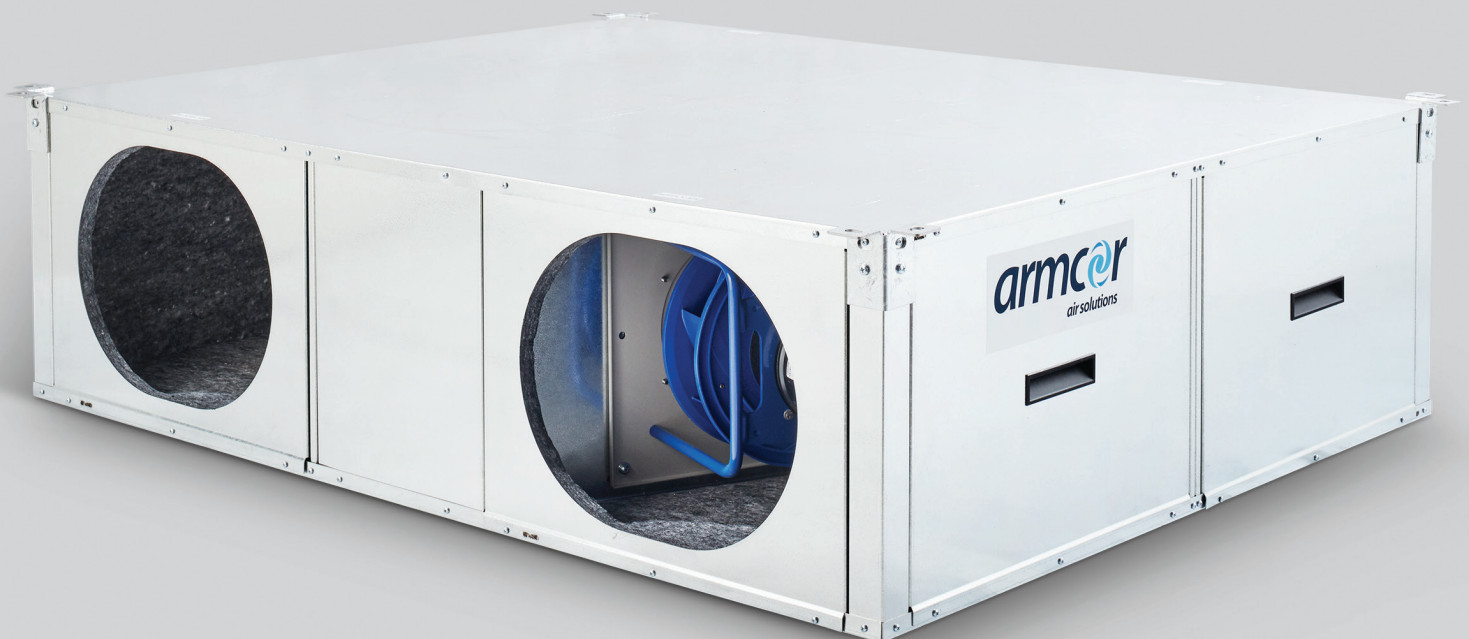


Installation and Operation Manual

XCM-COMPACT MULTIFLOW ERV
XCM125 – XCM1225



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Equipment Application

The **XCM** series is a compact, horizontal low profile heat recovery unit designed for installation within a roof space, underfloor or in a plant room.

These ERV units utilize the Xchange plate heat exchanger to recover the energy from the exhaust air into the incoming fresh air, resulting in significant energy savings.

Centrifugal or EC Plug Fans are available with either enthalpy or sensible heat exchange media.

Every proposed installation must be subject to an engineered design by a mechanical services consultant.

Armcor Air Solutions is not responsible for performance of equipment in applications for which the equipment was not designed or specified.

XCM Specifications

| Model Number | Airflow Capacity (l/sec) | Fan | Filter Size (mm) | Number of filters | Weight (kg) | Dimensions (mm) H x W x L |
|--------------|--------------------------|---------|------------------|-------------------|-------------|------------------------------|
| XCM125P1 | 125 | EC Plug | 395 x 245 x 45 | 2 | 65 | 290 x 690 x 920 |
| XCM225P1 | 225 | EC Plug | 395 x 395 x 45 | 2 | 80 | 440 x 690 x 920 |
| XCM325P1 | 325 | EC Plug | 495 x 395 x 45 | 2 | 100 | 440 x 830 x 1060 |
| XCM425P1 | 425 | EC Plug | 595 x 395 x 45 | 2 | 110 | 440 x 970 x 1200 |
| XCM625P1 | 625 | EC Plug | 895 x 395 x 45 | 2 | 130 | 440 x 1250 x 1480 |
| XCM925P1 | 925 | EC Plug | 895 x 595 x 45 | 2 | 210 | 700 x 1250 x 1550 |
| XCM1225P3 | 1225 | EC Plug | 895 x 395 x 45 | 4 | 245 | 830 x 1250 x 1550 |

Safety

Warning

Improper installation, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions, which may cause personal injury or property damage and will void the warranty.

Check with Armcor Air Solutions 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 to avoid the possibility of shock, injury, or damage to the equipment. There may be more than one power supply circuit.

Installation by Authorised Personnel

- Only trained and qualified personnel should install, repair or service heat recovery and/or air handling equipment.
- Installing and servicing equipment can be hazardous due to electrical and mechanical components.
- When working on equipment, observe precautions in all literature, tags and labels attached to or shipped with the unit. Follow all safety codes and guidelines. Wear work gloves, safety goggles and 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 support the equipment have been suitably constructed for the purpose, all safety precautions have been applied prior to installation, and all preparation work has been suitably sized and installed for its purpose.

