



MANSFIELD POLLARD
AIR MANAGEMENT EXPERTS

Integrated Reversible Heat Pumps PHP

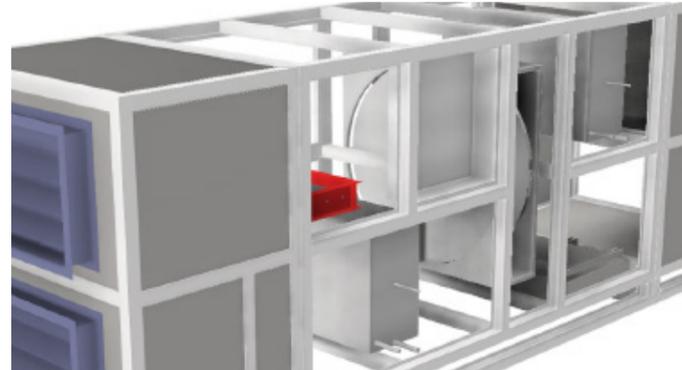


Introducing the e-therm range

As part of Mansfield Pollard's industry leading range of air handling units, the new and innovative e-therm packaged heat pump units combine the benefits of an energy recovery wheel with a reversible heat pump unit. The e-therm range has been designed to provide the best possible indoor climate with the least possible environmental impact.

Design Flexibility

Designed to provide customer flexibility, our range is available as a **Plug & Play** (with spigots to connect directly to a ducted system) or with **E.C supply and extract fans** for an ultra efficient fully packaged solution.



PACKAGED HEAT PUMPS for every application

The majority of our time is spent indoors within a working environment. Our range of integrated reversible heat pumps provide an easy & simple solution to temperature control in commercial buildings, offices, retail and healthcare environments, by providing a combined and compact heating and cooling solution.

5 PRE-WIRED CONTROLS
Intelligent energy saving technologies via an integral controls package

2 HIGH PERFORMANCE HEAT RECOVERY WHEEL
Latest high efficiency for maximum energy recovery. Built in purge system to minimise cross contamination

