

INSTALLATION AND MAINTENANCE MANUAL

Wall Mount Energy Recovery Ventilator (WM-ERV Models)



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Air Change Wall Mounted Ventilator (WMM-ERV)

1. INTRODUCTION

SAFETY CONSIDERATIONS



IMPORTANT

DO NOT LEAVE HEAT EXCHANGERS EXPOSED TO DIRECT SUNLIGHT. Prolonged exposure to UV light can cause severe damage to the structure of the heat exchanger, and will void the warranty.



WARNING

Improper installation, service, maintenance or use can cause explosions, fire, electrical shocks or other conditions which may cause personal injury or property damage and will void the warranty. Check with Air Change or your nearest Air Change dealer for any information required on this equipment.



DANGER

Electrical shock can cause personal injury or death. Before performing any work on this equipment, the electrical supply must be turned off at the electrical service box to avoid the possibility of shock, injury or damage to equipment.

Note: There may be more than one power supply circuit.

NOTE TO INSTALLER

- Only trained and qualified personnel should install, repair or service air conditioning equipment. Untrained supervised operatives can perform basic maintenance functions such as cleaning or replacing filters. Service personnel must perform all other operations.
- Installing and servicing air conditioning equipment can be hazardous due to electrical and mechanical components.
- When working on air conditioning equipment, observe precautions in all literature, tags and labels attached to or shipped with unit. Follow all safety codes and guidelines. Wear safety goggles, work gloves and any protective clothing.
- All work must comply with relevant Australian Standard wiring rules and local authority codes. Installers must ensure that all statutory regulations and by-laws have been addressed, and that all relevant codes regarding the handling and recovery of refrigerants have been observed.
- Installers must ensure that the structures built to take the units have been suitably constructed for the purpose, all safety precautions have been applied prior to installation, and all preparation work has been constructed and suitably sized for its purpose.

Inspection and Unpacking

- The unit should be inspected upon delivery for possible external damage incurred during transport. If damage is evident it should be noted on the freight docket and the Air Change sales office contacted. A claim should be lodged with shipping company within three (3) days if shipment is damaged or incomplete.
- If major damage is apparent, do not lift unit on to site without prior approval from Air Change. All units are tested and inspected prior to packing and leave Air Change premises in perfect condition.
- Check unit rating plate to ensure the correct unit matches the job specifications.

Unit Handling

- Do not remove the skids, or any protective crating or packaging, until the unit is at the point of installation. When removing packaging or crating, be careful not to damage, scratch, or dent the unit.
- After the removal of packaging or crating, all removable access panels should be opened to inspect for unit internal damage.

2. INSTALLATION

Location

General

- The ventilation unit is located through an outside wall or suitable window
- The WM-ERV package is marked with stickers “Fresh air” “Supply Air”, “Return Air” and “Exhaust Air” showing the air path through the unit.

Internal Inlet & Outlet Considerations

- Whenever possible, the unit should be located where the fresh air can be mixed with the refrigerated air from the air conditioner.
- The prime function of the unit is to deliver pre-conditioned fresh air by transferring the energy from the cold stale return air. Therefore the unit must be located away from where the cold return air can be affected by a heat source i.e. a frequently opening door to exterior, or near any major source of heat generation.
- The introduced fresh air should also be above head height to avoid blowing directly on to occupants.

External Inlet & Outlet Considerations

- The exhaust discharge should be directed in a clear path away from any windows that can be opened.
- Location of the fresh air inlets should adhere to the Australian Standards 1668.2 Code.
- The fresh air intake should be positioned clear of any objects which could obstruct the airflow and be clear of any polluted air from other units, exhaust fans, kitchen or toilet exhausts, etc.
- When the unit is fully installed, make sure the outside inlet grille opening and the return air inside are completely free and not blocked off in any way.

Installation and Fitting of Ventilation Unit

NOTE ANY STUDS THAT ARE CUT HAVE TO BE CROSS BRACED FOR SUPPORT OF THE WALL

- Remove front panel by lifting up and out;
- Remove fan drawer by drawing forward towards yourself;
- Remove filter by drawing forward towards yourself;
- Remove heat exchanger by removing security screws, and drawing forward towards yourself;

- Cut aperture 715mm wide x 760mm high. The depth of the carcass is 595mm with an additional 145 mm protruding face panel (see drawing);
- The unit must be inserted from inside the room. Push unit through aperture until flange seals against the wall;
- Fix through bottom and through sides 460mm up from bottom;
- Timber or metal sealing batons for the rear of the unit will need to be supplied by the installer;
- Replace fan drawer, heat exchanger and security screws, filter and front grille.

