Air Control Industries

LINE-Dry

Cable & Wire Dryer

Installation, Operation & Maintenance Instruction Manual

Air Control Industries
Ref: Line-dry 2016/Iss1

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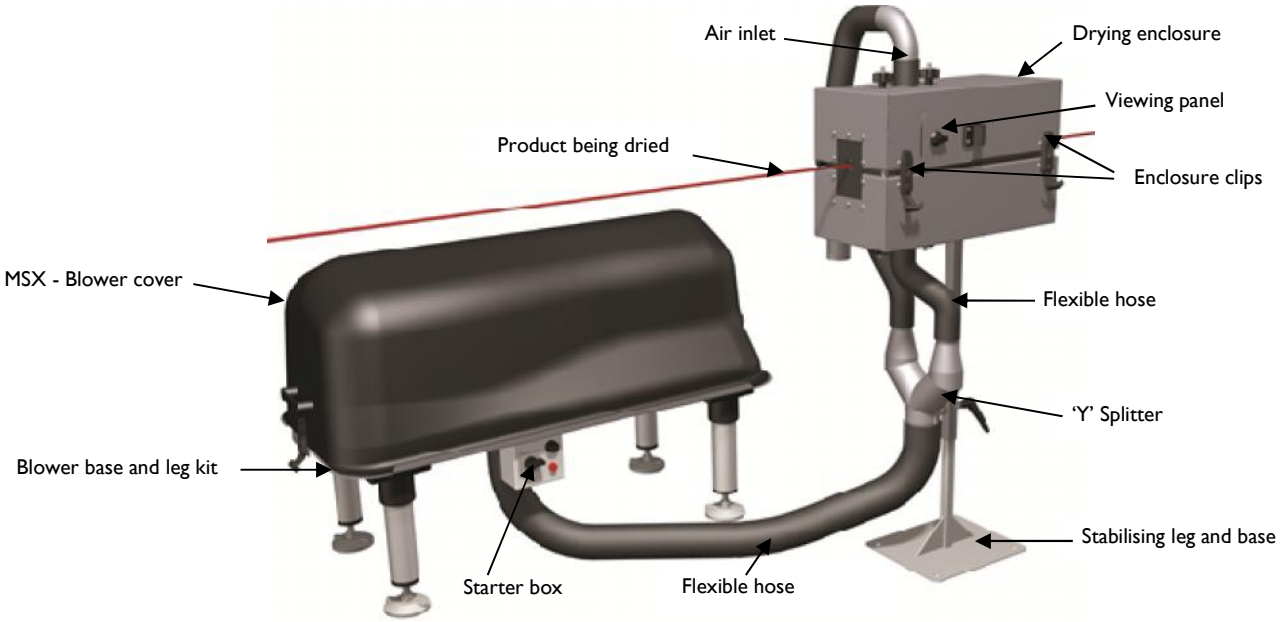
1. **Important information:**
   Please read the following installation, operation and maintenance instruction carefully. Always ensure that the power is isolated before commencing any maintenance on the JetBlack unit. This manual is also available from the download section of our website: www.aircontrolindustries.com

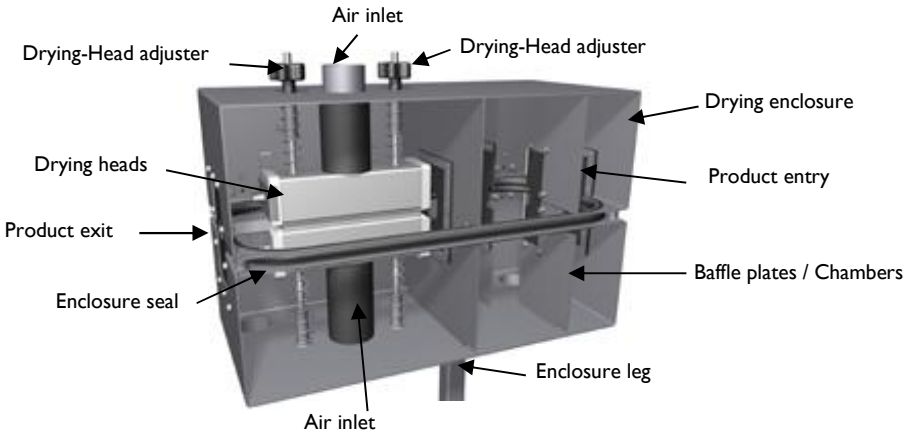
2. **Equipment arrival/inspection:**
   If there are any shortages, discrepancies or damage to your product upon delivery, please immediately contact ACI or alternatively ACI's Distributor. ACI and Distributor contact details can be also be found on our website: www.aircontrolindustries.com