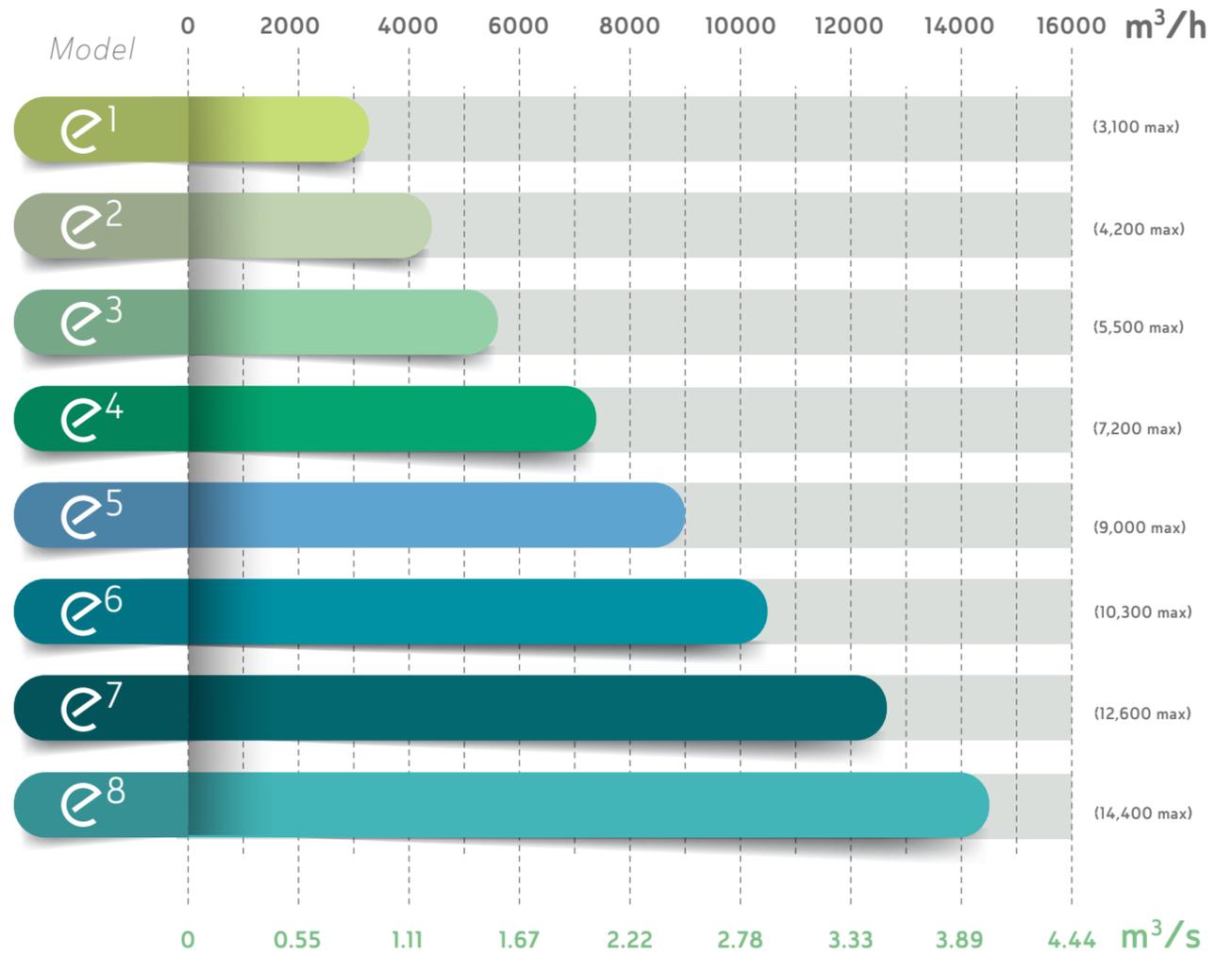
3 MODULAR OPTIONS
SPIGOT CONNECTIONS
Plug and play stand alone one piece unit only requiring connection to duct system and power supply

E.C. SUPPLY & EXTRACT FANS
Ultra energy efficient EC plug fan technology statically and dynamically balanced to ISO 1940 Part 1 standards

6 ROBUST CONSTRUCTION
Double skinned galvanised steel construction with reinforced edges for maximum stability and longevity.

4 HIGH EFFICIENCY COILS
Advanced coil technology delivers excellent thermal performance, reliability and longevity for any application including extreme environments.

1 COMPRESSOR TECHNOLOGY
Latest digital scroll compressors and electronic expansion valves allowing wide modulation range and high reliability.

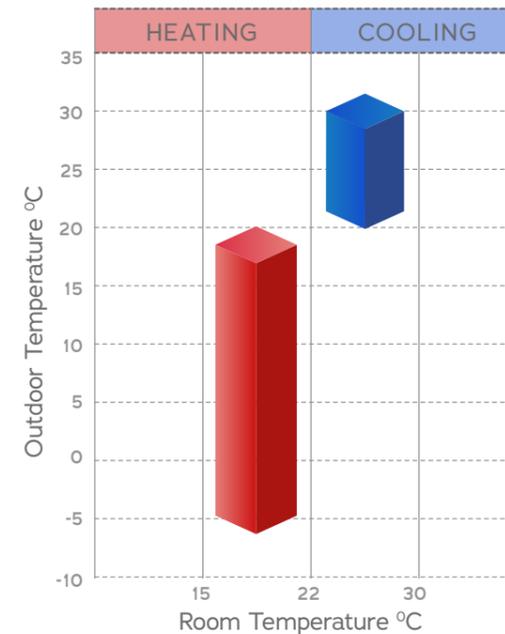


EFFICIENCY, RELIABILITY & MINIMUM ENVIRONMENTAL IMPACT

“As a rule of thumb, the average energy efficiency saving is 50% resulting in reduced operating costs and an associated reduction in CO₂ emissions impacting positively on the environment.”

