

# 50 / 77kW



## > **StoreMaster**

Comfort cooling in retail environments

Typical applications

- > Superstore warehouses
- > Department stores
- > Retail outlets

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**NOW WITH R410A & EC FANS  
NEW HEAT PUMP OPTION**

# StoreMaster range

## Specifications

### StoreMaster

The StoreMaster range of fully-packed / split system air conditioning units now offers the flexibility of cooling or heating, with the addition of a highly efficient reverse cycle, dual circuit heat pump option. Designed for comfort cooling of superstore warehouses, department stores and other large retail outlets, the StoreMaster significantly reduces life cycle costs. Enhanced energy-efficient technology includes EC supply air fans; electronic expansion valves; R410A optimisation and 0-100% free-cooling.

### High technology, modulating controls

The StoreMaster utilises Airedale's most advanced microprocessor software control scheme. The intelligent, modulating AireTronix microprocessor manages and self-optimises the system's cooling / free-cooling / heat pump cycles, all of which can be optimised via a user-friendly, inbuilt display. The network-capable, fully-programmable controller can be integrated with a wide range of BMS protocols including Airedale BMS software; pCOWeb supervisory plug-in cards and other commonly-used protocols.

### Compact and easy to install

The top unit return and supply air duct connections make the StoreMaster a compact and easy 'plug and play' system to install. Removable access panels and simple filter replacement enables easy access for both service and maintenance on all major components.

### Key technical data

- > Two models: 50kW / 77kW nominal cooling capacity
- > 57 - 75kW heating capacity with heat pump option
- > High sensible cooling capacity
- > Hydrophilic coils - all models
- > Designed to support heavy ductwork
- > Packaged or split modules (evaporator / condenser)



### Key energy saving features



EER 7.5\* at 20°C (up to 27.1\* at 10°C)

- > 0 – 100% free-cooling
- > EC supply air fan
- > Reverse cycle, dual circuit heat pump option
- > Electronic expansion valves
- > Designed and optimised for R410A
- > Modulating AireTronix controls with remote access
- > Tandem scroll compressors on a single circuit (cooling-only version)
- > Pre-charged (packaged unit) and leak tested

\*Nominal free-cooling. Air temperature 24°C, RH 50%



## Standard features

- > Simultaneous DX / free-cooling with 3 full damper economiser sections allows 0-100% free-cooling
- > EC supply air fan technology for increased performance at reduced power input and low noise
- > Two stage single circuit DX cooling allows improved efficiency during part load operating conditions
- > Modulating AireTronix controller allows intelligent unit control and full communication to on-site BMS
- > Hydrophilic coils on both heat exchangers help protect from corrosion and improve moisture management
- > Intelligent head pressure control for efficient operation of condenser fans and protection during low ambient temperatures
- > Top unit supply and return air duct self-supporting connections for easy installation
- > Electronic expansion valves improve efficiency in low ambient and/or low room heat load conditions
- > Low noise sickle bladed condenser axial fans
- > G4-rated, pleated, disposable filters give high performance with low airside pressure drops
- > Primarily externally mounted, the StoreMaster AHU can be positioned inside a building as a split system

## Options

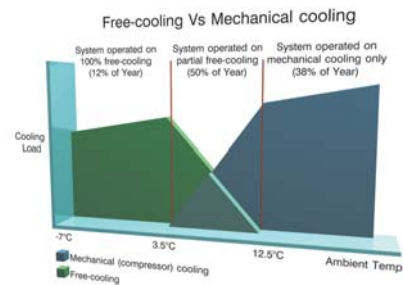
- > Reverse cycle, dual circuit heat pump option offers seasonal cooling or heating capabilities
- > Factory-fitted and speed controllable return air fan eliminates the need for a separate customer installed duct fan and improves commissioning set-up
- > Inverter-driven\* condenser fan and return air fan
- > Constant supply/return air volume control increases filter life and reduces commissioning set up times
- > Enthalpy control sensors prevent high humidity fresh air entering the conditioned space
- > Air quality sensor analyses quality of the air and measures contamination by polluting gases
- > Power monitoring capability fully integrated with the microprocessor, allows data to be fed back via the BMS
- > Refrigerant leak detection system allowing leaks to be readily detected in compliance with F-gas regulation
- > Electric heating, low pressure hot water or gas heating\* for application flexibility
- > Compressor electronic soft start minimises compressor current on start up

\* Qualifies for Carbon Trust ECA scheme [www.eca.gov.uk](http://www.eca.gov.uk)



### Key feature: Simultaneous mechanical / free-cooling reduces life-cycle costs

Free-cooling will operate with as little as 1°C differential between ambient and return air temperatures. The StoreMaster's integrated, simultaneous mechanical / free-cooling solution achieves 0-100% free-cooling and offers substantial energy savings throughout the year particularly as it will always use free-cooling first before initiating mechanical cooling. During any mechanical cooling, the unit retains its high EER values and outstanding SEER values.