3. **Safety information:**
   - Installation, commissioning and electrical installation are only to be performed by trained service personnel and in accordance with the latest IEE regulations.
   - Designer, manufacturers or operators are responsible for proper and safe installation as well as for safe operation.
   - Safety features e.g. inlet guards, are not to be dismantled, circumvented or made inoperative.

LINE-Dry Features:



Drying- Head Enclosure Features:



4. General safety instructions:

DANGER!

This machinery is for use in heavy industrial current installations. During operation this unit has high speed rotating parts. For this reason, unauthorised removal of the necessary covers, improper use, incorrect operations or insufficient maintenance could lead to severe personal injury or damage of the unit.

Those responsible for the safety of the installation must ensure that:

- Only qualified personnel are allowed to work on the unit.
- These persons always have access to the operating instructions and other product documentation supplied.
- Non-qualified personnel are not permitted to work on the unit.
- Before any maintenance is carried out on the LINE-Dry ensure that the main isolator is suitably locked off

Qualified personnel are persons who, on account of their training, experience and knowledge of relevant standards, specifications, accident prevention regulations and operating conditions, have been authorised by those responsible for the safety of the plant to carry out the necessary work and who can recognise and avoid possible dangers. IEE and other relevant regulations should also be observed.
It is assumed that the basic planning work for the installation and all work concerning transport, assembly, commissioning, maintenance and repair is carried out by qualified personnel. Particular note should be taken of the following:

- Technical data and information on permissible use (assembly and connection summaries, operating conditions etc.) contained in the operating/instructions and motor rating plates.
- General erection and safety regulations.
- The proper use of tools, lifting equipment and safety regulations.
- The use of personal protective equipment.

These instructions do not claim to cover all possible equipment variations, nor provide for every possible example of installation, operation or maintenance. The specified maintenance and inspection measures must be carried out regularly by trained service personnel. Deviations from 'normal' performance (i.e. higher temperatures or vibrations) indicate that there may be a malfunction of the unit. In order to avoid faults the responsible maintenance personnel should be notified immediately.

Danger by electric shock.
If the connecting cable to the blower is damaged, there is a risk of death due to an electric shock. Such defects must be eliminated immediately.

5. Installation:

- **Important**
  Upon delivery of the LINE-Dry to its place of installation, all safety precautions must be followed. Ensure all Fork lift trucks, elevators or cranes have enough carrying capacity and stability. Transport and installation should only be carried out by qualified personnel.

- **Transport and Mounting**
  The LINE-Dry blower has the option of having a long or short set of legs fitted. The Blower is an air delivery unit only. The drying enclosure / system will not have been pre-fitted and will therefore needs to be fitted by the end-user. For safety reasons you should never operate the Blower without the appropriate drying system attached

  - Unpack the main blower assembly
  - Erect leg kit into the chosen position. If the unit is fitted with legs over 300mm high please fasten to the ground as described in Section 5.c.
  - Connect power to the blower. Refer to Section 5.e. Electrical Connections

- **Ground Fastenings**
    - Erect leg kit into the chosen position.
    - Position top enclosure onto leg kit. – secure each leg by tightening the main leg bolt.
    - Once the leg kit has been secured, the LINE-Dry Blower is completely free standing and therefore will require no additional support.