“ The benefits to the e-therm packaged heat pump series extend far beyond energy savings.....

<p>High Performance</p>  <p>High efficiency fans combined with outstanding levels of heat recovery and energy saving controls</p>	<p>Low Noise</p>  <p>Continuous acoustic housing reduces breakout and provides a superior acoustic solution</p>	<p>Space Saving</p>  <p>As a modular unit, e-therm is designed to have a much smaller footprint than traditional alternatives</p>
<p>Sustainable</p>  <p>Combining maximum energy saving with efficient design mitigates any environmental impact</p>	<p>All in One</p>  <p>Utilising both heating and cooling technology for a complete package solution.</p>	<p>Cost Efficient</p>  <p>Plug and play 'one piece' unit minimises on-site costs and any maintenance downtime</p>
<p>Retro-Fit</p>  <p>Potential to retro-fit the PHP module on to existing AHU's to enhance existing systems</p>	<p>Robust</p>  <p>Superior build quality, low SFP's and airtight performance to BS EN 1886</p>	<p>Fully Compliant</p>  <p>Exceeds L2 Building Regulations, ErP 2015 compliant & achieves BB93 & BB101</p>



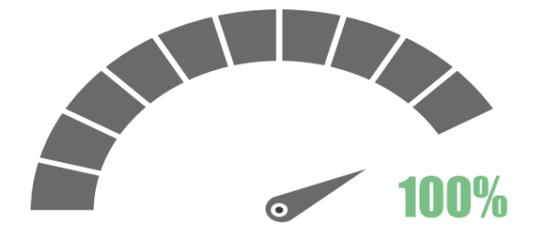
MULTI-FUNCTIONAL DESIGN

Every Climate: With a wide operational range, from -5°C to 30°C the e-therm series is suitable for every environment and caters for extremes of temperature.

Every Application: Suitable for every application where HVAC and 100% fresh air is needed by means covering all air treatment processes such as - Recirculation (0-100%)
- Heating/cooling/humidity cover
- Heating
- Cooling and dehumidification

Every Installation: Suitable for all types of mounting - indoor (plant rooms, shop floor etc.) and externally on rooftops.

ALL IN ONE OPERATION



TWO STAGE ENERGY RECOVERY TECHNOLOGY

STAGE 1	STAGE 2
<p>≥ 75%</p> <p>HEAT EXCHANGER</p> <p>The sorption rotary heat exchanger recovers more than 75% of the heating / cooling & humidity</p>	<p>≤ 99%</p> <p>HEAT PUMP</p> <p>The evaporator / condenser of the air-to-air heat pump recovers the remainder up to 99%</p>

100% DX Unit: No additional water, electric or DX heating/cooling coils are needed in the e-therm range which makes it totally independent to other additional heating / cooling sources including boilers, gas, chillers VRF systems etc.).

100% Factory Tested: Maximum reliability and reduced installation costs achieved by FAT testing. Each unit is fully tested and certified by our experienced engineers included leakage test, functional testing of fans and compressors, temperature, pressure and controls checks.

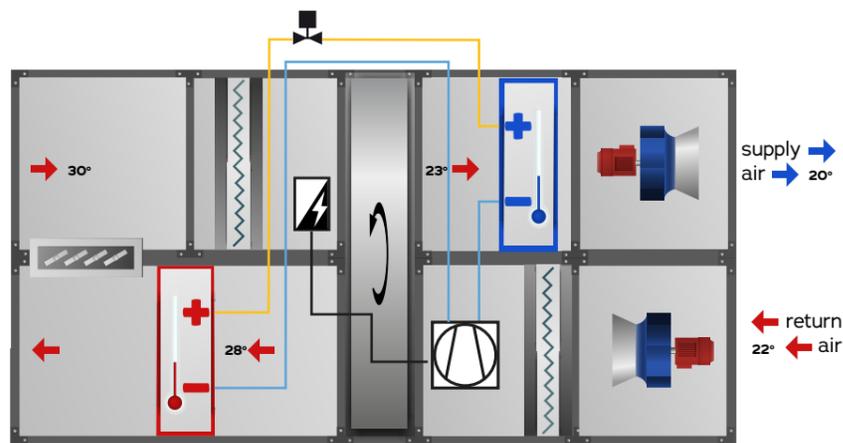
100% Flexible: Choose from a plug and play one piece unit with EC fans which only needs a power supply to start up, or a stand alone heat pump section with spigots ready to duct.