Electrical

- A power supply rated at 240v +/- 10% 1 phase, 50Hz is required to operate two 80W fan motors within manufacturer's tolerances. They are controlled by a variable speed switch
- Mains cables and control circuit wires are to be connected as per wiring diagram and all wiring must comply with relevant local wiring rules.
- Single phase fan motors are internally protected and there is no need for external overload switches.

3. SYSTEM COMPONENTS

General

- The Air Change Wall Mounted Energy Recovery Ventilator (WM-ERV) has been developed for Classrooms and other applications to supply fresh air to meet Ventilation codes. The system pre-cools or pre-heats and dehumidifies outdoor air by transferring the energy from the return air through the heat exchanger walls to the incoming outdoor air. The Enthalpy Heat Exchanger inbuilt in the Ventilator has been designed to return around 75% efficiency.
- The WM-ERV is professionally assembled, internally wired throughout, with easy access for filter change. The Front grille is designed to be removed by lifting upwards and then pulling towards you, allowing access to filters. Remember to always turn the power off before removing the front grille.
- The WM-ERV provides 300 l/s outdoor air on low speed and 350 l/s outdoor air on high speed.

System Components

The unit comprises the following components:

Cabinet

- Prefabricated wall and ceiling panels of are constructed of 1.2mm galvanised sheet metal, bonded to 10mm aluminium polyethylene insulation.

Fans

- Supply and exhaust fans are 80W centrifugal direct drive and are constructed using forward curved vanes fabricated from galvanised steel.
- Fans are controlled by an HPM electronic speed control in Change RTP units have internal fans which draw through the coils for balanced pressure drops across the heat exchanger and coil.

Heat Exchanger

- The Energy Reclaim (Enthalpy) heat exchanger uses a combination of cross flow and counter flow, with enthalpy transfer media between moulded plastic air guiding frames for a very high efficiency and long life. The heat exchanger has been secured under pressure by galvanised steel end plates and corner fittings.
- There is no cross contamination between the air paths.
- The counter flow enthalpy heat exchanger incorporated into the unit will reclaim up to 75% of the energy (under normal operating conditions) from the return air and transfer it to the incoming outside air, i.e. to pre-treat the outside air. This results in a saving of up to 75% on the cost of



heating or cooling the outdoor air. (Typical ERV use with normal air conditioning, see Plan and Side View schematic).

- Heat exchanger is secured in place by two screws that secure the heat exchanger to the cabinet. This ensures that the heat exchanger can only be removed from inside the room.



IMPORTANT

DO NOT ATTEMPT TO CHANGE THE LENGTH OF THE HEAT EXCHANGER BY REMOVING END PLATES AND PLASTIC PLATES.

This can cause the media between the plates to dislodge from its position, resulting in a lack of performance because of an increased pressure drop through the heat exchanger or damage to the Sensible media. Any tampering with the heat exchanger may invalidate our warranty and Air Change will not be held responsible for compromised performance or a pressure drop.

If the heat exchanger is the incorrect length, please return to Air Change for a replacement unit.

Filters

- Filters are supplied and fitted in the factory. A single filter is inserted and removed via the return air inlet grid and provides filtering for both fresh air inlet and return air inlet of the heat exchanger.



IMPORTANT

Never operate the unit without filters fitted to the Return and Fresh Air intakes with blower access panels removed.