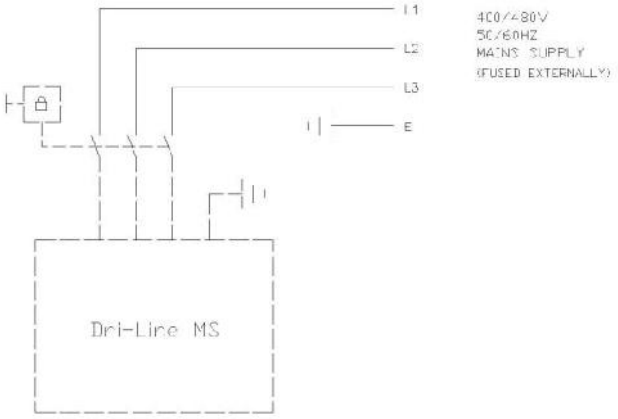
- **Site Installation**
    - If no other special equipment is supplied, the following requirements should apply to the installation site.
    - The Blower is designed for use inside closed production areas at an ambient temperature of -10 degrees to max. +40 degrees C, at an installation height of up to 1000m above sea level, protected against any weather conditions. The unit is <u>not</u> designed for use outside.
    - Installation requires a solid floor.

- **Electrical Connections**
    - ACI supply the LINE-Dry Blower with its own IP55 starter box and lockable isolator. To supply power to the unit connect through the control box into the lockable isolator in accordance with the rating plate only. A wiring diagram is provided for this purpose overleaf.
    - All wiring should be installed to national wiring standards.

- **Control**
    - The LINE-Dry Blower is designed to run continuously. Avoid frequent stop/starts – ACI recommends no more than 15 stop/starts per hour.
    - The LINE-Dry Blower requires an airflow passing through it to ensure safe operating temperatures are not exceeded. The use of control valves should be limited to ensure that a minimum of 150CFM passes through the blower at all times.
    - Avoid using fast acting valves in the ducting as these can cause sudden back pressure changes.

- **Wiring diagram for MS-X Starter box:-**
  All wires which the user must connect are shown solid in Figure 2, all dashed lines are pre-wired. The MS-X requires a 3 phase earthed supply at the voltages shown in the diagram on the following page.

  Wiring diagram:



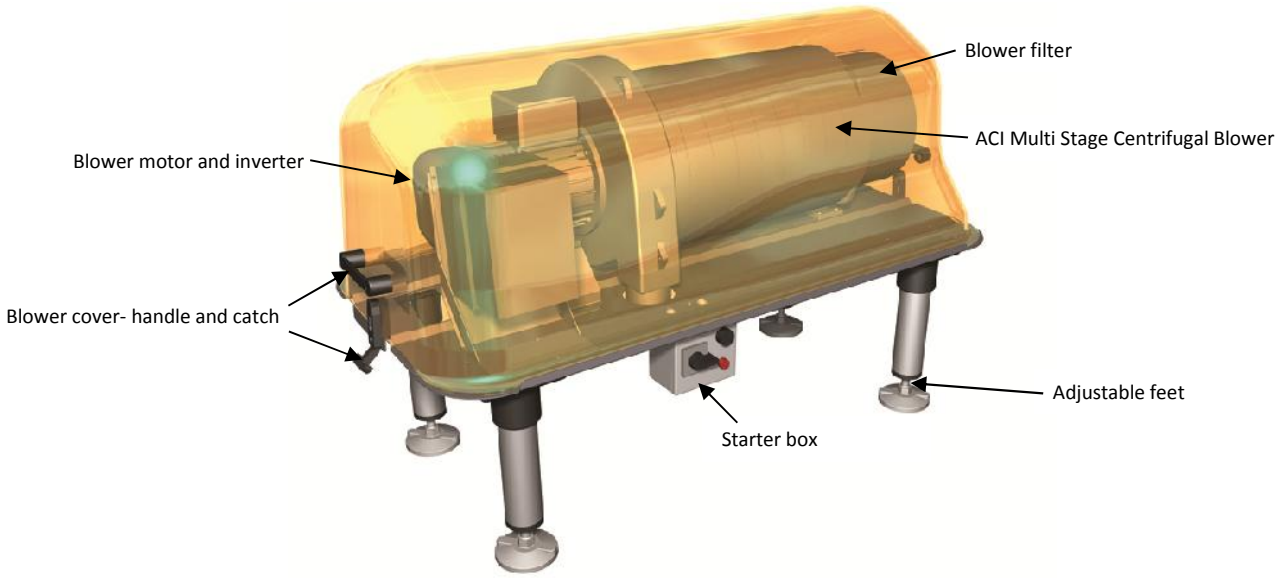
- **Commissioning**
    - ACI recommend employing experienced staff for the installation, assembly and start-up of the unit.
    - ACI cannot be held responsible for damage or defects caused by poor installation, assembly or start-up of the unit.
    - Installation and commissioning procedures should be carried out in compliance with local accident prevention regulations.
    - The LINE-Dry Blower unit provides blown air only.
    - Do not use whilst the MS-X is not connected, to a suitable drying system or duct.

