The World of M&Y

Standard and Special Air Handling Units for
Ventilation and Air Conditioning Applications

INTRODUCTION TO THE 2000 RANGE OF AIR HANDLING UNITS

Experience has shown that any attempt to produce a catalogue covering a standard range of Air Handling Units is not well received by our specifiers or customers who can not see an end to the flexibility they need when finding space for a large item of plant. Catalogues in the main are used for reference only, mainly to see what applications we can handle. This catalogue is intended to give an overview of what can be done with an indication of unit size. Our expertise at M&Y is to produce special units that meet individual specifications, configurations and sizes from inside the catalogue keeping prices for special units competitive. We will continue to discuss specific requirements with our specifiers and customers. Quotations and sketches will continue to be provided against enquiries and we have a fast track same day service for more urgent enquiries. A fast growing side of our business especially in the greater London area is site assembly of units in kit form. This gives the designer freedom to use the latest generation equipment for applications where lack of plantroom access space would rule this out.

INDEX

FULL SPECIFICATIONS OF THE 2000 RANGE OF AIR HANDLING UNITS

GENERAL

The "2000" range of Air Handling Units are based upon a modular concept which provides and allows individual sections of varying lengths to be coupled together in various combinations to form complete units.

All sections forming the Air Handling units are of a consistent cross section, which with flush fitting panels provides a neat linear exterior along the length of the units. The sections are suitable for horizontal or vertical installation as required. No additional supports are required when sections are mounted on top of each other to form double deck units.

All units within the range are manufactured with double skin panels as standard, having either 25 or 50mm insulation sandwiched between a plastisol outer skin and a galvanised steel inner skin. **Triple skin panels** can be provided where noise breakout is critical.

Framework can be constructed from either **Fully welded pentabox** or extruded aluminium depending on the application.

The range consists of 19 standard sizes with a volume range of 0.35 to 48.0 m3/s. With non-standard sizes available to suit space restrictions.

FRAMES - ALUMINIUM

The main frames are assembled from die cast aluminium corner joints and extruded aluminium profiles, which offers a totally un-welded framework. The framework is a standard of double skin profile. According to the cross section size of the AHU the framework will be between 30 to 70 mm.
The AHU casing has a strength of Class 2A with a *Thermal Transmittance Class T2* and *Thermal*
The framework and top hat sections are normally supplied with a plain anodised finish.

FRAMES - WELDED

Section frames are constructed from 50mm *pentabox* section manufactured from galvanised sheet steel. The frames are assembled using pre-formed corner sections, which are seam welded internally. Top hat sections are fitted between components, which are also welded into position providing additional strength and rigidity.

After assembly the full frames are de-greased, primed and finished with a high gloss paint.

PANELS

The panels are formed from heavy gauge hot dipped galvanised steel sheet to BS2989 and are of the tray-in-tray construction. They are of varying heights and lengths dependent upon unit size and are designed to prevent drumming, distortion and vibration during operation.

All panels are removable with access doors hinged with operated locks

All panels are double skinned with either 25 or 50 mm panels for the aluminium range and 50mm for the welded range. The fibreglass insulation incorporated has a density of 64 kg/m3 and a thermal conductivity of 0.04 W/m2 C. This insulation has excellent thermal and acoustic properties. It is also rot proof, odourless, non-hydroscopic and does not sustain vermin. Where noise breakout is critical perforated inner skins can also be incorporated.

The inner skins will be formed from galvanised sheet steel to BS2989, whereas the outer skin formed from BSC Colorcoat HP200 Plastisol coating having a scratch resistance to BS3900, Part E2 and a colour range to BS4904: 1978.

INTERNAL METALWORK

All internal framing and blanking plates are manufactured from galvanised steel sheet to BS2989.

MILD STEEL CHANNEL BASES

Each section will be supplied bolted to a fully welded base frame, formed from 102 x 51 channel. For larger units 150 x 78 mm channel will be used. The bases will be painted to contrast the finish of the AHU framework or will be galvanised after manufacture for externally mounted AHU's.

FAN SECTIONS

The standard Air Handling Unit Fan Section contains a double inlet double width fan with either multiblade forward curved, backward curved or backward curved areofoil bladed implellers. Alternative fans are available.

Fan and motors will be isolated from the casing structure by means of a flexible connection on the fan outlet and either *rubber or spring* anti-vibration mounts. Fan drives will always be protected with a wire mesh guard.

FILTER SECTIONS

Panel Filter throwaway - medium efficiency panel filters conforming to EU3 & EU4 in accordance with Eurovent 4/5.

Panel Filter Washable - medium efficiency type washable filter conforming to EU2 in accordance with Eurovent 4/5.

Bag Filter - Bag filter from high quality glass fibre media for extraction of the fine dust, conforming to EU4 upto EU9.

Absolute/Hepa Filter – Particular filter cells are high efficiency for the separation of suspended particles etc. These filters have an efficiency between 99.997% to 99.999% and supplied in low leakage frames.

