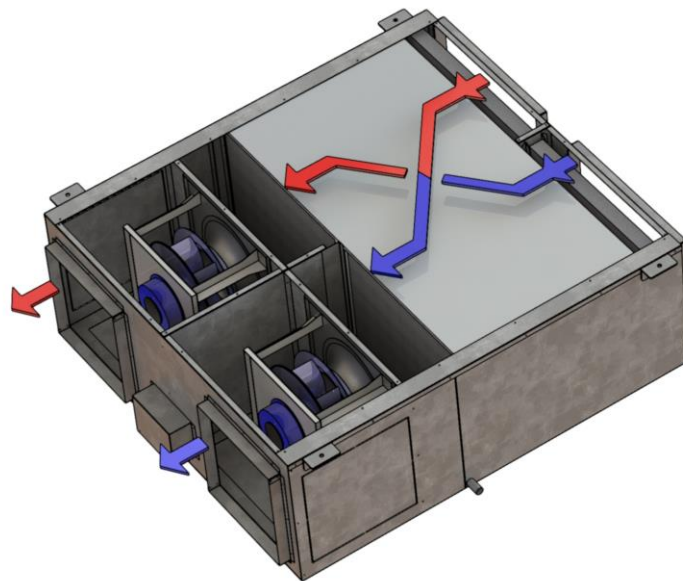


# INSTALLATION AND MAINTENANCE MANUAL

## In-Ceiling Energy Recovery Ventilator with EC Plug Fans



**Model: ERV-IC ECP**

**VERSION 2021**

<b>1 INTRODUCTION</b>	<b>4</b>
1.1 Safety Considerations	4
1.2 Note to Installer	5
1.3 Inspection and Unpacking	5
1.4 Unit handling	5
1.4.1 Lifting	5
<b>2 INSTALLATION</b>	<b>6</b>
2.1 Location	6
2.1.1 General	6
2.1.2 Ductwork considerations	6
2.1.3 Inlet/Outlet precautions	6
2.2 Installing the Unit	6
2.3 Electrical/Electronic Connections	7
2.3.1 Mains power supply and fusing	7
2.3.2 Electrical Connection and Supply Size Precaution:	8
2.4 Ducting	9
2.4.1 Duct Sizing	9
<b>3 SYSTEM COMPONENTS</b>	<b>10</b>
3.1 Cabinet	10
3.2 Fans	10
3.3 Heat Exchanger	10
3.4 Filters	10
<b>4 TECHNICAL SPECIFICATIONS</b>	<b>10</b>
4.1 Schematic Dimensional Data	10
4.2 Electrical Diagrams	10
<b>5 SERVICE &amp; MAINTENANCE</b>	<b>11</b>
5.1 Heat Exchangers - Air Change Enthalpy Heat exchangers	11
5.1.1 Enthalpy Heat exchanger Maintenance	11
5.2 Fan Access and Filter Access	12

<b>5.3 Maintenance Schedule</b>	<b>13</b>
5.3.1 General	13
5.3.2 Monthly Maintenance Schedules.	13
5.3.3 Three-Monthly Checks	13
5.3.4 Annual Maintenance	13
5.3.5 Unit Inspection	13
<b>6 TROUBLE SHOOTING GUIDE</b>	<b>14</b>
<b>7 WARRANTY INFORMATION, TERMS &amp; CONDITIONS</b>	<b>14</b>
7.1 Warranty Claim Form	15
7.2 Details of Servicing	16
7.3 Warranty Policy	17

## AIR CHANGE DUCTED IN-CEILING ENERGY RECOVERY VENTILATOR WITH EC PLUG FANS (ERV-IC ECP)

### 1 INTRODUCTION

#### 1.1 Safety Considerations



#### **IMPORTANT**

**DO NOT LEAVE HEAT EXCHANGER 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 fire, electrical shock or other conditions which may cause personal injury or property damage and will void the warranty. Check with Air Change or 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.

## 1.2 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 SAA wiring rules and local authority codes. Installers must ensure that all statutory regulations and by laws have been addressed.
- 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.

## 1.3 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. The unit was tested and inspected prior to packing and was in perfect condition at that time.
- Check unit rating plate to ensure the correct unit matches the job specifications.

## 1.4 Unit handling

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

### 1.4.1 Lifting

- Exercise extreme caution when lifting unit. Make careful consideration of the unit's centre of gravity and distribute the weight evenly. Test load to see if the weight is equally distributed. Do this by lifting the unit a few centimetres off the floor and holding it there before lifting any further or before transporting the unit.

- For further guidance on safe lifting, see the National Occupational Health and Safety Commission Manual Handling documentation.