6. Technical data and materials:

Type:	MS-X Blower
Machine Number:	Refer to Serial Number on Motor Label
Year of Manufacture:	Refer to Date on Motor Label
Standard voltage:	400V 3Ph 50Hz 480V 3Ph 60Hz **Please note** (other voltages are available for this unit)
Motor type:	Induction type / TEFC / IP55
Motor power:	3kW
Materials:	▪ Base; Stainless steel 304 ▪ Cover; Vac formed ABS R59 ▪ Blower materials: o Motor – Aluminium o Fan case and mounting foot – Aluminium Alloy LM6

7. General 'LINE- Dry' instructions:

- **LINE-Dry Blower / Enclosure Features:**



- Ensure all flexible hose/ ducting runs are kept to a minimum length avoiding sharp bends and kinks, and connections are fully tightened prior to running the blower. Also ensure all adjustment points are fully secured once the positioning of the unit has been established. Any rigid ducting should be secured for safety reasons.

- Keep the clearance of the plenums around the product down to a minimum, between 2mm to 4mm is ideal. Ensure the product runs central to the outlet slots for best results.

- Observe the line direction arrows on the drying plates. The slots in these plates are angled to oppose and lift the water from the line. Significantly reduced performance will result if this is not adhered to.

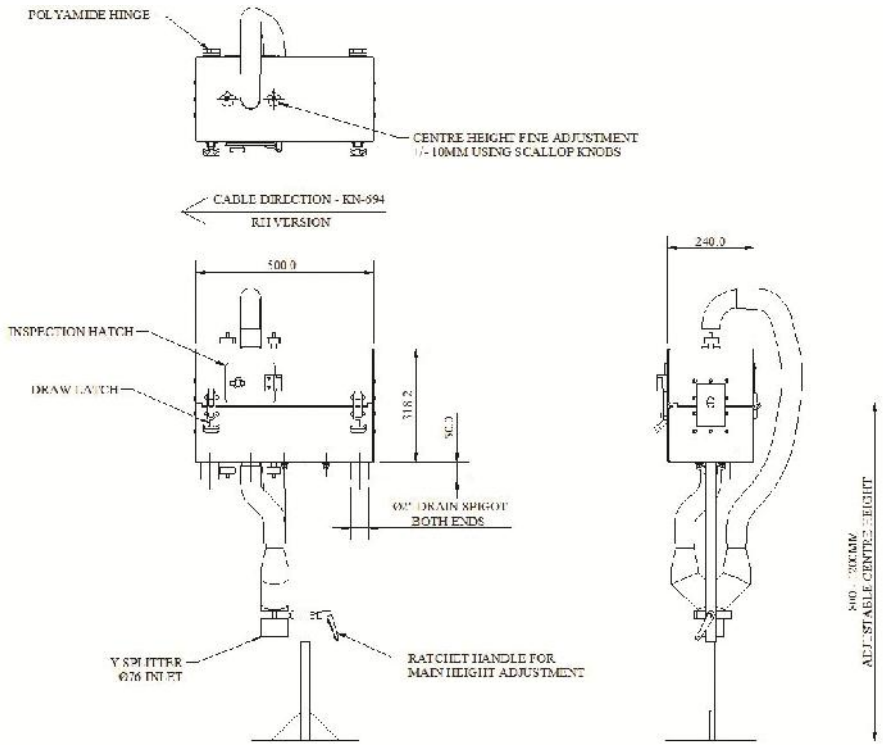
- If the product is not in use for a long period of time, but the line is still running, remove the duct from the lower plenum. This will prevent the slots filling up with water from the line and flowing back to the blower through the ducting.