Activated Carbon Filter - Activated carbon filters are used to remove odorous gases and harmful vapours from the air by absorption.

All filters are fitted within frames which are rigidly held within the unit and efficiently sealed and arranged for side withdrawal. Front withdrawal is an option if space permits. A side access door is provided to enable the filters to be replaced easily and quickly.

Manometers are fitted across all filters as standard to give direct indication of the filter condition. Manometers can be of the inclined, magnahelic, photohelic with or without auxiliary contacts for remote indication.

HEATING

ELECTRIC

The heater batteries consist of tubular sheathed elements mounted on a removable terminal plate manufactured from rigid galvanised steel sheet plate. A removable cover box protects the terminals of the elements and the manual reset thermal cut out. The whole assembly is fitted such that it can be withdrawn from one side of the unit.

The heater battery can be supplied, depending on kw rating, for on/off, thyristor or step control and is suitable for operation with a 1 or 3 phase electricity supply.

GAS FIRED BURNER

Direct and indirect gas fired burner sections can be provided all incorporating the latest technology. The gas burners can be arranged with On/Off, High/Low or Fully modulating control and are supplied as a package incorporating the burner controls and viewing window.

LPHW - HPHW - STEAM COILS

All coils are constructed from seamless copper tubes and headers with continues plate type aluminium fins. Tubes are mechanically expanded into the fins to form a permanent bond for maximum heat transfer.

Casings are formed from galvanised steel sheet and designed for easy assembly. End plates are fitted to ensure no bypass of airflow.

COOLING COILS

Cooling coils are constructed as per the heating coils. Positive drain trays are provided as standard under cooling coils and the design of the tray which would have a minimum slope of 1 in 20 towards the drain, ensuring that water retention is not possible.

Drain trays can be removable to provide full cleaning and disinfecting to control the growth of organisms as Legionella Pneumophila. All water coils are tested between 300 PSI and 450 PSIG whereas DX coils are dehydrated under vacuum and charged with nitrogen before sealing.

Both *Heating & Cooling Coils* will be supplied with non-ferrous heavy duty terminals having a BSP (M) thread.

Coils can be provided with either:

- Bare tubes - no fins
- Copper fins
- Vynal coated fins
- Electro tinned copper tubes
- Stainless steel casings
- Steel tubes & fins

ELIMINATORS

Eliminator plates if required will be of the Multiple blade configuration and corrosion Resistant. The blades will be manufactured From either PVC or Polypropylene to provide an inert, non-combustible, corrosion resistant and vermin proof assembly.

HEAT RECOVERY

HEAT RECOVERY COILS

This a heat recovery system using a coil installed in the exhaust air ducts to recover heat energy, transferring this energy to the heating coils in the Air Handling Units. A closed circuit system links the two sets of coils using as a medium water of glycol solution and the system is completed with expansion vessel, pumps, etc.

AIR TO AIR RECUPERATOR

Two ranges are available depending on the space limitations and can be supplied in either crossflow or diagonal flow. Both types incorporate a number of aluminium heat transfer plates held in galvanised steel framework.

The two airstreams are completely separated by the construction of the unit thereby ensuring no cross-contamination. Face and by-pass dampers suitable for either manual or motorised control can also be provided. A drain tray would be fitted on the exhaust air leaving face to drain away any condensation that may occur.

THERMAL WHEELS

The heat wheel is an air to air rotary heat exchanger, which recovers heat energy from the exhaust air to gases and transfers the energy to the counter flowing fresh air airstream. A range of heat wheels are available to transfer both sensible and latent heat. Variable speed and constant speed drives for the wheel are available dependent upon application.

Alternative methods of heat/transfer available:

Desiccant wheel
Adiabatic cooling
Heat pipes

STEAM HUMIDIFIERS

SELF GENERATIVE TYPE

The self generative humidifier produces steam by means of electrodes or resistance type heating elements producing steam at atmospheric pressure which is injected into the airstream via injection lances.

A cabinet is supplied containing the steam boiler and electrical controls in separate compartments. A water supply, electrical supply and drainage will be required for the humidifier.

DIRECT STEAM INJECTION TYPE

Direct steam injection humidifier inject dry steam into the airflow within the Air Handling Unit details of injection ducts and space requirements are as described above. A steam supply and drainage will be required for the humidifier. Control valves and actuators of the electric/electronic or pneumatic type can also be supplied.

INTAKE/MIXING DAMPERS

Dampers will be of the opposed blade type. The blades are interconnected to give positive action without flutter. The edges of the individual blades are fitted with seals ensuring a tight seal. Dampers are suitable for either manual or automatic control.

EXTERNALLY MOUNTED UNITS

Units will be supplied with a weather canopy to shed the water. All non access panels will be sealed with silicone to prevent the ingress of water. Were required intake/discharge louvres will be fitted. In addition channel base frames will be galvanised after manufacture and painted to match the colour of the AHU.