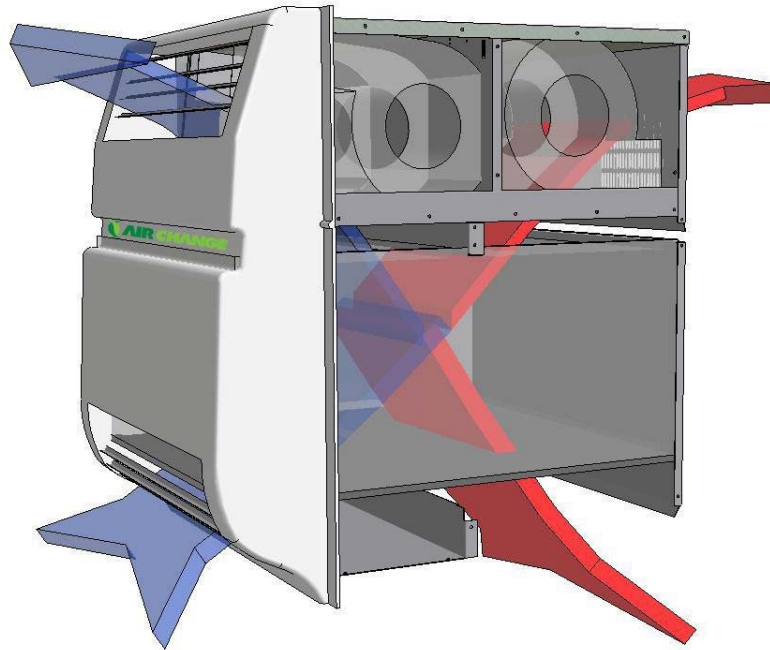
If these units are being used during construction when adhesive, sealers, ducts, new and used carpets are being installed make sure all equipment is fitted and adequately protected. We recommend using disposable or temporary filters during commissioning and during pre-hand over running.

Electrical

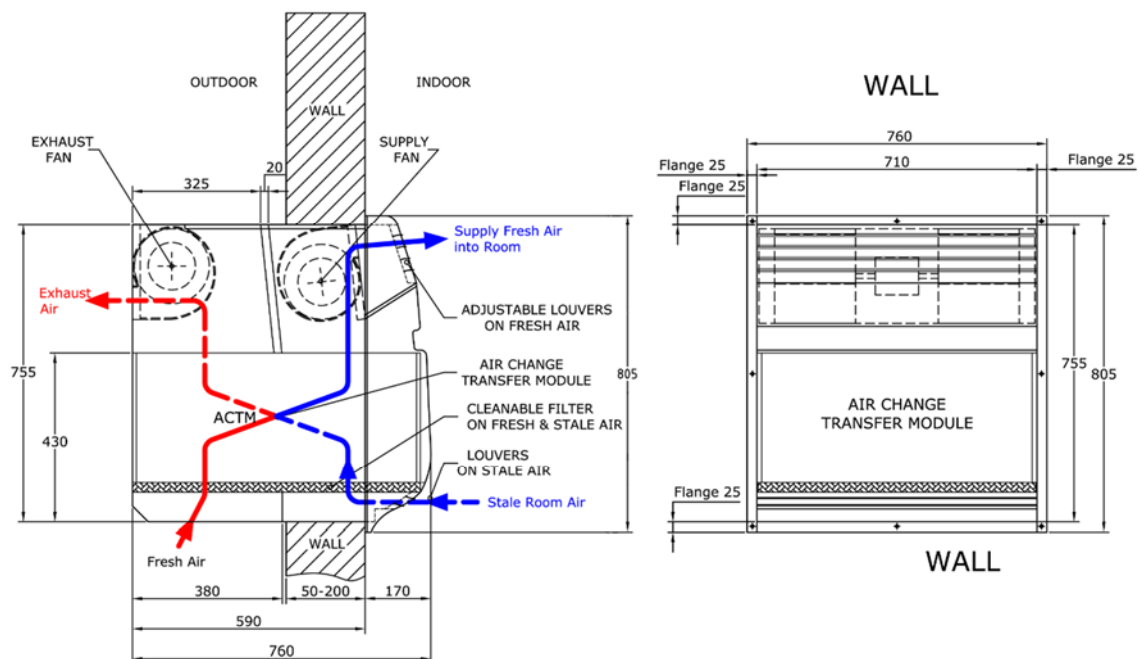
- Internal controls are all 240V supply. Wiring is done in accordance to Australian Standards and specific state electrical authorities.
- Single phase fan motors are internally protected and there is no need for external overloads in the ventilation unit.