Location of Equipment

It is important that the selected location for the equipment is suitable and can adequately accommodate the unit physical size, the unit weight and has safe and suitable access for correct operation and future maintenance requirements.

Minimum Access Requirements for Maintenance

- The unit must be mounted so that sufficient space is allowed for installation and service access.
- Maintenance personnel need to gain access to all parts of the unit and be able to remove components such as fans and filters via access doors as required.
- Unless otherwise specified the following minimum access should be available:
- 800mm clearance for electrical connections
- 1200mm for all access doors on the unit or if no access door is provided 1200mm from the front of the unit. Be very mindful that internal filters need to be accessed regularly for cleaning.
- Every proposed installation must be subject to an engineered design by a mechanical services consultant. Armcor Air Solutions is not responsible for installation of equipment in situations for which the equipment was not designed or specified.

Noise Levels

- Do not locate equipment adjacent to sleeping quarters unless background noise levels have been checked and permitted by the appropriate authority.
- It is recommended that rubber supporting or vibration absorbing pads be used to support the unit to minimise any vibration being transmitted into the building structure. We recommend waffle pad to be used under the base frame and flexible couplings be fitted to the supply and return ducts to reduce any vibration transfer.

Fresh Air Inlet and Exhaust Air Outlet

- The location of the fresh air inlets must adhere to the Australian Standards 1668.2.
- The fresh air intake should be positioned clear of any objects which could obstruct the airflow and be a minimum distance of 6 metres from any exhaust discharge ducts from this unit or any other adjacent equipment. Refer to Australian Standards AS 1668.2.
- The fresh air inlet and exhaust air outlet should be fitted with a cowl or other suitable means of weatherproofing.
- The exhaust discharge should be directed away from any openable windows.

Drainage

Due to different moisture content levels of incoming fresh air, heat exchange equipment can be subject to some condensation. It is recommended that units located in ceiling spaces or plant rooms are installed with external drain trays under the complete unit.

Where an internal drain tray is fitted, the condensate drain outlet must be fitted with a 'P-Trap' and have a minimum fall of 20mm per metre length.

- Equipment should be installed with a positive fall to ensure water drains away freely through drain outlets. Drain lines must be as large as or larger than the fitting to which the line is being connected.
- All condensate drains must have a 'P' Trap Fitted and have a minimum fall of 20mm per metre length.
- If drain lines are to be extended from the inside to the outside of the building, they must be extended beyond walls of the building to eliminate the possibility of damage caused by drain water running down the exterior surface of the building wall.
- When a drain is exposed to freezing temperatures or subject to the formation of condensation, the drain should be insulated.

IMPORTANT: ALL UNITS LOCATED INDOORS MUST HAVE DRAIN TRAYS UNDER THE COMPLETE UNIT.

Installation Instructions

Unpacking and Inspection

- The unit was tested and inspected prior to packing and was in perfect condition at the time at time of despatch.
- 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 contact is to be made with the Armcor Air Solutions sales office. A claim should be lodged with the shipping company within 3 days if goods are damaged or incomplete. No claims will be recognised after this date.
- **IF MAJOR DAMAGE IS APPARENT, DO NOT INSTALL UNIT ON TO SITE WITHOUT PRIOR APPROVAL FROM ARMCOR.**
- Check unit rating plate to ensure the correct unit matches the job specifications.

Unit Handling

- Protective crating or packaging and the pallets should not be removed 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 removal of packaging, all removable access panels should be opened to inspect for unit internal damage.

Lifting with a Crane

- **SAFETY** – when installing or working on equipment, always adhere to safety codes and guidelines. Wear safety goggles, work gloves, work boots and protective clothing.
- All units should be lifted into position using **SLINGS** and not **CHAINS**. (Chains may damage exterior finish on the fan unit).
- Where units must be craned into position, installers must check unit weight is within the safe tolerance of the working capacity of the crane.
- Prepare for lifting with spreaders as you would do with lifting air conditioning equipment.
- When lifting equipment never stand under the load.
- Beware of lifting equipment on to roof areas in windy conditions. Only lift when weather conditions are favourable.

Lifting with a Forklift

- Exercise extreme caution when lifting with a forklift. Do not exceed the height limit of the forklift and

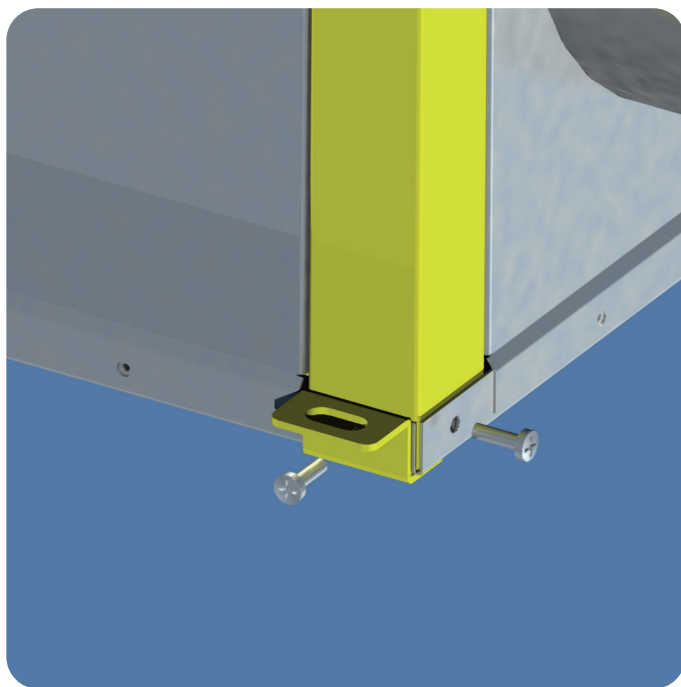
never allow the forklift forks to make contact directly with the bottom panel of the unit.