ADDITIONS TO STANDARD SPECIFICATION FOR COASTAL APPLICATIONS

UNIT FRAMEWORK

Unit framework to be of fully welded construction. Paint internally and externally with anti corrosion aquabond paint finish.

PANELS

50mm deep (standard)
Inner Plastisol.
Outer Plastisol. (standard)

FANS

Chlorinated rubber / epoxy finish by manufacturer.

SUB-FRAME

Hot dipped galvanised after manufacturer.

HEATING/COOLING COILS

Copper tubes/Aluminium fins – Epoxy (or similar) coated.

PLATE HEAT EXCHANGERS

Aluminium Acrylic paint.
Corrosion protected casing.

MOTORS

Anti corrosion paint finish.

DRAIN TRAYS

304 Stainless steel.

ADDITIONS TO STANDARD SPECIFICATION FOR SWIMMING POOL APPLICATIONS

UNIT FRAMEWORK

Unit framework to be of fully welded construction.
Paint internally and externally.

PANELS

50mm deep (nominal)
Inner Plastisol
Outer Plastisol

FANS

Chlorinated rubber / epoxy finish by manufacturer.

SUB-FRAME

Hot dipped galvanised after manufacture.

HEATING/COOLING COILS

Copper tubes/Aluminium finish – Epoxy (or similar) coated

PLATE HEAT EXCHANGERS

Aluminium Acrylic painted.

MOTORS

Chlorinated rubber finish.
Anti-condensation heaters.
Thermistors.

DRAIN TRAYS

304 Stainless steel.

OPTIONAL ITEMS

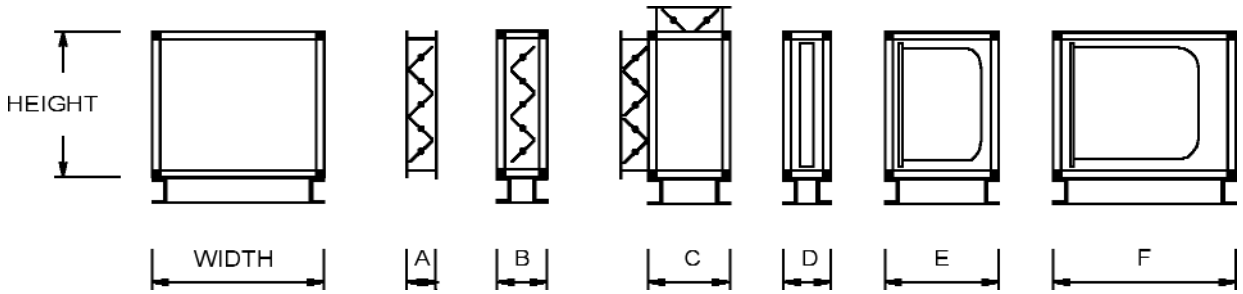
- Externally mounted motors.
- Run and standby motors.
- Fan motors pre-wired to externally mounted isolators.
- Kit form and site assembly.
- Swimming pool applications.
- Coastal applications
- HTM 2025 / CO4 Specification AHU's.
- Volumetric test to BS 6583:1985.
- DW 143 leakage test.
- Viewing windows.
- Plug fans
- Bulk head lights pre-wired to externally mounted switches.
- Test points.
- Fitting of *"free issue"* controls.
- Lockable access doors.
- Downpipes and gutters.
- Traffolyte labels.
- Centrifugal direct drive or motorised impellors fans.
- Frequency invertors.
- Removable drain trays
- Individual customer specification.

Selection chart for the *2000 Range* of Air Handling Units

Model	Unit Height mm	Unit Width mm	Coil Face Area M2	Air Volume @ 2.5 m/s	Air Volume @ 3.0 m/s	Air Volume @ 3.5 m/s
2-050	600	650	0.162	0.40	0.48	0.56
2-100	600	950	0.284	0.71	0.85	0.99
2-115	750	1050	0.436	1.09	1.31	1.53
2-120	750	1250	0.547	1.36	1.64	1.91
2-125	750	1550	0.600	1.50	1.80	2.10
2-130	1150	1250	0.945	2.36	2.83	3.31
2-135	1150	1550	1.235	3.09	3.70	4.32
2-140	1150	1850	1.525	3.81	4.57	5.33
2-150	1350	1850	1.84	4.61	5.53	6.45
2-160	1400	1900	1.90	4.76	5.71	6.66
2-170	1700	1900	2.40	6.00	7.20	8.40
2-180	1700	2100	2.67	6.74	8.09	9.43
2-190	1700	2500	3.28	8.20	9.84	11.48
2-200	2000	2500	3.96	9.90	11.88	13.86
2-210	2400	2500	4.75	11.87	14.25	16.62
2-220	2400	3000	5.82	14.55	17.46	20.37
2-230	2650	3000	6.51	16.27	19.53	22.78
2-240	2650	3600	7.95	19.87	23.85	27.82
2-250	2900	3600	8.79	21.98	26.37	30.76