4. SCHEMATIC DIMENSIONAL DATA AND WIRING DIAGRAMS

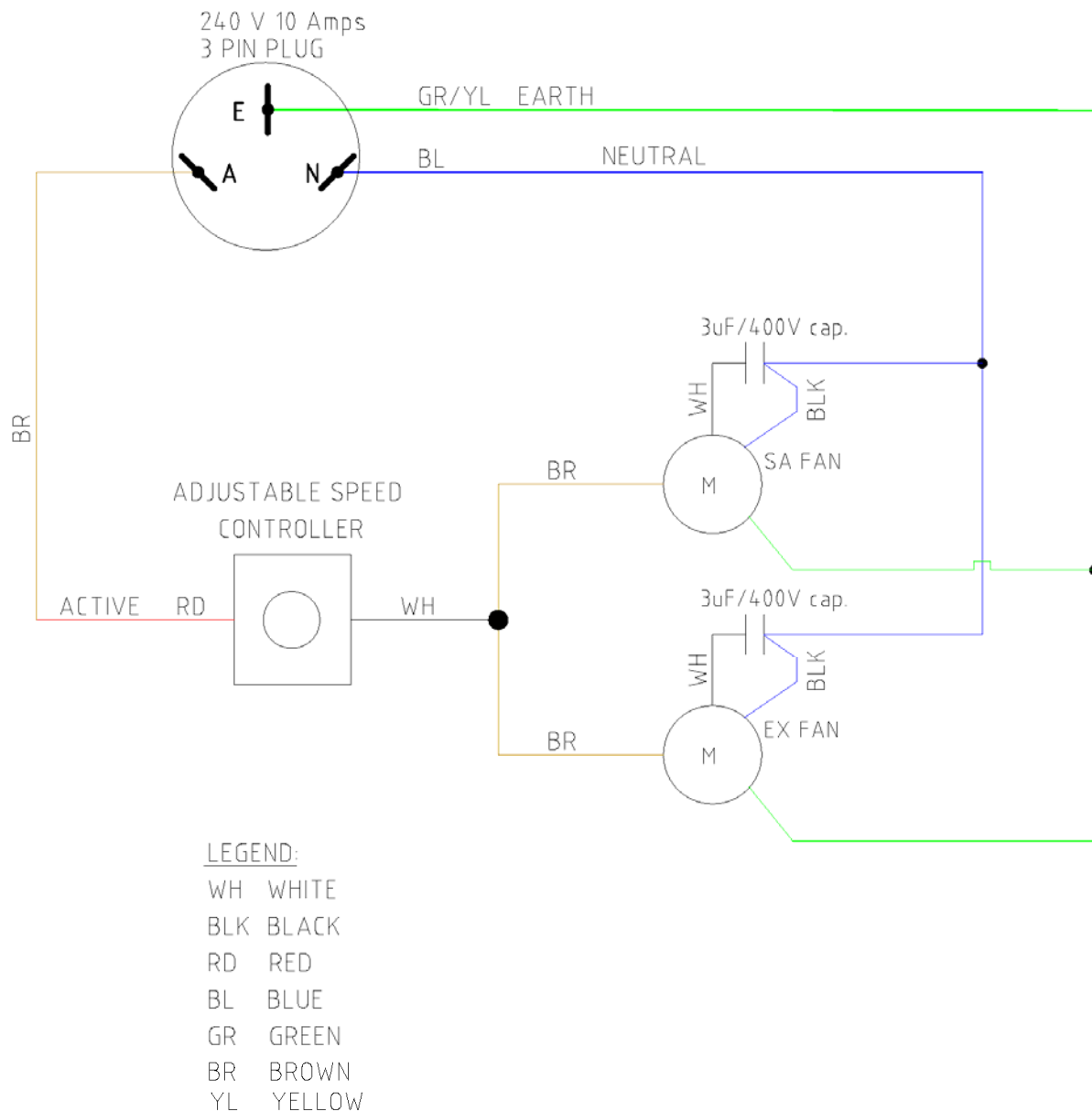
3D Schematic



Unit Dimensions and Installation



Electrical Schematic



NOTES:

SA. FAN BDJB0607PDA-23 80W 1 OFF 240V 1 PHASE 0.8 AMPx1 Approx. (Adjustable Speed)
EA. FAN BDJB0607PDA-23 80W 1 OFF 240V 1 PHASE 0.5 AMPx1 Approx. (Adjustable Speed)

5. SERVICE & MAINTENANCE

System Components

- Ventilation units have been designed for easy maintenance with first quality materials and components used throughout. Preventative maintenance programs will vary according to actual working conditions and locations and hours of usage by the client. Air Change will be pleased to provide advice on special service requirements for particular installations.