- Make careful consideration of the unit's centre of gravity and distribute the weight equally on both forks. Test load to see if the weight is equally distributed. Do this by lifting the unit a few centimetres off the ground level and checking stability before lifting any further or before transporting the unit.

Suspending the Unit

- Before suspending the unit, check the supporting beams have sufficient load carrying capacity to support the weight of the unit. Equipment is supplied with brackets to support the unit.
- We recommend that all compact multiflow units be suspended or supported with suitable mounting springs to eliminate the transmission of vibration.
- At each corner of the unit, there are 6mm bolts and captive nuts. The bolt can be removed and a hanging bracket attached to this fixing point if required.

Hanging Bracket Fixing



- Remove 6mm corner bolt.
- Align bracket and re-fit corner bolt.
- Secure with two additional self-drilling screws through base

Equipment Connections

Ductwork

- Air distribution ductwork must be designed to allow for the specified air flow without excessive pressure levels. The unit should be situated as close as possible to the point of use to prevent unnecessary long runs of ductwork.
- Sheet metal ductwork is recommended for use with all Armcor Air Solutions equipment.
- Ducts should be insulated in accordance with *BCA Section J-5*.
- Fan inlet conditions can affect the fan performance, particularly where duct bends cause a non-uniform flow and swirl at the inlet. To reduce losses due to fan systems effect, adequate length of straight duct between any elbow and the fan inlet should be provided or turning vanes used in the elbow.
- Poor fan outlet conditions will also affect the fan performance. We recommend a minimum of 1000mm of straight duct directly after the fan outlet.

Filters

- 50mm panel filters are a minimum recommendation for all equipment.
- Filters must be fitted to fresh air and/or return air.
- If the filters in the unit are not accessible for cleaning, the installing contractor is responsible to incorporate filters in the ductwork system external to the unit.
- It is recommended that temporary disposable filters are used during construction and commissioning.

IMPORTANT: NEVER OPERATE A UNIT WITHOUT FILTERS FITTED TO THE RETURN AND FRESH AIR INTAKES.

WARRANTY IS VOID IF THE FILTERS ARE NOT FITTED AND REGULARLY CLEANED OR REPLACED.

Electrical Requirements

- The power requirement and voltage are detailed on the equipment technical specifications (available on our website armcor.com.au) and are on the identification/serial no. plate attached to each unit.
- An electrical diagram is attached to the electrical box on the unit.

Mains Power Supply and Fusing

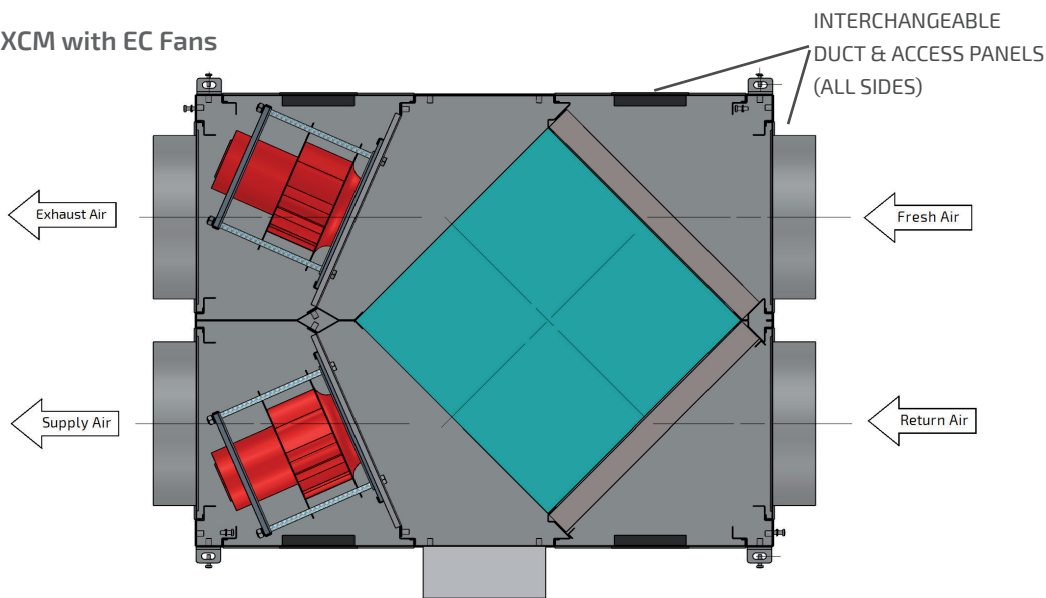
- A single-phase power supply rated at 240v (+/- 5%) 50Hz or a 3-phase power supply rated at 415 volts is required to operate the unit within manufacturer's tolerance. Check the name plates for correct voltage.
- We recommend an isolator be mounted externally to the unit (not supplied) and a suitably sized circuit breaker mounted back at the distribution board to provide local isolation during service and maintenance periods.
- Main cables and control circuit wires are to be connected as per wiring diagram.
- All wiring must comply with relevant local wiring regulations.
- The units require a main circuit breaker or HRC fuse capable of handling the full load of the unit and selected in accordance with SAA Wiring Rules.
- All wiring is to be independently colour coded.
- Single phase fan motors are internally protected and there is no need for external overloads.