## 2 INSTALLATION

### 2.1 Location

#### 2.1.1 General

- The prime function of the unit is to deliver pre-conditioned fresh air by transferring the energy from the already air conditioned stale return air. Therefore the unit must be located away from a location where the 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.
- ERV-IC units are design for internal installation and are not weather-proof.

#### 2.1.2 Ductwork considerations

- The unit should be situated centrally, or close to the point of use, to prevent unnecessary long runs of ductwork.
- Use only the minimum sized ducting for the spigots supplied.
- Acoustic, insulated spiral ducting is preferred for quietness and performance.

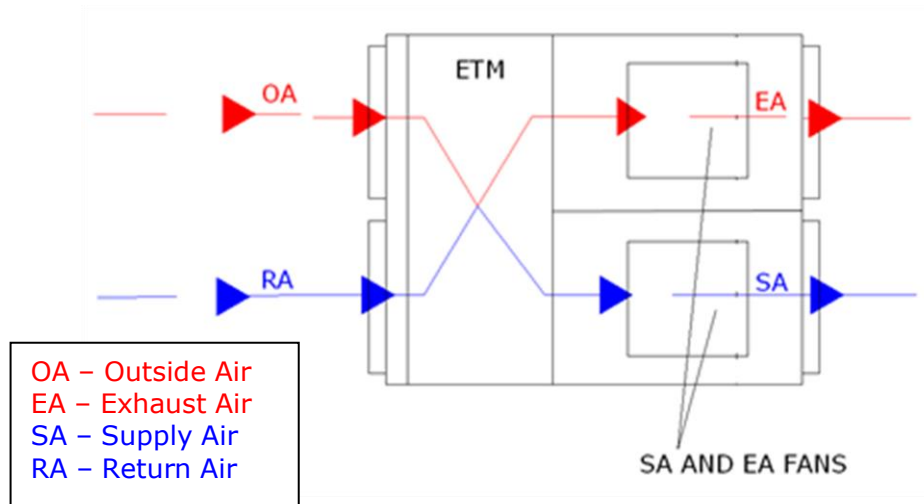
#### 2.1.3 Inlet/Outlet precautions

- The exhaust discharge should be ducted to outside and 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.
- Fresh-Air inlet should be fitted with a weather shelter and inlet and exhaust points should be minimum 6m apart.

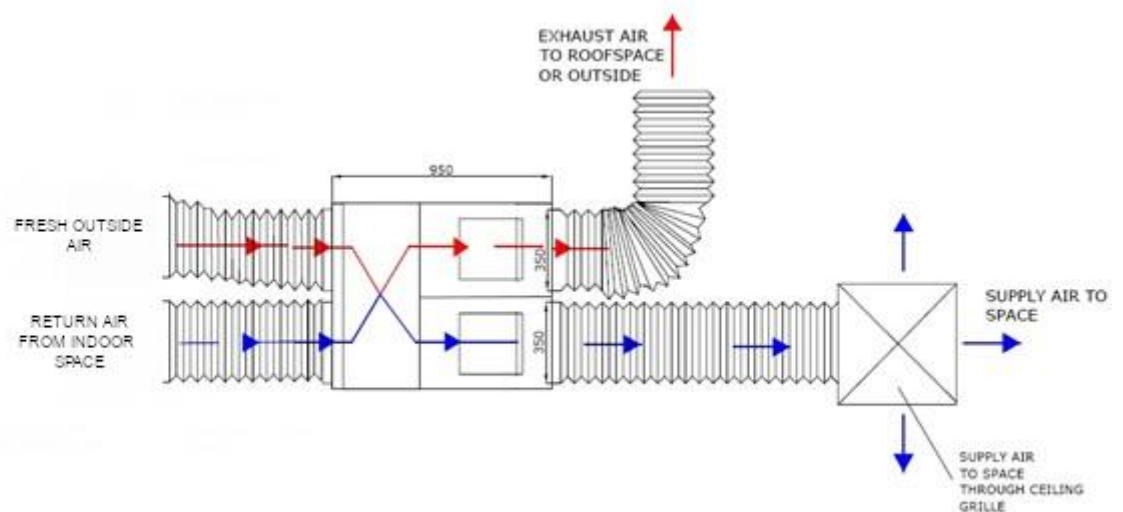
### 2.2 Installing the Unit

- Before suspending the unit, check the supporting beams to be used to verify that it has sufficient load carrying capacity to support the weight of the unit.
- Allow 660 mm working clearance on the discharge side of the ERV-IC to allow for fan maintenance.

- Unit inlet and outlet connections are as follows. The unit can be handed either way.