The e-therm packaged heat pump gives you exceptional energy efficiency - all year round.

INTEGRATED DX COOLING & HEATING

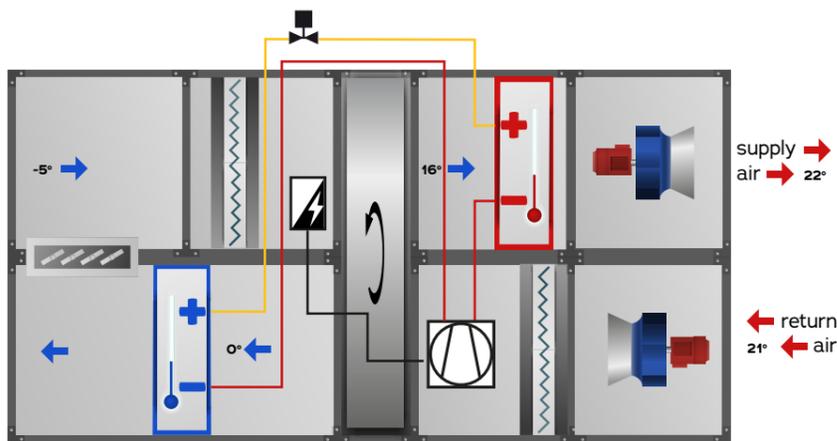
During the winter, the thermal wheel or rotary heat exchanger offers excellent heat and humidity recovery to ensure maximum energy efficiency and comfort. Whilst the wheel recovers much of the energy required, depending on weather conditions additional heating may be required. With an integrated e-therm heat pump, ultra-energy efficient additional heating can be provided whatever the conditions.



example summer set-up

Coils are placed after the wheel in both air streams, this optimises heat recovery and minimises energy to the compressor: 50% of cooling and 83% of heating is done by the wheel, remaining part done by heat pump.

Lower condenser temperature in summer means less energy to compressor.

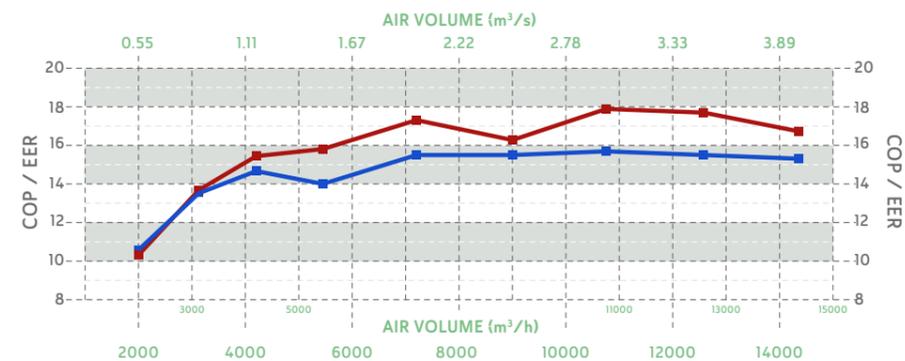


example winter set-up

Exhaust air coil benefits from room return temperature instead of external conditions

Higher evaporating temperature in winter means less energy to compressor.

BENEFITS FOR THE ENVIRONMENT



COP (coefficient of performance) is a measurement of the energy efficiency of heating performance and is the ratio of useful heat energy produced to electrical energy consumption.