Equipment Layout

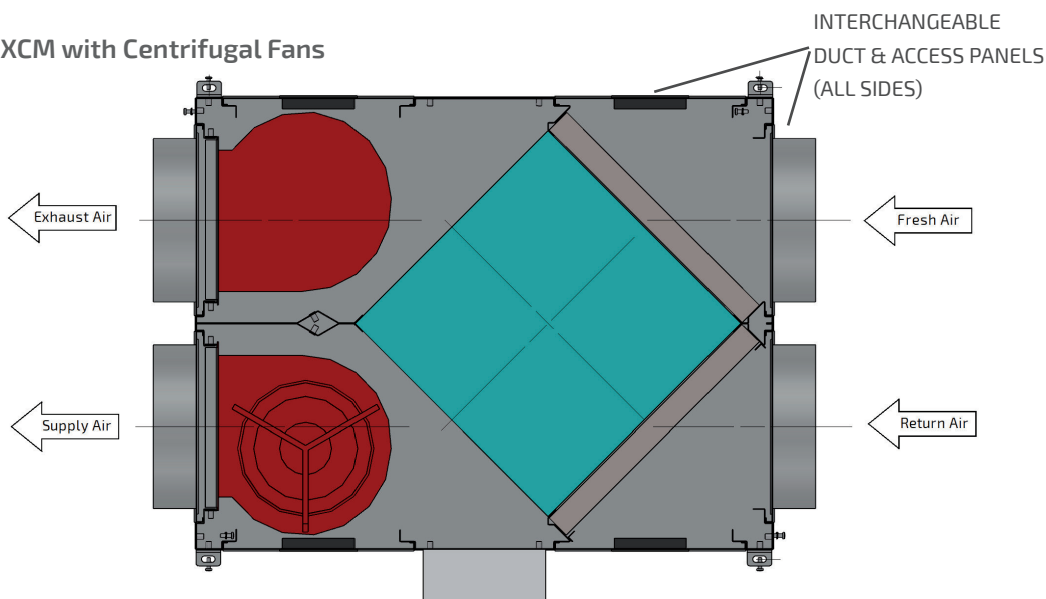
The Armcor Compact Multiflow ERV is designed to provide multiple options for duct connection and access to fans/filters. Interchangeable panels can be removed and repositioned on-site to provide options for every installation.

| | |
|--------------------|---|
| Return Air | Air that is drawn from conditioned area. |
| Exhaust Air | Ducted to outside the building or into the roof space if adequate ventilation is available. |