- Shown below is a typical installation example (ducts supplied by others)



## 2.3 Electrical/Electronic Connections

### 2.3.1 Mains power supply and fusing

- A power supply rated at 240V 1 phase, 50Hz is required to operate two fan motors within manufacturer's tolerances (Models ERV-IC 200-ECP and 400-ECP)
- A power supply rated at 415V 3 phase, 50Hz is required to operate two fan motors within manufacturer's tolerances (Models ERV-IC 600-ECP, 900-ECP, and 1200-ECP)

- Mains cables and control circuit wires are to be connected as per wiring diagram and all wiring must comply with relevant local wiring rules.
- Refer to separate electrical diagrams for electrical connection details.

### **2.3.2 Electrical Connection and Supply Size Precaution:**

- We recommend an isolator be mounted externally to the unit (not supplied) and a suitably sized fuse mounted back at the distribution board to provide local isolation during service and maintenance periods, or simply remove plug.



## **2.4 Ducting**

- Ducts should be fitted to the Supply Air, Exhaust Air, Return Air and Fresh Air inlet.
- Fan inlet conditions can affect the fan performance, particularly ducting elbows which can cause non-uniform inlet flow and swirl at the inlet. To reduce losses due to fan system effect, adequate length of straight duct between elbow and fan inlet should be provided or turning vanes used in the elbow.

### **2.4.1 Duct Sizing**

- Please refer to separate unit drawings for duct sizes.

### 3 SYSTEM COMPONENTS

- The unit employs 100% outside air and comprises of the following components:

#### 3.1 Cabinet

- Prefabricated wall and ceiling panels of are constructed of 1.2mm galvanised sheet metal, bonded to 12mm polyurethane film faced insulation.

#### 3.2 Fans

- Supply and exhaust fans are backward curved EC plug fans.

#### 3.3 Heat Exchanger

The air-to-air heat exchanger of ERV-IC ECP units is available in the following formats:

- The Energy Reclaim (enthalpy) counter flow enthalpy heat exchanger incorporated into the unit will reclaim up to 75% of the energy (under normal operating conditions) from the space return/relief air to 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.
- The Heat Reclaim (sensible) counter flow heat exchanger incorporated into the unit will reclaim up to 80% of the heat (under normal operating conditions) from the space return/relief air to outside air i.e. to pre-treat the outside air. This results in a saving up to 80% on the cost of heating or cooling the outdoor air.

#### 3.4 Filters

- Air Change ERV-IC ECP units incorporate internal panel filters for the outdoor air and the return air. Refer to the separate unit drawings for filter sizes.



**IMPORTANT: 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.**

### 4 Technical Specifications

#### 4.1 Schematic Dimensional Data

- Refer to separate dimensional diagrams for dimensional information.

#### 4.2 Electrical Diagrams

- Refer to separate electrical diagrams for electrical information.

## 5 SERVICE & MAINTENANCE

### 5.1 Heat Exchangers - Air Change Enthalpy Heat exchangers



**WARNING:** Always disconnect power supply and switch off unit before attempting to remove parts for cleaning.



**IMPORTANT:** Return and Fresh air filters must be changed/cleaned regularly to ensure airflow is unrestricted. 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. (if required)

#### 5.1.1 Enthalpy Heat exchanger Maintenance



**IMPORTANT: DO NOT WASH THE ENTHALPY HEAT EXCHANGER**

- **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 ATTEMPT TO CHANGE THE LENGTH OF THE HEAT EXCHANGER BY REMOVING END PLATES AND PLASTIC PLATES.**

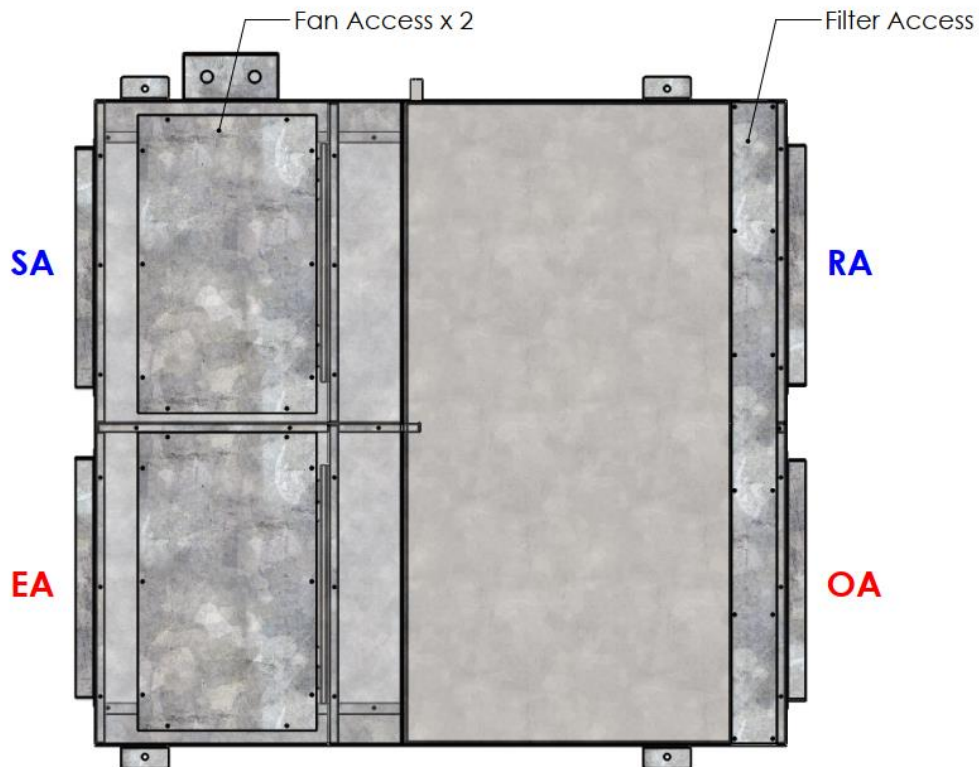
This can mean that the media between the plates is dislodged from its position and therefore will cause lack of performance through increased pressure drop through the heat exchanger or damage to the transfer media. Any tampering with the heat exchanger may invalidate our warranty and Air Change will not be held responsible for lack of performance or pressure drop.