For non standard sizes refer to the sales department on 01293-521201

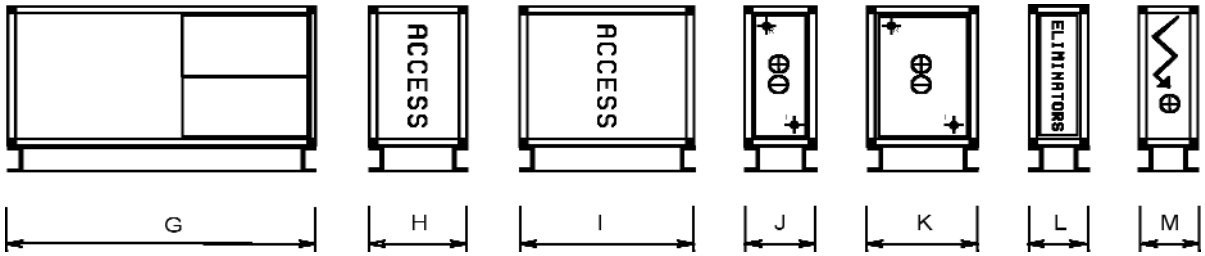
Selection chart for the *2000 Range* of Air Handling Units



Unit Ref P	Unit Height	Unit Width	External damper A	Internal damper B	Mixing box C	Panel Filter D	Bag 350 long E	Bag 610 long F
2-050	600	650	110	190	310	180	430	690
2-100	600	950	110	190	320	180	430	690
2-115	750	1050	110	190	410	180	430	690
2-120	750	1250	110	190	420	180	430	690
2-125	750	1550	110	190	420	180	430	690
2-130	1150	1250	110	190	640	180	430	690
2-135	1150	1550	110	190	660	180	430	690
2-140	1150	1850	110	190	680	180	430	690
2-150	1350	1850	110	210	860	200	450	710
2-160	1400	1900	110	210	860	200	450	710
2-170	1700	1900	110	210	1050	200	450	710
2-180	1700	2100	110	210	1050	200	450	710
2-190	1700	2500	110	210	1070	200	450	710
2-200	2000	2500	150	250	1250	200	450	710
2-210	2400	2500	150	250	1470	200	450	710
2-220	2400	3000	150	250	1500	200	450	710
2-230	2650	3000	150	250	1650	200	450	710
2-240	2650	3600	150	250	1670	200	450	710
2-250	2900	3600	150	250	1825	200	450	710

ALL DIMENSIONS ARE IN MILLIMETRES

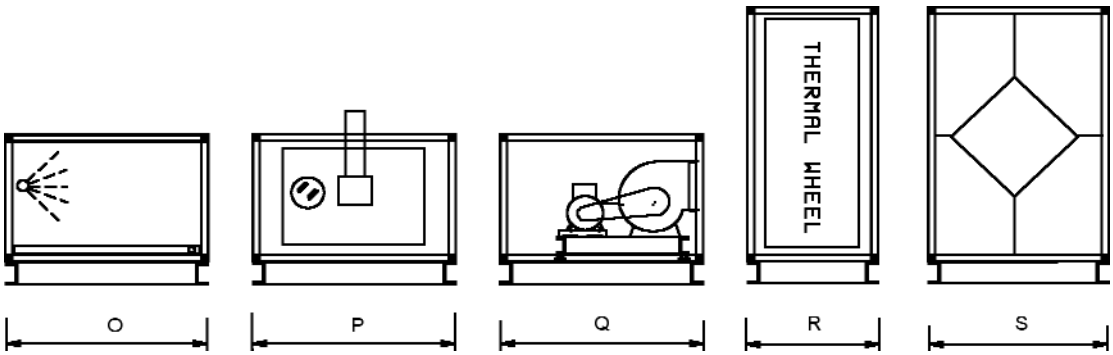
Selection chart for the *2000 Range* of Air Handling Units



Unit Ref P	Hepa filter G	Access 350mm H	Access 600mm I	1 to 3 rowcoil J	4 to 8 row coil K	Eliminator L	Electric heater M
2-050	1200	430	680	280	430	230	380
2-100	1200	430	680	280	430	230	380
2-115	1200	430	680	280	430	230	380
2-120	1200	430	680	280	430	230	380
2-125	1200	430	680	280	430	230	380
2-130	1200	430	680	280	430	230	380
2-135	1200	430	680	280	430	230	380
2-140	1200	430	680	280	430	230	380
2-150	1200	450	700	300	450	250	400
2-160	1200	450	700	300	450	250	400
2-170	1200	450	700	300	450	250	400
2-180	1200	450	700	300	450	250	400
2-190	1200	450	700	300	450	250	400
2-200	1200	450	700	300	450	250	400
2-210	1200	450	700	300	450	250	400
2-220	1200	450	700	300	450	250	400
2-230	1200	450	700	300	450	250	400
2-240	1200	450	700	300	450	250	400
2-250	1200	450	700	300	450	250	400