| Fresh Air | Use a fresh air cowl or grill to introduce fresh air. |
| Supply Air | Connect to the Airconditioning system or directly into the conditioned area. |

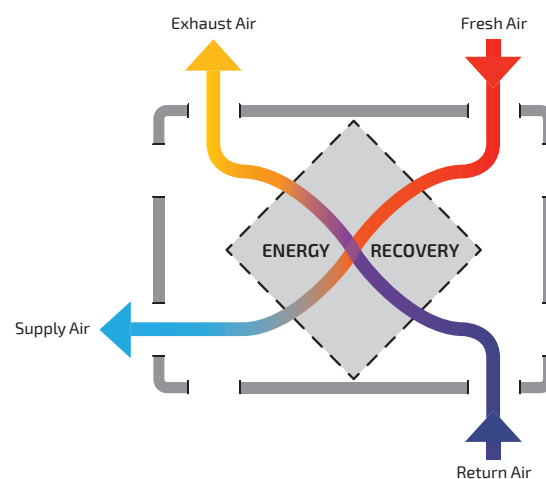
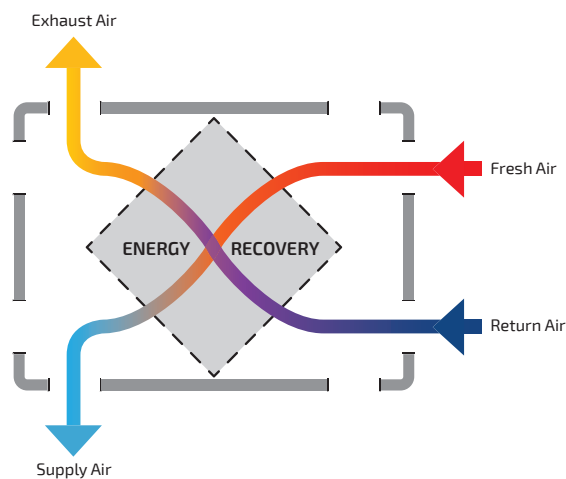
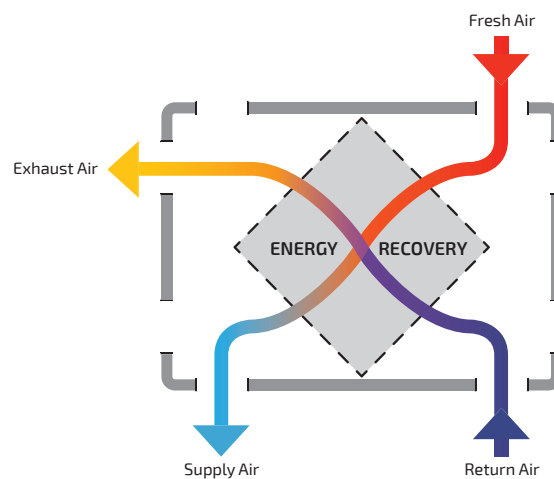
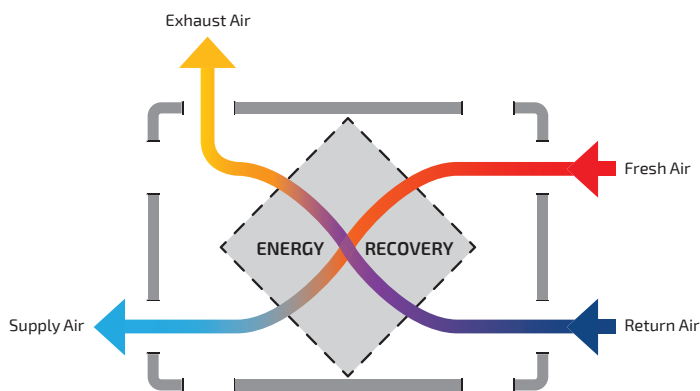
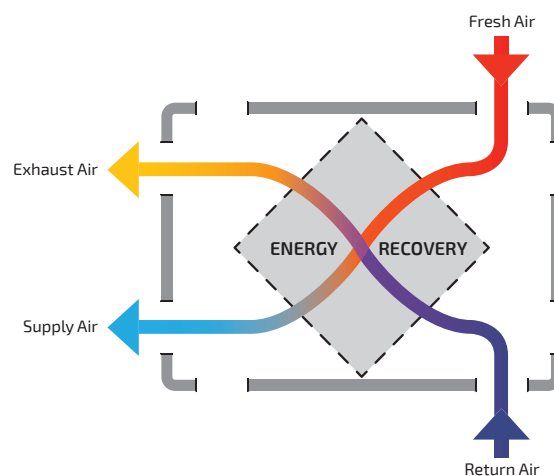
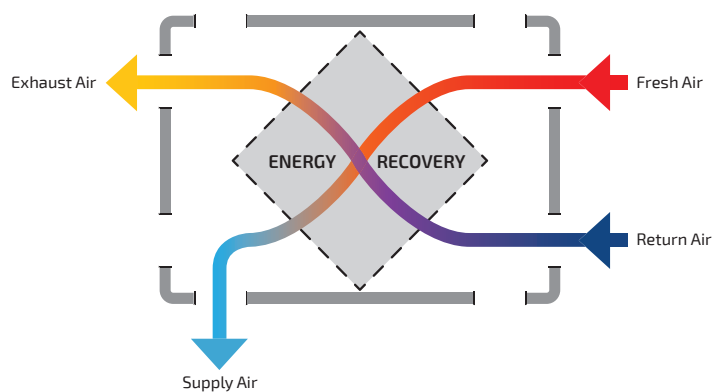
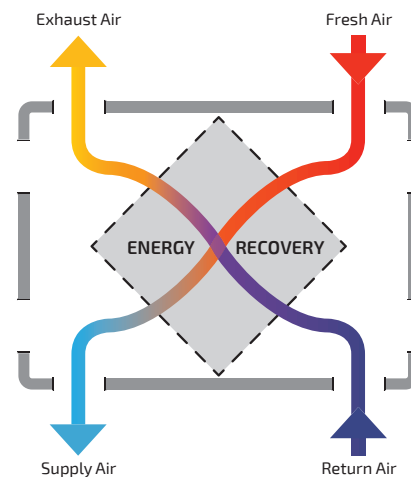
XCM with EC Fans