- Over time, the slots in the drying plates may become clogged with calcium and lime (CAL) deposits. These should be removed using a blunt tool to avoid damaging the Jetplates, and/or a suitable cleaning fluid. An effort should be made to prevent the cleaning fluid entering the plenums as this could potentially leak back to the blower. It would then be blown onto the dry line once the unit is restarted. (The frequency of this type of maintenance will depend entirely on the water hardness of your area.)

- **Spray Enclosure (Option 1):**

  - The enclosure base must be fixed to the ground prior to operation.
  - Once the unit is installed, fine adjustments to the plenum positions can be made by winding in/out the scallop knobs to the top and bottom of the enclosure. Ensure that the pairs of scallop knobs are wound the same amount to keep the plenums level. This will prevent the guide bars binding and potentially locking up within the internal bushes when compressed during a line fault, and also provide a better drying performance.
  - Avoid adjusting the plenums past the extremities of the slot in the neoprene baffles as the enclosure and line will no longer be protected by the dampening effect of the self-adjusting plenums.
  - To avoid excessive leakage from the enclosure, ensure that the drain spigots are plumbed into a drain, and the draw latches on the front of the enclosure are fastened prior to operation. Additionally, please ensure that the inspection hatch is properly closed prior to operation.
  - Over time the neoprene rubber baffles may become worn or damaged. Replacements are readily available and can be easily installed by removing the clamps with a 10mm socket.

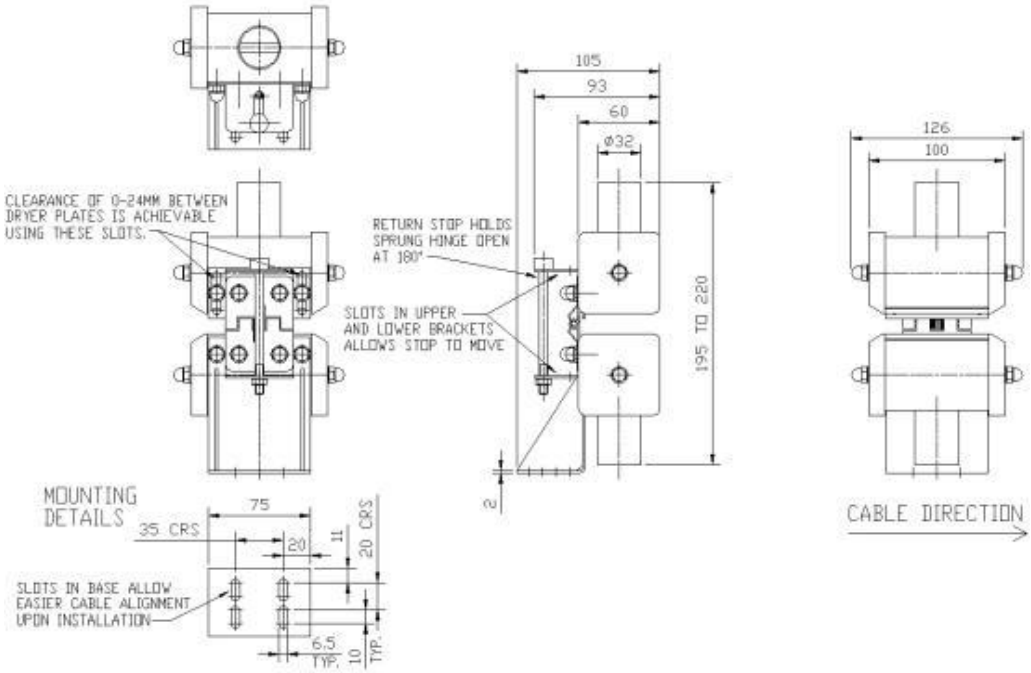
Outline Drawing (Option 1)



- **'Open' Drying Heads (Option 2)**

  - Ensure that the Ø32 'Y' splitters to each drying head are supported in a position that is higher than the bottom drying plate. This will prevent the slots filling up with water from the line and flowing back to the blower through the ducting.
  - Avoid mounting the Ø32 'Y' splitters too close to the drying heads. The heads are on sprung hinges so they can move and recoil freely during a line disturbance. Mounting the 'Y' splitter too close could cause the hose to impede the operation of this part.
  - The Ø76 'Y' splitter to Ø32 'Y' splitter should be sited close to the heads, keeping the length of total Ø32 hose to a minimum. This will reduce pressure losses incurred through small diameter ducts.
  - The top plenum can be adjusted to provide a clearance of up to 25mm. This is carried out by loosening off the two M6 dome nuts on the upper plenum (refer to data sheet), repositioning the head accordingly, and tightening the M6 fixings. Ensure the plenums are level to maintain correct operation.
  - The heads are designed to work in the vertical position. They should be fitted to a sturdy surface using four off M6 fixings through the bracket integrated into the design.
  - The drying heads are highly effective at removing water from high speed lines. Consideration on how the resultant water spray is retained should be made. If used in the open, a potential slip hazard could occur.