Heat exchangers

Air Change Enthalpy Heat Exchangers



IMPORTANT

Return and Outdoor air filters must be changed/cleaned regularly to ensure airflow is unrestricted. The heat exchanger warranty may be voided if filters are not cleaned according to maintenance schedule and if proper filtration standards are not adhered to.

Note: Air Change can provide a heat exchanger replacement service on request.



WARNING

Switch off unit before attempting to remove parts for cleaning.

- The Enthalpy Heat exchanger has a brown paper-based enthalpy exchange media between the plates which can be vacuumed or brushed gently.



IMPORTANT

DO NOT WASH THE ENTHALPY HEAT EXCHANGER

Fans

- Fan shaft and motor bearings are of permanently lubricated, sealed type and require no regular maintenance other than a check on their general condition.

Maintenance Schedule



WARNING

Always disconnect line voltage before servicing electrical equipment. Ensure there are no loose electrical connections at services intervals.



IMPORTANT

Failure to carry out regular maintenance with a licensed and reputable refrigeration company may render warranty claims invalid if faults have been caused by lack of proper maintenance. Air Change may request to see the maintenance schedule carried out.

General

- Air Change systems are designed for easy maintenance, with highest quality materials and components used throughout.
- Preventative maintenance programs will vary according to actual working conditions and location and hours of usage by the client.
- Air Change will be pleased to provide expert advice on special service requirements for particular installations.

Monthly Maintenance Schedules

- Filters should be inspected frequently immediately after installation to confirm the frequency of cleaning needed for the particular location. Regular change/clean of filters is necessary to ensure normal operating conditions.
- Vacuum or wash filters, and dry thoroughly before replacing.

Three-Monthly Checks

- Repeat the Monthly Schedule.
- Clean Heat Exchanger
- Check fan blower wheels for dirt build-up and tightness on shaft.
- Check all cabinet panels for correct fitting, alignment and seals, and clean cabinet as required. Ensure no insulation has been detached from panels Check blower wheels for dirt build-up and tightness on shaft.
- All electrical terminals should be checked for tension on each maintenance visit with **main switch off**.

Annual Maintenance

- Repeat monthly and three-monthly checks.
- Check cabinet for any paint chips or abrasions and treat accordingly.
- Measure and record the amperage of each motor against nameplate details

6. TECHNICAL DATA - TABLES

Heat Exchanger Data

Specification	Small Heat Exchanger
Height	710 mm
Depth	330 mm
Width	645 mm
Weight	25 kg/m
Pressure Drop	150 Pa @ 750 L/s per metre up to 250 Pa @ 1000 L/s per metre
Reclaimed Heat	Enthalpy Heat exchanger - up to 75%. Sensible Heat Exchanger - up to 80%
Insulation	5 mm thick black poly-ethylene with adhesive backing, fire resistant
Material	Poly-propylene solvent resistant
Temperature Range	Plates withstand a temperature range of -50°C to 150°C
Transfer Media	Enthalpy media - moisture permissible. Exchanges moisture and temperature.
Maintenance	Supply and exhaust air must be filtered to avoid particles entering the heat exchanger

7. WARRANTY INFORMATION, TERMS & CONDITIONS

Failure to carry out regular maintenance with a licensed and reputable refrigeration company may render warranty claims invalid if faults have been caused by lack of Maintenance. Air Change may request to see the maintenance schedule carried out.

Management will need to keep records provided by service companies, which will detail the service done to each unit. This record is a summary of your service documentation for easy reference for management in case of a warranty claim.

Your equipment is a major investment and will last for many years if properly maintained and serviced.

Air Change Australia Pty Ltd will only accept a completed warranty card (issued in each manual; see page 15) or a copy of the original invoice complete with matching serial numbers as proof of purchase. This information must be verified before the authorisation of any warranty claims. We also require details of servicing with all warranty claims.