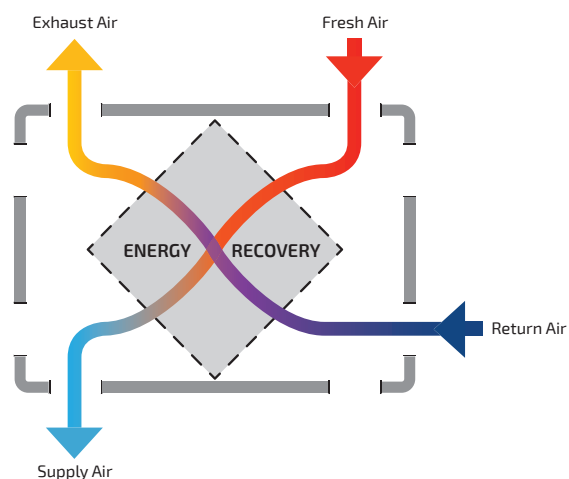
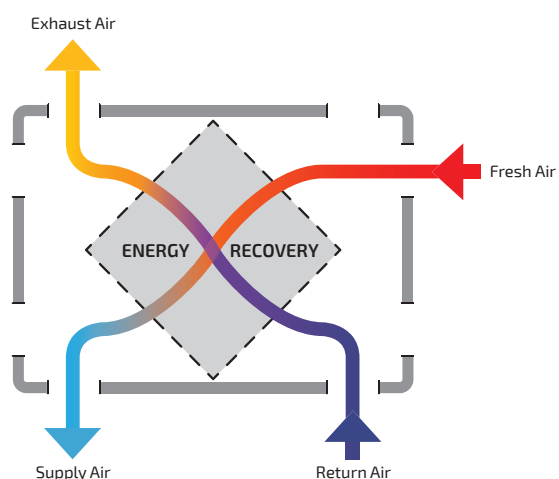
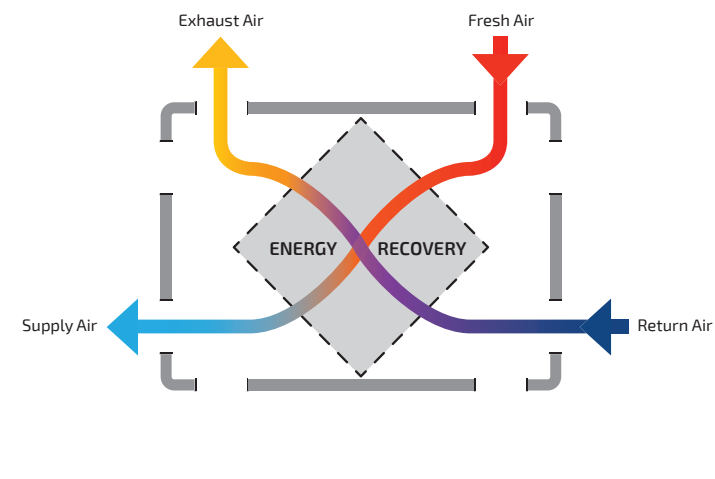
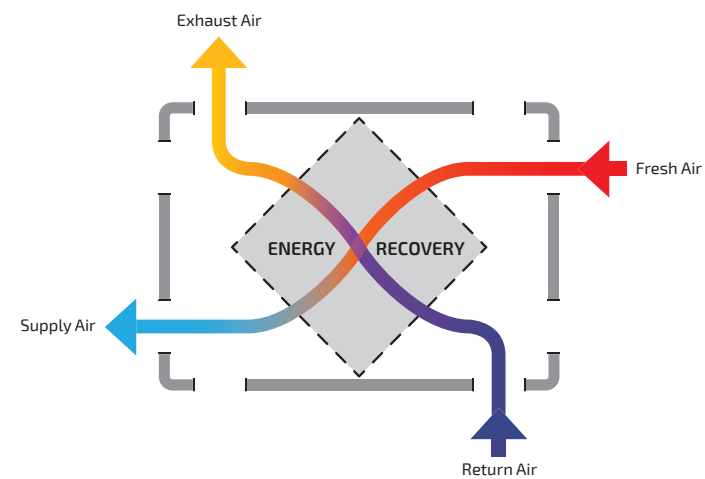
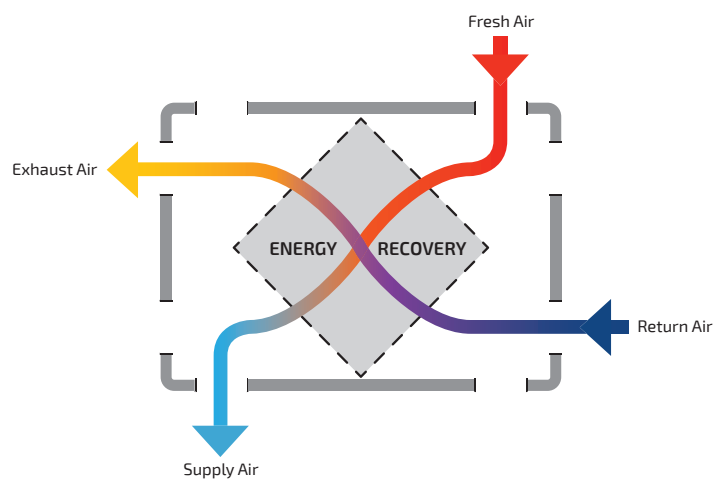
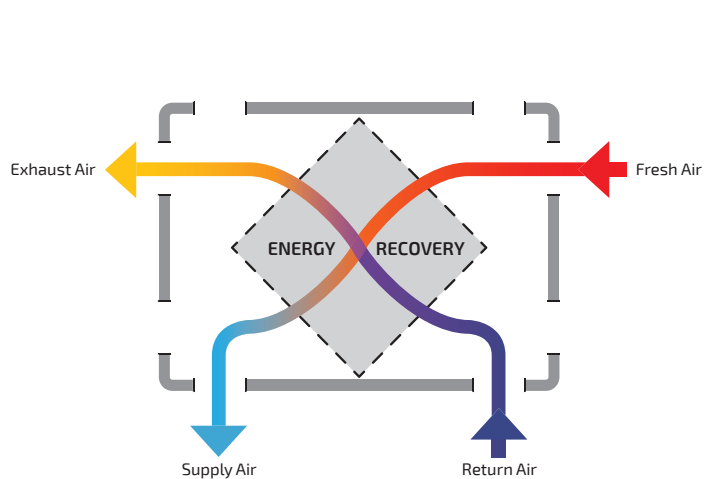
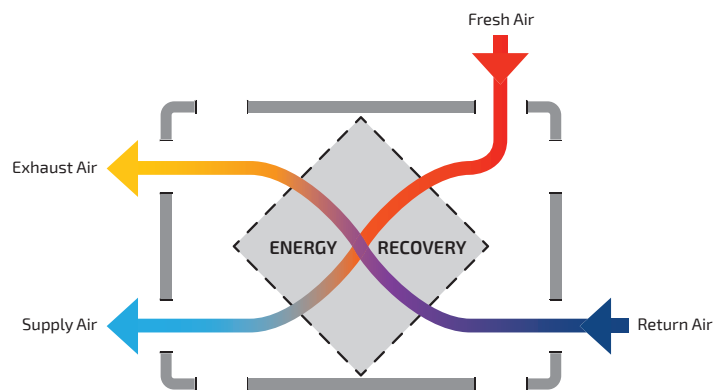
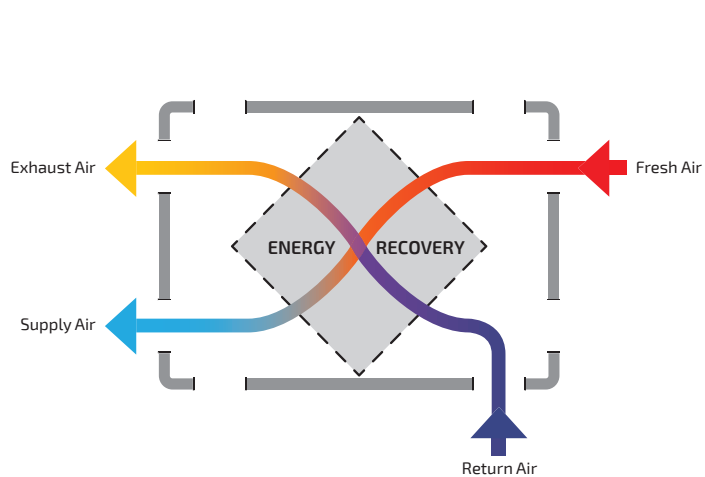