ALL DIMENSIONS ARE IN MILLIMETRES

Selection chart for the *2000 Range* of Air Handling Units



Unit Ref P	Humidifier O	Indirect gas fired burner P	Fan Q	Thermal wheel R	Recuperator S	Weather canopy	Base frame
2-050	1600	1500	900	580	800	50	75
2-100	1600	1500	900	580	900	50	75
2-115	1600	1500	1100	580	1000	50	75
2-120	1600	1500	1100	580	1200	50	75
2-125	1600	1500	1500	580	1500	75	100
2-130	1600	1500	1500	580	1500	75	100
2-135	1600	1500	1500	580	1500	75	100
2-140	1600	1500	1900	580	1500	100	100
2-150	1600	1700	1900	600	1800	100	100
2-160	1600	1700	1900	600	1800	100	100
2-170	1600	1700	1900	600	1800	100	100
2-180	1600	1700	1900	600	1800	100	100
2-190	1600	1700	2100	600	2000	100	100
2-200	1600	1700	2100	600	2000	100	100
2-210	1600	1700	2100	600	2000	100	100
2-220	1600	1700	2600	600	2500	150	150
2-230	1600	1700	2600	600	2500	150	150
2-240	1600	1700	2600	600	2700	150	150
2-250	1600	1700	2600	600	2700	150	150

ALL DIMENSIONS ARE IN MILLIMETRES

General Specification for the *RFM Range* of Recuperator Units

GENERAL SPECIFICATION

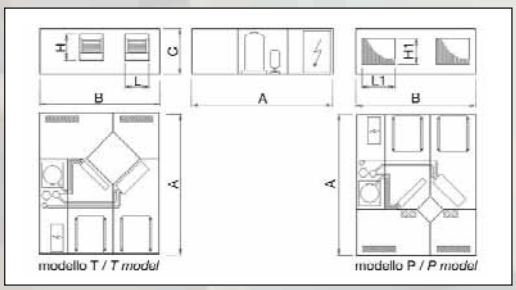
The New Automatic RFM heat recovery units are available in both P and T versions in 5 different sizes, with a nominal air capacity ranging from 900 m3/h to 3300 m3/h. The units have been developed to satisfy four typical needs of residential and commercial applications.

1. The renewal of room air, particularly needed for building where smoking is allowed.
2. The energy saving, by using a static crossflow heat exchanger.
3. The neutralisation of the renewal air heat loads by a fully automatic microprocessor controlled heat pump system; in particular, the function of heat recovery increases both cooling and heating performances.
4. The neutralisation of room heat loads, specifically for P version, where the available power left over the renewal air heat loads is particularly high; the T version, because of a lower room available power, has to be generally intergrated by other heating/cooling systems.

GENERAL CONSTRUCTION AND TECHNICAL FEATURES

- Aluzink frame
- Fully removable double skin Aluzink panels, with polyethylene or polyester thermal and acoustic insulation having a minimum thickness of 20mm.
- High efficiency crossflow heat recovery, aluminium heat exchanger plates with supplementary sealing, stainless steel drain tray, extended to all cooling/heating components and heat insulated.
- G3 efficiency synthetic cell filters, positioned on suction sections and easily removable from the side or bottom.
- Single speed double inlet forward curved fans, matched with an electronic speed regulator or supplied with a built-in frequency invertor motor. Fans are mounted on rubber anti-vibration mounts.
- Heat pump refrigeration system (R407C) comprises a scroll hermetic compressor, 3 row summer evaporator/winter condenser coil and a 7 row summer condenser/winter evaporator coil, constructed from copper tubes with aluminium fins, bi-directional thermostatic valve, liquid separator, receiver, 4-way valve for cycle inversion, safety valve, high and low pressure switches, freon filter and liquid indicator.
- Internal electrical board for supplying all the electrical powers; room outside and frost temperature sensors; microprocessor control, for fully automatic management of room temperature, free-cooling and free-heating, heating/cooling mode and defrost cycles; display for setting and for visualizing sensor and set point temperature values, connected up to 20 metres from the unit board.
- T Version Units have a single pass recuperator whereas P Version Units have in addition to the recuperator, a fixed return air damper set at 50% of the volume, thus increasing the amount of heat or cool air recovered.

UNIT LAYOUT AND DIMENSIONS



Model		RFM 14	RFM 19	RFM 25	RFM 30	RFM 40
A	mm	1450	1450	1700	1700	1700
B	mm	1230	1230	1560	1560	1560
C	mm	470	470	530	530	630
L	mm	240	240	306	339	339
H	mm	270	270	270	297	297
L1	mm	337	337	502	502	502
H1	mm	327	327	347	387	487
Weight		225	225	247	258	279

General Specification for the *RFM Range* of Recuperator Units (continued)

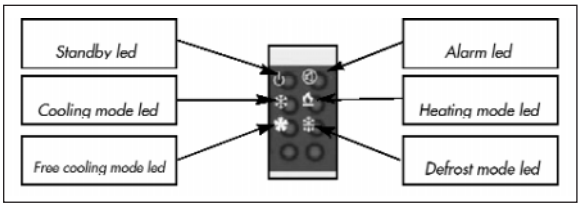
The RFM units can be supplied with a complete series of accessories, selected for facilitating the installation, flow adjusting and safety; they are:

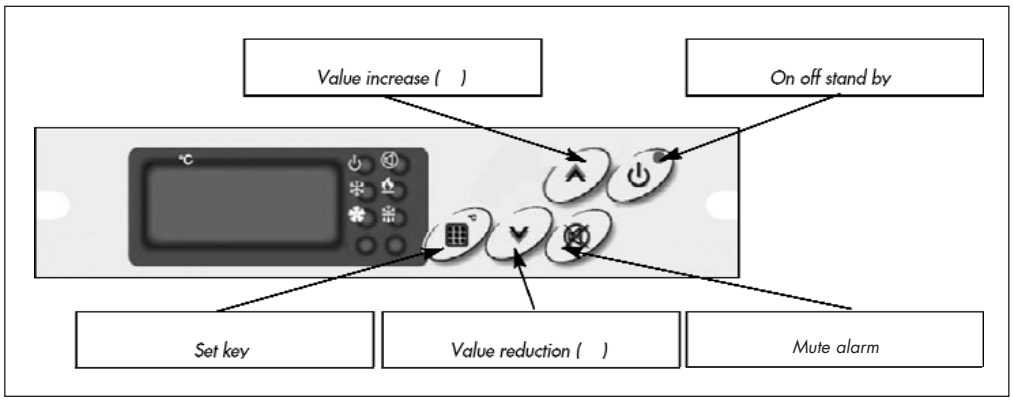
- Additional electric heating
- Adiabatic humidifier/cooler
- Cutting phase speed controller
- Built-in frequency invertor
- Air filter pressure switch
- Intake dampers
- Anti-vibration duct joining kits
- Weather canopy.

ELECTRONIC CONTROLLER

The electronic control system inside the RFM units comprises of two parts, the console and the power board, each connected to the other through a common telephonic cable. The console, should be installed in an easily accessible place, which lets the User input the control parameters by the front keyboard. On the display each operation is visualised and confirmed; the power section, installed inside the electrical board, is an electronic component that controls the electrical outlets on the base of the parameters and the configuration determined by the User.

On the console, there are:
- The Keyboard, for setting the working parameters.
- The Display, for visualising the set values, room temperature and system alarm codes.
- The Signalling LEDS, for visualising system working mode (on-off, cooling, heating, free-cooling, defrost and alarm).





General Specification for the *ECO Range* of Recuperator Units

GENERAL SPECIFICATION

The New Eco Range of Adiabatic Air Handling Units are manufactured bespoke to suit individual clients requirements. The Eco Range optimises the hidden energy both directly and indirectly via a heat recovery unit between the supply and extract air streams. The overall C.O.P is further improved by placing the mechanical refrigeration condenser within the extract air stream after the adiabatic indirect cooling operation, which provides lower air on temperatures, hence, lower condensing pressures.

BENEFITS OF THE ECO RANGE:

- Reduced running costs due to lower condensing temperatures and all year round Free Cooling concept, provides reliable and lower annual electric running costs.
- Quick Response as water is introduced via a heat recovery unit, which provides a large evaporation surface, and inline mechanical refrigeration effectively responds to any load changes.
- Flexible systems as the combination of refrigeration, direct and indirect adiabatic cooling systems suit both dry desert as well as high humidity tropical conditions.
- Green solution due to the smaller refrigeration machinery together with less electricity consumption reduces environmental impact significantly.
- Improved indoor air quality as the combination of full fresh air and adiabatic cooling improves indoor air quality.
- Lower maintenance as the lower condensing temperatures together with full outside air and adiabatic cooling process minimise the mechanical refrigeration running hours.
- Reduced water consumption as water is used whenever is required at significantly reduced volume.

TECHNICAL FEATURES

1. A high efficiency extract fan provides not only extract from the space, but the same air stream is utilised for the heat rejection coil airflow.
2. High efficiency panel filters ensure clean air for full fresh air operation all year round. An inclined gauge manometer will be fitted across each filter bank.
3. The control panel ensures that the unit requires only power supply and room thermostat on/off and temperature input. The rest of the controls and all the necessary safety features are incorporated for a fully automated cooling and heating operation all year round.
4. The direct spray nozzles operate if the outside humidity is less than an adjustable pre-set value, the direct spray nozzles are activated in order to provide free cooling. As soon as humidity exceeds the level the nozzles are isolated.
5. The indirect spray nozzles are positioned within the return air stream and the combination of heat recovery and indirect adiabatic cooling effect is transferred to the incoming air stream without increasing the humidity. Wet cooler air is further used for the condenser air flow which is considerably lower than the ambient, hence, considerable energy saving.
6. The compressor is a high efficiency reciprocating/scroll type, which provides both heating and cooling as a heat pump system.
7. The high efficiency supply fan provides full fresh airflow for the space.
8. The coils within the Eco Range operate depending on the outside air temperature. The coil will provide either heating or cooling to the supply air. The extract air acts as a condenser during winter mode for all year round operation.