### Key option: Constant air volume control

The supply *and* return air fan speed can be preset to a specific design air volume. It will then automatically modulate as operating static pressure changes, reducing commissioning set up times whilst increasing filter life, thus optimising overall unit performance. The supply air volume of the unit is displayed via the AireTronix display.



### Key option: Reverse cycle heat pump

Offering seasonal flexibility of cooling or heating, the highly efficient dual circuit heat pump provides approximately 3kW of heating energy for each kW of electrical input power. This heating energy is naturally present in the surrounding environment and can be harnessed in a similar way to solar and wind power.



# StoreMaster range

## Technical specifications

### Cooling only

Model no.	Ambient temp 25°C			Ambient temp 30°C			Ambient temp 35°C		
	Total cooling capacity	Sensible cooling capacity	EER	Total cooling capacity	Sensible cooling capacity	EER	Total cooling capacity	Sensible cooling capacity	EER
STM50R	55.0	50.4	3.7	52.8	48.7	3.3	50.5	46.8	2.9
STM77R	80.8	75.6	3.5	77.4	72.9	3.1	73.7	69.8	2.7

Cooling performance is GROSS. Mechanical EER's are based on compressor, supply fan and condenser input powers.

### Heat pump (cooling)

Model no.	Ambient temp 25°C			Ambient temp 30°C			Ambient temp 35°C		
	Total cooling capacity	Sensible cooling capacity	EER	Total cooling capacity	Sensible cooling capacity	EER	Total cooling capacity	Sensible cooling capacity	EER
STM50RHP	54.9	49.9	3.7	52.8	48.2	3.3	50.5	46.4	2.9
STM77RHP	79.2	73.9	3.4	76.1	71.3	3.0	72.7	68.4	2.6

Cooling performance is GROSS. Mechanical EER's are based on compressor, supply fan and condenser input powers.

### Heat pump (heating)

Model no.	Ambient temp -10°C		Ambient temp -5°C		Ambient temp 0°C		Ambient temp 5°C		Ambient temp 10°C	
	THR	EER	THR	EER	THR	EER	THR	EER	THR	EER
STM50RHP	34.1	2.0	42.4	2.3	50.0	2.6	56.5	2.8	62.8	2.9
STM77RHP	45.9	2.0	56.3	2.3	64.9	2.6	73.6	2.8	81.6	3.0

Heating performance is NETT. This includes heat gains of supply air fans. Mechanical EER's are based on compressor, supply fan and condenser input powers.

### 100% Free-cooling

Model no.	Ambient temp 10°C		Ambient temp 15°C		Ambient temp 20°C	
	SC	EER	SC	EER	SC	EER
STM50R	44.1	23.2	25.7	13.5	7.3	3.9
STM77R	80.8	22.4	47.1	13.1	13.5	3.7

Free-cooling capacity is GROSS. i.e.  $Q = m C_p \Delta T$ . EER's based on supply fan input power only.

Based on nominal indoor conditions of 22°Cdb / 50% RH air on. All ratings are in kW.

### General specification

Model no.	Sound pressure @ 10 dB(A) <sup>(1)</sup>	Sound power supply air dB(A) <sup>(2)</sup>	Sound power return air dB(A) <sup>(3)</sup>	Dimensions LxWxH (mm)	Operating weight (kg) <sup>(4)</sup>	Supply air volume m <sup>3</sup> /s	MAX ESP Pa	Nominal run amps A <sup>(5)</sup>	Recommended mains fuse A <sup>(6)</sup>
STM50R/HP <sup>(6)</sup>	51	78	83	4500x1900x2140	1987/2146	3.0	250	39.5/43.0	50
STM77R/HP <sup>(6)</sup>	51	83	79	4500x1900x2140	2003/2150	5.5	250	56.4/59.9	80

(1) dB(A) is the overall sound level, measured on the A scale. Noise levels include the condenser fans running at maximum speed

Under normal operating conditions (ambient up to 35°C) noise levels will be reduced by 3-4 dB

(2) Supply air noise levels based on nominal design air volume with maximum external static pressure 250Pa

(3) Return air noise levels based on nominal design air volume with maximum external static pressure 75Pa

(4) Includes gas fired heater, return air fan and weather louvres

(5) Based on cooling only packaged unit

(6) Cooling only/heat pump

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- > Please refer to the technical manuals for more detailed information
- > Airedale participates in the Eurovent Certification programme as a founder member. The performance data of certified products is independently verified and identified within the relevant sales literature

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