Warranty Claim Form

All warranty claims are subject to sale/service terms & conditions.
Please fill in the form and **fax back to (02) 8774 1490**.

Project name	
Address	State
.....	Postcode
Reported by	Phone
Site Contact	Phone
MODEL #	SERIAL #
Details of problem	
.....	
.....	
.....	
Print Name	Signature
Position

AIR CHANGE OFFICE USE ONLY

Service Agent: **M1 PO#**

Technician Name: **Phone:**

Warranty Claim Number (WAN):

Approved / Declined

BY:

DATE:

Details of Approval/Decline:

.....

.....

.....

Parts List:	Send Date
	Invoice #
	Receive Date:
	Invoice #

Completion Date: **Date Client Informed**

Please remember to send "Details of Servicing Report" with this page if warranty is required.

8. WARRANTY POLICY

For The SALE AND SUPPLY OF PRODUCTS from AIR CHANGE AUSTRALIA PTY LTD

1. Applicability

- 1.1. This Warranty Policy applies to any Products sold and/or supplied by Air Change Australia Pty Ltd ("**Air Change**") to a Purchaser and supersedes any terms and conditions of the Purchaser.
- 1.2. This Warranty Policy is also subject to the Terms and Conditions for the sale and supply of Products from Air Change ("**Terms and Conditions**"), a copy of which is available on the web site www.airchange.com.au and forms part of any Quotation or Order Confirmation from, and any Contract with, Air Change.

2. Definitions

- 2.1. "**Contract**" shall mean any and all agreements for the sale and/or supply of Products(s) from Air Change.
- 2.2. "**Parties**" shall mean Air Change and the Purchaser jointly.
- 2.3. "**Price**" shall mean the price to be paid by the Purchaser for the Product(s) excluding Goods and Services Tax (GST).
- 2.4. "**Product**" shall mean the product(s) as set out in the Contract.
- 2.5. "**Purchaser**" shall mean any and all party / parties entering into a Contract with Air Change for the sale and/or supply of Product(s) by Air Change.

3. Parts Warranty

- 3.1. Unless otherwise agreed in writing and subject to the terms and conditions of this Warranty Policy and the Terms and Conditions, Air Change warrants (a) that the Products are free of manufacturing defects in materials and workmanship, and (b) that the Products will deliver the rated heating and cooling capacity specified in the quotation and published technical details for such Product.
- 3.2. If during a period of 12 months from the date of delivery of the Product(s) to the Purchaser ("**Warranty Period**") any part manufactured by Air Change is found upon inspection by Air Change to have proved defective in design, material or workmanship under normal use and service and when properly installed, connected and commissioned as per the manual, Air Change will supply an exchange replacement part(s) free of charge to the Purchaser provided that the Purchaser has complied with the conditions of warranty ("**Warranty Conditions**") including those in clauses 5 and 6.
- 3.3. The Warranty Period may be extended so that the 12 month period commences upon commissioning of the Product(s) provided that (a) the date of commissioning occurs within 3 months of delivery of the Product(s) and (b) a commissioning report which specifies the date of commissioning is delivered to Air Change within 21 days of the date of commissioning.
- 3.4. Unless prior agreed by Air Change in writing, any cost or expense incurred by any persons removing or refitting or rebuilding the replacement part(s) shall be borne by the Purchaser except where Labour warranty has been specifically included in the sale.
- 3.5. If the Purchaser does not make a warranty claim within the Warranty Period, even if the defect occurs during the Warranty Period, the Purchaser shall lose all benefit of the Parts Warranty and any Labour Warranty.

4. Labour Warranty

- 4.1. The Purchaser may obtain a 12 month labour warranty ("**Labour Warranty**") from Air Change at an additional cost of 2.5% of the Price plus GST subject to the Warranty Conditions and this clause.
- 4.2. The Labour Warranty must be purchased and paid for prior to any warranty claim being actioned.
- 4.3. The Labour Warranty shall entitle the Purchaser, in addition to the parts warranty in clause 3, during the Warranty Period having the costs of the labour of installing any replacement part(s) supplied pursuant to the parts warranty being costs paid by Air Change.
- 4.4. The labour covered by the Labour Warranty shall be undertaken (a) by Air Change or (b) by sub-contractors chosen and arranged by Air Change or (c) subject to the prior approval of Air Change, by the Purchaser or its agents or subcontractors, provided that in these circumstances labour shall be no more than \$65.00 per hour and refrigerant shall be no more than \$15.00 per kilogram and there shall be no charges for initial call out fees, quotations, travelling time, overtime, hire equipment, apprentice labour or brazing rod and nitrogen.