General Specification for the *ECO Range* of Recuperator Units (continued)

OPTIONAL FEATURES

- 25mm thick or 50mm thick panels.
- Plastisol or pre-painted outer skins.
- Direct driven or belt driven fans.
- Internal or external mounting.
- Coils constructed from either copper tubes/aluminium fins, copper tubes/ acrylic coated aluminium fins, copper tubes/copper fins or copper tubes/cooper fins all electro-tinned.
- Filtration from G3 to G8 or combination of both.
- Single or double pass recuperators.
- Viewing windows, bulk head lights, test points
- Stainless steel drain trays.
- Test points.
- Lockable access doors.

General Specification for the *RKE Range* of Recuperator Units

GENERAL SPECIFICATIONS

The RKE series heat recovery units are available in 7 different models, with a nominal air capacity ranging from 290 m3/h to 3200 m3/h. They have been designed specifically to solve the problem of the excessive energy consumption of all industrial plants operating with the use of external air. It is possible, due to the high efficiency of the plate heat exchanger, to recuperate over 50 % of the energy that would normally be lost.

The RKE units may be integrated with traditional systems, comprising of fans, air conditioners and radiators. This allows the possibility to utilize the apparatus both in the summer and winter seasons. The RKE units are particularly suitable for false ceiling installation, and may be suitably ducted to allow air delivery and suction directly into the area.

UNIT CONSTRUCTION

- The unit casing is fabricated from single or double skin panels.
- Each unit has polyethylene and polyester thermal and acoustic insulation.
- The thickness of the insulation changes depending on the model.
- The panels are fixed to the structure with cadmium plated steel screws.
- All the internal components are easily accessible for inspection.
- When necessary, internal components are easily replaceable from below.

FAN

The fan section is fitted with a forward curved centrifugal fan (single inlet for the 03 model, double inlet for the rest of the range), it is mounted on anti vibration mounts, allowing the unit to operate at the maximum speed with lowest possible noise level. The electric motor, directly coupled with the fan, is a 230V / 50Hz single phase type, with one or more speed settings that may be regulated from the control panel.

HEAT RECOVERY

The heat recuperator is a high efficiency static type, with cross airflow.
The heat exchanger plates are made of aluminium, and the airflow is kept separate by the utilization of special seals.
The heat recuperator is dimensioned in such a way to enable a high degree of thermal efficiency in any condition.
Underneath the recuperator, a stainless steel condensation collection tray with a circular drainage pipe is positioned.

AIR FILTER

The filters are of the flat cell corrugated type, with class G3 synthetic fibre filtering material (efficiency 85% - EU3), which can be easily removed and replaced.

ACCESSORIES

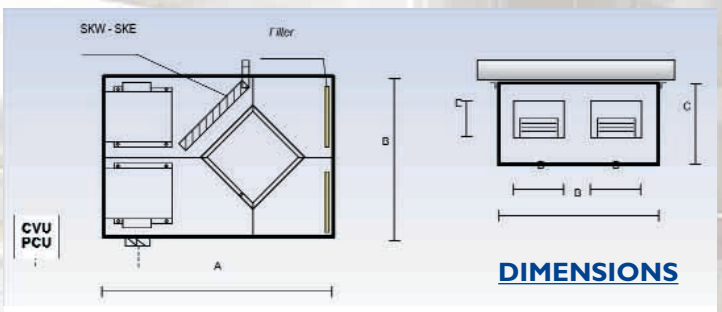
SKW	Hot water coil
SKE	Electric heater
SKR	Regulation damper
CVU	Speed Control
PCU	Control Panel

Selection data for the *RKE Range* of Recuperator Units (continued)

TECHNICAL DATA

Model	03	06	10	14	19	25	30
Air delivery m3/h	290	600	1000	1400	1900	2500	3200
Static pressure .....Pa	40	80	90	140	120	110	170
Sound pressure .....dB (A)	54	56	54	59,5	58	57,5	60
Fans							
Shaft power .....W	2x45	2x90	2x147	2x350	2x350	2x350	2x550
Poles .....n°	4	2	4	4	4	4	4
F.L.C. max.....A	1,3	1,8	3	5,8	6,2	6	11,4
No. of fan speeds .....n°	2	1	3	3	3	3	3
Protection grade .....IP	20	54	44	55	44	55	20
Isolation grade .....B	B	F	F	F	F	F	F
Electric power supply ..V	230	230	230	230	230	230	230
Heat recovery (*)							
Efficiency .....%	52,3	54,6	53,4	52,1	51,8	57,6	56
Thermal power .....kW	1,34	2,57	4,6	6,2	8,4	12,3	15,3
Output air temp. .....°C	8,1	8,7	8,3	8,0	7,9	9,4	9,0