Image: Outline Drawing (Option 2)



8. General operation information:

- **General Safety Statements**

- **The LINE Dry requires very little maintenance. However, always electrically isolate the blower before commencing any maintenance.**
- **It is important to note that LINE-Dry blower has only one major moving part which is typically a 3.0 kW Blower.**

When operating ACI's LINE-Dry blower, always wear:

- Eye protection
- Ear protection
- Safety footwear

Never:

- Lift the external cover of the LINE-Dry blower whilst in operation.
- Run the blower unit without the external cover fitted.
- Run the blower when disconnected from the appropriate drying system.
- Replace the blower filter unless the main isolator is locked off.

Always ensure:

- The main isolator is locked off before commencing any maintenance on the system.
- Before operating the system ensure that the LINE-Dry blower is secured in position.
- The access cover has not been removed. This item should only be removed if the blower is stationary and isolated from the electrical supply.
- The filter is regularly cleaned or replaced.

- **LINE-Dry blower Start up**
  Apart from the 3kW Blower which is sited in the enclosure, there are no moving parts in the LINE-Dry unit. Therefore the blower can be started via the integrated starter box which comes wired and fitted.

  - Turn the main isolator on the control box to the 'I' position
  - Turn the green on/off switch to the ON position
  - Turn the speed control knob clockwise to increase airflow, or anti-clockwise to decrease airflow

  Please note – Generally, it is not ACI or its Distributor's responsibility to ensure control of the number of stop/starts. It is the customer's responsibility to ensure that the LINE-Dry blower only has a maximum of 15 stop/starts per hour

- **LINE-Dry blower Shut Down**
  - The LINE-Dry blower should be stopped via the starter box only. To turn off switch the green ON/OFF switch to the OFF position.
  - Then turn off the main isolator by rotating anti-clockwise to the '0' position.

  Please note - ACI or its Distributors are not responsible for the fitting of any additional isolators or emergency stops.

Stop/Start cycles must be kept to a minimum – 15 (fifteen) per hour is the maximum amount recommended.

- **Adjustment /Maintenance**

If any adjustment to the blower is required electrically isolate it before commencing work.

  - The only adjustment which the user can carry out whilst the LINE-Dry blower is running is to speed up or slow down the blower by rotating the speed control knob as required.
  - All further adjustments must be made with the lockable isolator moved to the '0' position. Pull out the tab on the isolator and lock off in accordance with local regulations.

- **LINE-Dry blower Filter**
  Once the enclosure has been correctly installed, the only part that requires regular attention is the cylindrical filter (ACI part number **0-1265**)

  To replace the filter:-
  - Remove cover by unclipping the rubber latches at the either end of the cover/base. Lift off the cover with the handles provided.
  - Remove the filter retaining bolt with a spanner.
  - Pull the filter away from the blower off the u-section filter support.
  - Fit new filter by pushing over the locating bolt on the u-section filter bracket.
  - Tighten locknut onto the thread. Only tighten until the filter does not rotate against the blower when moderate force is applied. Over-tightening of this bolt will deform the filter.

- **Ducting and clamping**
  All ducting and clamping can be easily adjusted if necessary. All fitted jubilee clips can be adjusted using a standard size flat-headed screwdriver.

- **Vibration and Noise:**
  - **Enclosure**
    Work related emission value is lower than 78dB(A) of the Blower during normal operation. This noise level does not include any drying system which may be attached.

  - **Drying system**
    Due to the nature of all drying equipment noise emissions from the drying system will always be present during normal working conditions.