XCM with Centrifugal Fans



OPTIONS FOR EVERY INSTALLATION





XCM With Centrifugal Fans

Step by step directions for changing fan discharge direction on-site.

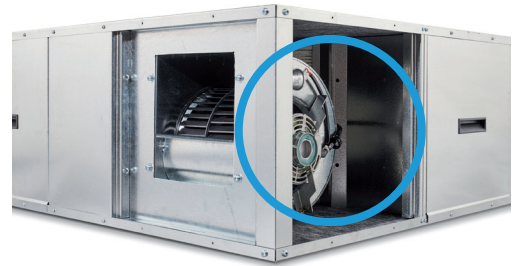
Step 1

Remove the duct spigot panel to expose the fan mounting plate.



Step 2

Remove the fan access panel.



Step 3

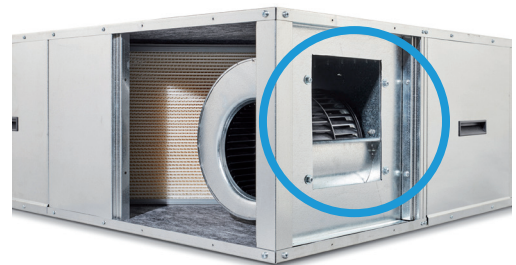
Remove the 4x fan plate mounting bolts.



Step 4

Rotate the fan to become side discharged and reattach with the 4x fan plate mounting bolts. Take care not to damage the heat exchange modules. Check the fan wiring is connected and will not interfere with fan operation.

Note: On XCM625 and XCM925, the top panel of the unit will need to be removed to allow good access to change fan direction. On XCM625, the centrifugal fan may also need to be rotated 180°



Step 5

Replace the fan access panel.



Step 6

Replace the duct connection panel.

Test unit then attach ductwork.

Note: Equipment come standard with front discharge.



General Maintenance

General

- All Armcor equipment is designed for easy maintenance.
- Preventative maintenance programs will vary according to actual operating conditions and location and hours of usage by the client.
- Armcor Air Solutions are pleased to provide expert advice on special service maintenance requirements for particular installations.

IMPORTANT: Failure to carry out regular maintenance with a licensed and reputable service company may render warranty claims invalid if faults have been caused by lack of proper maintenance. Armcor Air Solutions may request to see the completed maintenance schedule report.

Monthly Maintenance Schedules

- Monthly maintenance is usually focused on air filters and visual checks to monitor any operational deficiencies. The type of filter and frequency of cleaning should be addressed by the installing contractor to suit the customer's requirements.
- Filters should be inspected 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.
- Check condensate drain (if applicable) for free drainage.

Guide to How Frequency According to Usage is Established

- **Disposable Corrugated Filters.** Standard disposable corrugated filters should last approximately one month in normal commercial use with 8 hours per day continuous operation, or longer depending on usage.
- **Cleanable Filters.** Washable filters should be cleaned once a month and the filter media should be replaced every 12 months.
- In dusty environments, filters may need to be checked and cleaned more regularly. In clean environments, filter may only need to be cleaned every 2 months.

Three Monthly Checks Maintenance Schedules

- Repeat the monthly schedule.
- Check blower wheels for dirt build-up and tightness on shaft.
- Check all cabinet panels for correct fitting, alignment and seals, and clean cabinets as required. Ensure no insulation has been detached from the panels.
- All electrical terminals should be checked for tightness.

IMPORTANT – Ensure the main switch is turned off before opening the electrical box.

- Check and clean heat exchangers, heating/cooling coils, drain trays and outlets. (If applicable). Vacuum or brush clean as necessary.

Annual Maintenance Schedules

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

Pre-start Checklist

| Unit Installation And Connections | |
|--|--------------------------|
| Check that equipment is fully installed in accordance with the installation instructions | <input type="checkbox"/> |
| Visually check that air flows will not be obstructed | <input type="checkbox"/> |
| Electrical | |
| Visually check all field wiring | <input type="checkbox"/> |
| Tighten all electrical connections including all factory wiring connections | <input type="checkbox"/> |
| Ensure supply cable is correct size | <input type="checkbox"/> |
| Check the required supply voltage is available on all phases | <input type="checkbox"/> |
| Check overload settings are correct (if applicable) | <input type="checkbox"/> |
| Filters | |
| Check that both the fresh air and return air have adequate filters before starting unit | <input type="checkbox"/> |
| Starting Unit | |
| Check Fans and Air Flows | <input type="checkbox"/> |
| Turn on all circuit breakers | <input type="checkbox"/> |
| Make sure all dampers are open | <input type="checkbox"/> |
| Turn on control circuit and activate fans | <input type="checkbox"/> |
| Turn on supply fan, run and conduct an air balance (Fans do not require phase rotation) | <input type="checkbox"/> |
| Turn on exhaust fan, run and conduct an air balance | <input type="checkbox"/> |
| Check fan current draw for each fan individually | <input type="checkbox"/> |

Commissioning Checklist

| General | |
|--|----------------|
| Air Filters: Overall Size and Number | |
| Drainpipe Traps and Vents fitted to Indoor Unit as per Installation Instructions | Y / N |
| Check Vibration of Unit | OK / EXCESSIVE |
| Cabinet Panel Finish Checked and Repaired | Y / N |
| Ducting | |
| Total Return Air Flow (L/s) | |
| Total Fresh Air Inlet Air Flow (L/s) | |
| Total System external resistance (Pa) Measured downstream of fan outlets | |
| Estimate of Fresh Air Make Up (% or L/s) | |
| Electrical | |
| Supply Voltage | |
| Supply Fan Motor Amps | |
| Exhaust Fan Motor Amps | |
| Total Unit Amp | |
| Thermostat Settings (°C) | |
| Thermostat Operating Correctly | Y / N |
| Contactors & Relays Operating Correctly | Y / N |
| All Terminals Checked for Tightness | Y / N |

