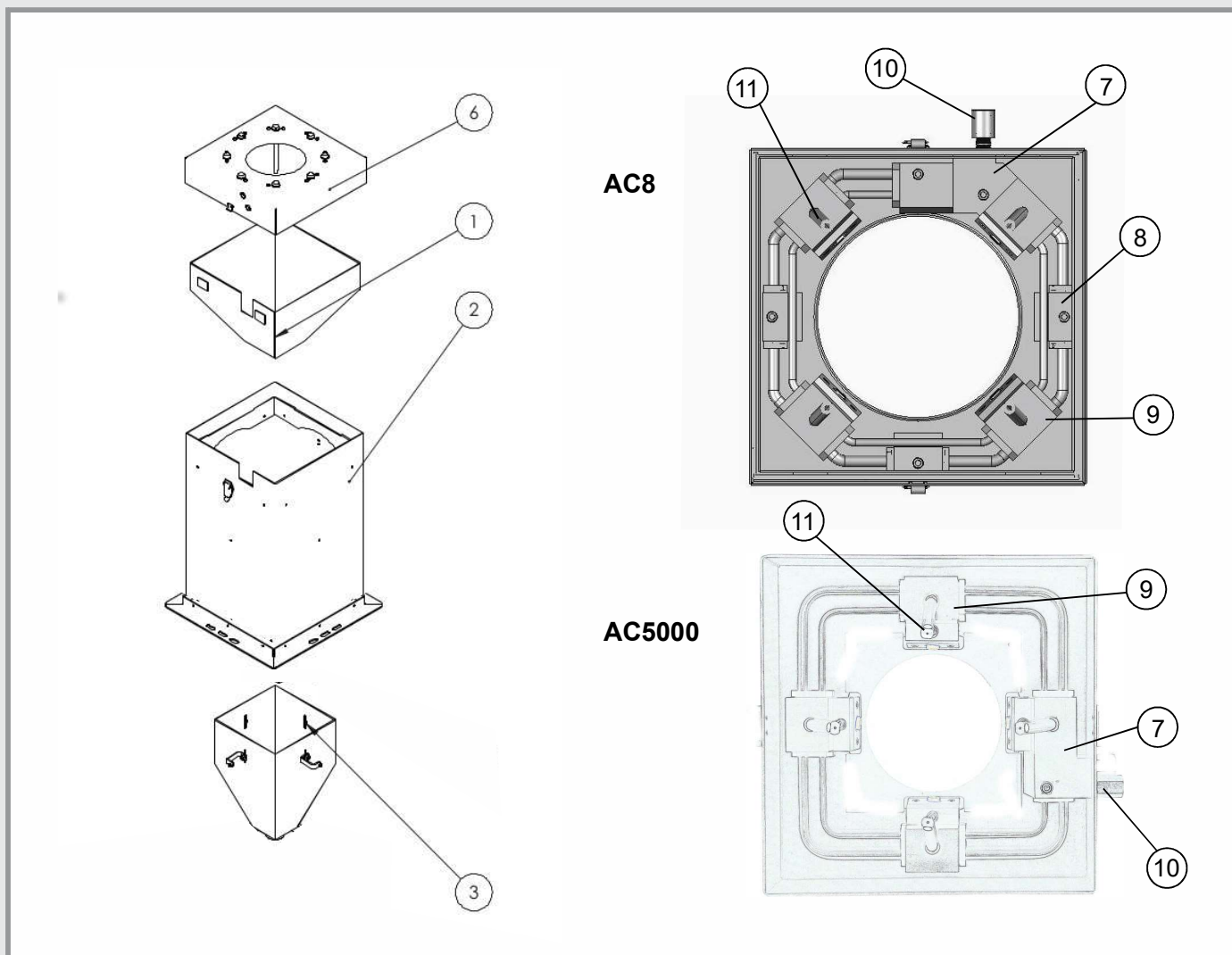
Please have the following information ready:

1. Program cycle chart.
2. Material type.
3. Fluid type (water based, organic, heated etc.)
4. Dynamics air and solvent pressures at the cleaner.
5. Photos of the issue.
6. Video of a cleaning cycle.
7. Photo of the installation (please show the entire cleaner including how it is mounted).

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# Spare Parts for the AC8/AC5000 Applicator Cleaner

ITEM	DESCRIPTION	AC8 PART #	AC5000 PART #
1	Upper Funnel	800-019	500-019
2	Housing	800-024	500-024
3	Lower Funnel	800-020	500-020
6	Lid	800-010	500-010
7	Solvent Supply Block Assembly	800-018	500-018
8	Air Blow-Off Block Assembly	800-200	N/A
9	Solvent Block Assembly	800-001	500-001
10	Flow Restrictor	500-045	500-045
11	Drive Extension	500-053	500-053



# Two Year Limited Warranty

PRODUCT LIMITED WARRANTY: Manufacturer Happy Dynamics Inc warrants its product to be free from defects in workmanship and/or material for two (2) years from date

of shipment from factory. Manufacturer shall have no liability under the warranty or otherwise if:

1. The product is not inspected by Buyer within ten (10) days after delivery;
2. The product is used other than in accordance with current operating instructions;
3. The product is subjected to any abuse or abnormal or unintended use;
4. A claim in writing under this warranty is not presented to manufacturer at Ennismore, ON address on or before ninety (90) days after the date of alleged defect was first known or could reasonably have been known, whichever is sooner, or;
5. The product is not returned unaltered to Manufacturer within such ninety (90) day period for inspection. Any warranty extends only to the first user of the product.

DISCLAIMER: the above Limited Warranty is EXCLUSIVE of any and all other warranties, liabilities or obligations of Manufacturer. MANUFACTURER DISCLAIMS ANY OTHER WARRANTY AND MAKES NO REPRESENTATIONS OR WARRANTY OF ANY KIND EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHER MATTER. Manufacturer neither authorizes nor assumes responsibility for any other affirmation of fact, description or other representation with respect to its product.

LIMITATIONS OF LIABILITY: Manufacturer's liability shall be limited to: 1. Product replacement, 2. Product repair, or 3. A refund of the product purchase price F.O.B. point of manufacture, and as Manufacturer, at its option may elect. The above remedies shall be Buyer's exclusive remedies for any and all loss or damage claimed by or through Buyer from any cause whatsoever including, without limitation, inability to supply product, errors or delays in shipment, Manufacturer's negligence, or any other matter. Manufacturer shall not be liable for any incidental, special, or consequential damages.



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