## 5.2 Fan Access and Filter Access



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

- Fan and filter access is achieved from the underside of the unit as per the below diagram.




**Bottom View**

### 5.3 Maintenance Schedule

#### 5.3.1 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.



**IMPORTANT: Failure to carry out regular maintenance 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.**

#### 5.3.2 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.

#### 5.3.3 Three-Monthly Checks

- Check all cabinet panels for correct fitting, alignment and seals, and clean cabinet as required. Ensure no insulation has been detached from panels.
- All electrical terminals should be checked for tension on each maintenance visit with main switch off.

#### 5.3.4 Annual Maintenance

- Repeat monthly and three-monthly checks
- Measure and record the amperage of each motor against nameplate details.

#### 5.3.5 Unit Inspection

- HVAC cleanliness inspection schedule recommended intervals as below:

Classification	Air Handling Unit	Fresh-Air/Supply Ductwork	Return/Exhaust Ductwork
Industrial	1 Year	1 Year	1 Year
Residential	1 Year	2 Years	2 Years
Light Commercial	1 Year	2 Years	2 Years
Commercial	1 Year	2 Years	2 Years
Healthcare	1 Year	1 Year	1 Year

Source: ACR 2002 Assessment, Cleaning and Restoration of HVAC Systems

## 6 TROUBLE SHOOTING GUIDE

### Trouble Shooting Guide

Problem	Probable Cause	Correction Method
Tripped circuit breaker	Short circuit or overload.	Trace and correct
	Earth leakage or overheating cables due to high load	Megger and replace as necessary
	Power fluctuations	Contact electricity supplier

## 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] 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.

### 7.1 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**

<b>Project Name:</b>			
<b>Address:</b>			<b>State:</b>
			<b>Post Code:</b>
<b>Reported By:</b>		<b>Phone:</b>	
<b>Site Contact:</b>		<b>Phone:</b>	
<b>Model#:</b>		<b>SERIAL #:</b>	

<b>Details of Problem:</b>
----------------------------

<b>Signature:</b> _____	<b>Position/Print Name</b>
-----AIR CHANGE OFFICE USE ONLY-----	

<b>Warranty Claim Number (WAN):</b>	<b>Approved / Declined</b>	<b>BY:</b>	<b>DATE:</b>
-------------------------------------	----------------------------	------------	--------------

<b>Details of Approval / Decline:</b>
---------------------------------------

<b>Service Agent:</b>	<b>M1 PO#</b>
<b>Technician Name:</b>	<b>Phone:</b>

<b>Parts List:</b>	<b>Send Date:</b>
	<b>Invoice#:</b>
	<b>Receive Date:</b>
	<b>Credit#:</b>

**Completion Date:**    /    /    

**Client Informed on:**    /    /

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

**7.2 Details of Servicing**

DATE	CONTRACTOR/SERVICING FIRM	DETAILS
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		
__/__/__		



## **WARRANTY POLICY**

**For the SALE AND SUPPLY OF PRODUCTS From  
AIR CHANGE AUSTRALIA PTY LTD  
(ABN 53 121 537 620)**

### **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](http://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 Product(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 Air Change, at its absolute discretion, may offer the Purchaser a 12 month labour warranty ("Labour Warranty") at an additional cost of 2.5% of the Price plus GST subject to the Warranty Conditions and this clause 4.

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 \$85.00 per hour and refrigerant shall be no more than \$45.00 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.

WV2.01/20