5. Warranty Conditions

- 5.1. The full Price in addition to GST and any other costs and charges pursuant to the Contract and the Terms and Conditions must have been paid.
- 5.2. The Product(s) must be in its first installation.
- 5.3. The Product(s) must have been installed in compliance with all of the conditions specified in the installation manual supplied with the Product(s).
- 5.4. The Product(s) must be operated and serviced in strict accordance with the installation instructions, operation instructions, service instructions, industry standards and relevant Government and industry codes and regulations.
- 5.5. The Product(s) must not have been subject to misuse, negligence, damage or accident in transit where the customer was responsible for transport.
- 5.6. The Product(s) must not have been modified, altered or supplemented in any way whatsoever without prior approval of such modifications, alterations or supplements being given by Air Change.
- 5.7. Where Air Change recommends the use of particular fluids, refrigerants, consumables, materials or other accessories with the Product(s), the Product(s) must not have been used with other fluids, refrigerants, consumables, materials or accessories.
- 5.8. No part of the Product(s) shall be considered defective due to failure to correspond with information regarding the quality or use of the Product(s) given by someone other than Air Change.
- 5.9. No part of the Product(s) shall be considered defective if it is properly characterised as a consumable or due to normal wear or deterioration.
- 5.10. Any identification or serial number on the Product(s) or the part(s) must not have been altered, defaced or removed.
- 5.11. The warranty is subject to inspection of the Product(s) or potentially defective parts of the Product(s) by Air Change, although Air Change may in its sole discretion waive the requirement for inspection.
- 5.12. The source of all part(s) supplied by Air Change pursuant to the Parts Warranty shall be sourced from or through Air Change and at the sole discretion of Air Change. Air Change shall not be liable for replacement parts sourced from other suppliers, manufacturers or wholesalers.
- 5.13. Air Change shall not be liable for defects arising out of materials provided by or a design stipulated by the Purchaser.

6. Making a Warranty Claim

- 6.1. In order for a Purchaser to make a claim under the Parts Warranty or the Labour Warranty, the Purchaser must provide to Air Change (a) a completed warranty card (supplied with the installation or instruction manual provided with the Product(s)) or a copy of the original invoice with matching serial numbers as proof of purchase and (b) full written details of the defect, fault or problem and (c) if requested by Air Change, photographs, servicing information, commissioning report, and/or the potentially defective part.
- 6.2. Any part(s) sent to Air Change must be accompanied by written details of the warranty claim and identification of the model and serial number of the Product(s).
- 6.3. In the event that Air Change provides a replacement part(s) and requests return of a defective part(s), the defective part shall become the property of Air Change and if the defective part(s) is not returned within 14 days the Purchaser shall be liable for the full cost and transport cost of the replacement part(s).

7. Limitation of Liability

- 7.1. Except as expressly provided in this Warranty Policy, Air Change shall have no obligations or liabilities whatsoever to the Purchaser in respect of the delivered Product(s) or any part thereof. Consequently, without limiting the generality of the above, Air Change shall under no circumstances be liable to the Purchaser for liquidated damages, loss of production, loss of profit, loss of revenue, loss of use, cost of capital, costs connected with interruption of operation or other consequential or indirect loss or damages arising out of or in connection with any Product(s) supplied.
- 7.2. At the expiration of the Warranty Period all liability whatsoever on the part of Air Change ceases.

8. Force Majeure

- 8.1. If Air Change fails to fulfil its obligations pursuant to the Warranty Policy due to industrial disputes or any other circumstances beyond its reasonable control, which Air Change could not have reasonably expected or taken into account and which consequences Air Change could not reasonably have avoided or overcome (including but not limited to fire, flood, power blackout, earthquake, war or delays in deliveries by sub- contractors) it shall be regarded as a case for relief and Air Change will not be liable for any damages or any other relief or remedies.

WV1.03/11