Troubleshooting Guide

| Problem | Probable Cause | Correction Method |
|---------------------------------|---|---------------------------------|
| Lock Out Due to Electrical Trip | Voltage Problem | Check phase voltage and rectify |
| | Insulation breakdowns | Replace faulty component |
| | Loose Terminals | Tighten or replace as necessary |
| | Dirty contactor controls | Clean and/or replace |
| Tripped Circuit Breaker | Short circuit | Trace and correct |
| | Earth leakage or over heating cables due to high load | Meggar and replace as necessary |
| | Power fluctuations | Contact electricity supplier |
| Lack Of Air Flow | Blocked filters | Clean or replace filters |
| | Fans stopped | Check electrical |

Warranty

The Armcor Air Solutions Warranty Policy should be read in conjunction with the Terms and Conditions of Sale. These are available on our website – armcor.com.au

What The Warranty Policy Covers

The standard Armcor warranty policy is a parts only warranty for a 12-month period. If any defect in your Armcor equipment is caused by **FAULTY MATERIALS** within the warranty period, starting from the date of original purchase it will be rectified or replaced without cost.

Additional labour warranty is available and must be purchased at the time of ordering in accordance with the warranty policy.

What The Warranty Policy Does Not Cover

- Consequential damage.
- Failure to start due to voltage conditions, blown fuses or other damage cause by inadequate or interrupted electricity supply.
- Damage caused by accident, misapplication, abuse, alteration, tampering or servicing by anyone other than an authorized person.
- Damage resulting from incorrect installation, commissioning or use other than in accordance with the installation and operating instructions issued by Armcor Air Solutions.
- Damaged caused by using equipment being located in a corrosive atmosphere or by filter neglect.
- Costs incurred for regular maintenance services.
- The original service call costs in identifying a warranty claim.
- Freight and travel changes for work performed or parts supplied outside of all capital cities in Australia.
- Field wiring, refrigerant pipe run between units, the condensation drainpipe, or other accessories.
- Any warranty work performed by Armcor Air Solutions outside of Melbourne metro area will require the installing contractor to provide free of charge: Oxy/Acetylene Equipment, Dry Nitrogen, Vacuum Pump, Refrigerant Gas, Reclaim Bottles,

Recovery Unit, and any other associated refrigerant tools.

The Warranty Will Not Apply If;

- Any appliance plate is altered or removed.
- Armcor Air Solutions has not been notified within 48 hours of any fault occurring which may require warranty work.
- Any unauthorized modification has been made to the equipment or any part has been substituted or replaced with non-original items.
- Regular service has not been carried out by an appropriate. Armcor approved, licensed installer.
- The unit is used other than for the heating and cooling of air for human comfort – unless approved by Armcor Air Solutions.
- The system is installed in a mobile application (e.g., caravan, boat, crane).

How to Make a Warranty Claim

Complete a warranty form available on our website armcor.com.au and return the Armcor Warranty Request Form to: service@armcor.com.au

Contact us direct by phone on 1800 244 556 or email service@armcor.com.au

Notes

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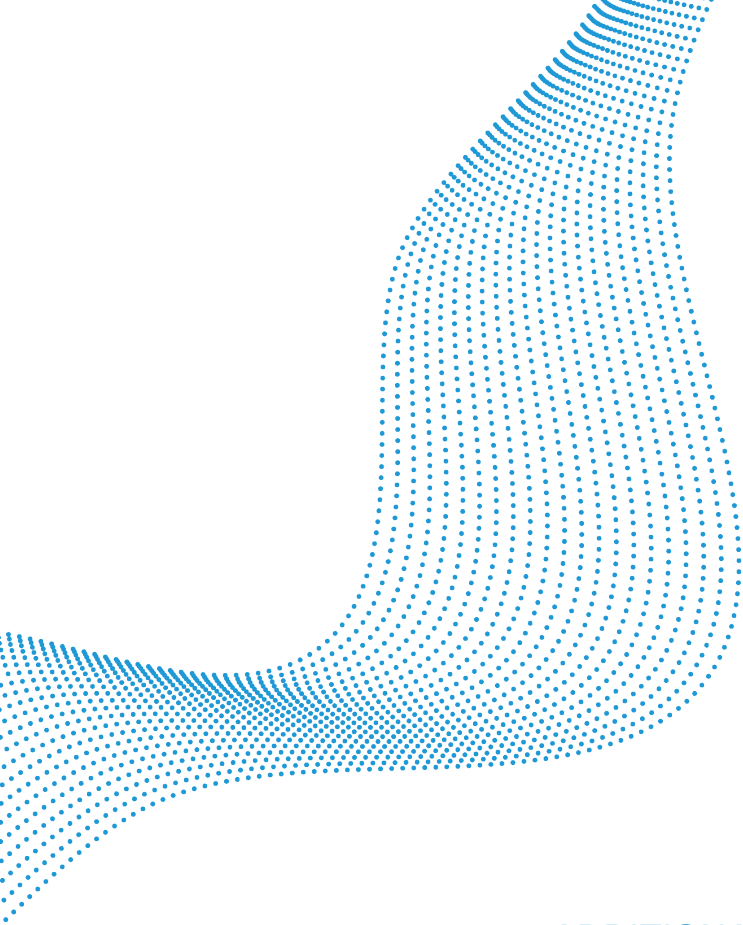
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ADDITIONAL INFORMATION

The XCM series is a compact, horizontal low profile heat recovery unit designed for installation within a roof space, underfloor or in a plant room.

Read more [here](#).

See our product [brochure](#).



Fresh Air Indoors

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