    If there is either excessive vibration and/or noise from the Blower, or a reduction in performance occurs, the following procedures must be followed.
    - Electrically isolate the blower by turning off the isolator and locking it off at the front of the starter box.
    - Remove the cover so the blower and cylindrical filter are visible.
    - Remove and replace filter element.

9. Trouble shooting:

Malfunction	Possible Cause	Remedy
Poor or incorrect performance	Dirty or contaminated filters.	These items MUST be changed regularly (minimum of 6 months) dependant on amount of use.
	Damaged hose lining.	Replace damaged hose.
	Air leaks in system.	Check / replace damaged ducting or hose and clips.
	Incorrect speed from starter box.	Increase blower speed by rotating the control knob clockwise, or decrease the speed by rotating anti-clockwise.
	Closed or damaged valve	Check valve and replace if damaged.

	Liquid entering blower inlet	Isolate blower from any source of liquid.
	Motor has winding or bearing damage	Contact ACI immediately.
	Blower not piped to system correctly.	Only run blower when connected to the operating system. Never run in isolation.
	Too many stop/starts	Avoid high number of stop starts (a maximum of 15 per hour).
	Electrical supply problems	Ensure that supply voltages match with the MS-X rating plate details.
	Hostile environment	Protect blower from hostile environment
Irregular/Excessive Noise	Blockage in air delivery ducting	Check all ducting and air delivery devices for blockages/damage. Replace as necessary.
	Leak in air delivery ducting	Check and replace damaged hose and clips.
	Bolts loose on blower/motor assembly	Regular maintenance and checking/tightening all bolts.
	Blower bearings worn	Contact ACI Immediately.
	Motor bearings worn	Contact ACI immediately.
Reduced Drying Efficiency / Airflow	Blocked inlet filter on the blower	Inspect the inlet filter on the blower and the enclosure. Clean or replace as necessary.
	Blocked drying system	Check and clean if necessary all slots and nozzles of the drying system. Do not use a metal tool to remove blockages as this can result in damage. Also, never allow liquid to pass into the drying system or onto the blower.

10. Cleaning and inspection:

- **Cleaning:**

The LINE-Dry unit requires very little maintenance. However, always electrically isolate the blower before commencing any maintenance.

- Most components of the Blowers are IP55, so only suitable cleaning is recommended.
- Never clean the Blower whilst the unit is in operation.
- Always electrically isolate the Blower before commencing any cleaning.

- **Basic System Check:**
  Any air delivery system which is ducted to the Blower should be given a basic weekly visual inspection to make sure the system is in working order and that there are no major leaks from hoses; no unusual vibrations. No tools are required for this operation.

Avoid water ingress through filters during the cleaning procedure.

Timetable for key maintenance tasks			
Activity	**Frequency**	**Description**	**Parts Required**
1	Every Day	Perform general cleaning	None
2	Every Week	Basic System Check	None
3	Every 3 months	Check the air filter (Open enclosure by releasing the latches & check/change the blower cylindrical filter).	0-1265
4	"	Check the integrity of all ducting and fastenings.	None
5	"	Check the motor condition and clean if necessary.	None
6	"	Check for excessive noise and vibration	None

11. Warranty:

Air Control Industries Limited (ACI) warrants all products manufactured by ACI to be free of defects in material and workmanship for twelve (12) months from the date of shipment.

The warranty does not apply to parts such as drive belts, filter elements or connecting hose, unless authorised by an officer of ACI. Also, not covered under the warranty is normal wear and tear, neglect or misuse of the equipment, operation in an application not approved by ACI, and alterations not performed by ACI.

All items supplied by ACI that are manufactured by others shall be warranted under the respective manufacturer's policy. Motors and other items, for which a national service network is in place, should be sent directly to that manufacturer's representative for the most prompt service. ACI will provide any support required ensuring that warranty service by others in handled in a prompt and professional manner.

The ACI warranty is limited to the repair or replacement of items shipped by ACI. At no time will ACI be liable for any of the costs to the buyer for labour, transportation or down-time resulting from defective equipment furnished by ACI, or our suppliers. Warranty will be void unless the blower head is returned complete.

12. Manufacturers service address:

Our products are manufactured in compliance with applicable international standards and regulations. If you have any queries regarding the use of our products, or if you are planning a special application, please contact:

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