EER (energy efficiency ratio) is the ratio of a unit's cooling output relative to its input power

BENEFITS FOR EVERYONE



PROPERTY OWNERS / END USERS

- High performance, low running costs
- Easy installation and low maintenance costs
- Compact design saving commercial floor space
- Factory tested for guaranteed performance
- Flexible operation provides comfort all year round
- Low refrigerant charge for reduced carbon footprint



CONSULTANTS / DESIGNERS

- Ultra-reliable operation even in extreme conditions
- Heat pump mode - no need for additional heating
- Maximum efficiency compressor technology
- Digital or inverter drive for best part load efficiency
- Best in class energy recovery sorption wheel
- Discreet and silent can be located indoors



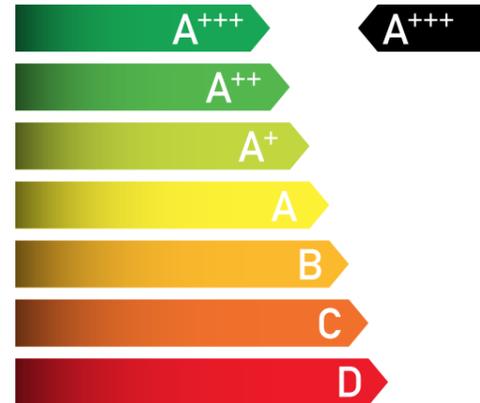
INSTALLATIONS / MAINTENANCE

- High performance - system downsizing
- Quick & simple install, no refrigeration work, power supply only
- Plug & Play - Modbus or analogue communications with AHU
- Low starting and running current, fuse and cabling downsizing
- Split version available, ideal for refurbishment

HIGHER THAN THE HIGHEST

According to EN 14825, the highest energy efficiency class for heat pumps is A+++. With the new method of rating efficiency via the seasonal coefficient of performance (or SCOP for short) figures of 3.75 (high temperature) and -4.38 (low temperature) equate to this rating.

With a SCOP figure of 3.8 / 6.5 (of the refrigerant circuit) and a COP_{net} of the whole system 5/15, the e-therm units are well placed ahead of the competition.



EFFORTLESS PERFORMANCE

- Minimised total internal pressure drop leading to ultra-low SFP's and fan energy consumption.
- Highest levels of total heating capacity (kW) achieved using a rotary heat exchanger and low energy consumption by the fans.
- Highest levels of total heating capacity (kW) achieved using a rotary heat exchanger and low energy consumption by the fans.
- Step less capacity control (as standard) expands the life expectancy of compressors.

“Incorporating both the latest evolution of EC Fans and premium thermal wheel technology, the e-therm series is one of the most efficient products on the market today.”



CONNECTIVITY & MOBILITY INNOVATIVE ENERGY CONTROLS

Mansfield Pollard controls systems are specifically designed to maximise productivity and minimise carbon emissions. Our products range from fully bespoke systems which seamlessly integrate into our customers BMS through to simple stand-alone control panels and all are designed and manufactured in-house at our specialist facility.

All our control panels are designed, built and tested in-house at our specialist facility and come ready for full integration into existing BMS systems. Our software engineers are experienced in many different HVAC controller solutions, enabling the best operational fit for your business. From simple to complex and small to large, we offer a range of HVAC control solutions to suit your particular requirements. Solutions are presented via a detailed schematic drawing package produced using AutoCAD Electrical.

Pre-configured AHU and HVAC software ensures an industry leading turn-around on design time, and a guarantee of tried & tested solutions.

MINIMAL DEFROST



The e-therm range of integrated packaged heat pumps can operate with minimal or often no defrost time due to innovative design. At any ambient condition, the humidity from the locality is absorbed and recovered up to 80% by the rotary heat exchanger and transferred to the supply air, moving the conditions of the air entering the evaporator away from frost forming conditions





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