(*) Performances under following conditions: output air 20° - fresh air –5°



DIMENSIONS

Model (dimensions in mm)	03	06	10	14	19	25	30
A	990	990	1150	1350	1450	1700	1700
B	750	750	860	900	900	1230	1230
C	270	270	385	410	470	490	530
D	130	230	240	240	240	310	340
E	110	105	220	270	270	270	300

Selection data for the *RKE Range* of Recuperator Units (continued)

TECHNICAL DATA

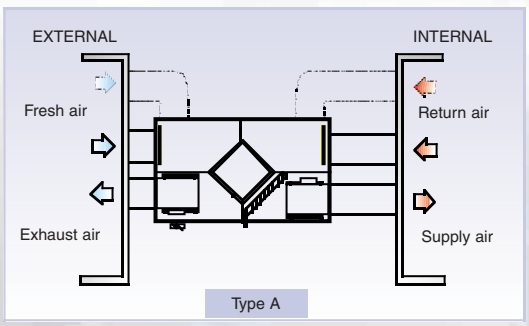
Heating water coil (**)

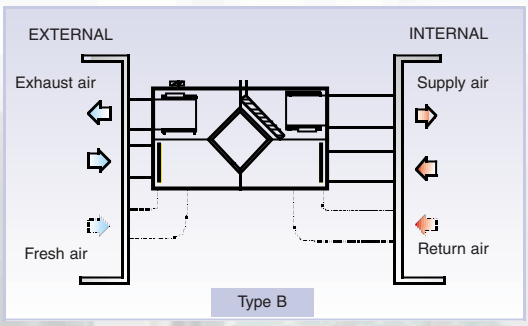
Unit code	SKW 10/3	SKW 14/3	SKW 19/3	SKW 25/3	SKW 30/3
Rows (N°)	3	3	3	3	3
Heating capacity (kW)	9.4	13.4	16.6	23.9	28.4
Air output temp. (°C)	36	36	34	36	34
Air side pressure drop (Pa)	65	64	85	62	85
Water side pressure drop (KPa)	8	16	10	11	15

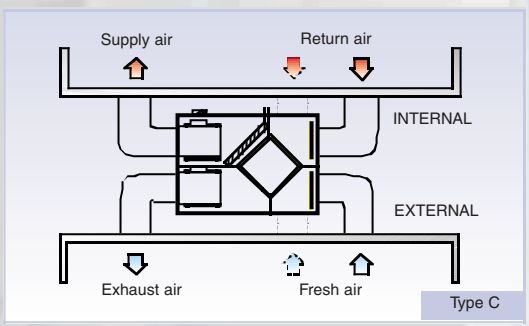
(**) Performances under following conditions: water 70/60 °C - Ting. air= 8 °C - air nominal delivery

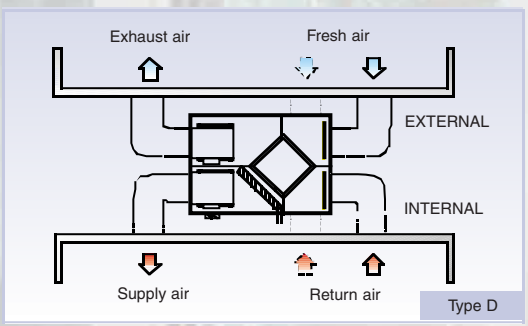
Electric Heating

Unit code	SKE 03	SKE 06	SKE 10	SKE 14	SKE 19	SKE 25	SKE 30
Electrical resistance 1 stage (kW)	2	4	4,5	6	9	12	12
Electrical supply (V)	230	230	400	400	400	400	400









Introduction to the *LHCU Range* of Low Height Ceiling Units

SPECIFICATIONS

The range of Low Height Ceiling Units have been designed where space is at a premium. The low height of 380mm makes the units especially suited for mounting inside suspended ceilings.

Panels will be double skinned as standard with high-density insulation thus reducing the amount of noise breakout. The inner skins will be formed from galvanised sheet steel with the outer skins from pre-painted steel

Depending on the volume and external resistance the fans will be either direct driven or belt driven. Both options will have forward curved impellors. Fan casings will be formed from high quality galvanised sheet steel and will be statically and dynamically balanced. To avoid transmission of vibration to the unit casing, the fan and motor assembly will be mounted on rubber anti vibration mounts and the fan discharge connection will have a fire retardant flexible connection.

Fan motors will be pre-wired to externally mounted terminal boxes or isolators.

Access for maintenance is from the underside to the fan and filter sections with either hinged or lift off panels to suit the location.

All standard components can be incorporated including heating and cooling coils, attenuators, panel filters, bag filters, dampers and recuperators.

Unit Ref	COIL FACE VELOCITY (m/s)					
	1.50	2.00	2.50	3.00	3.50	4.00
	AIR VOLUME (m3/s)					
LHCU 1	0.18	0.25	0.30	0.36	0.42	0.48
LHCU 2	0.29	0.39	0.49	0.58	0.68	0.78
LHCU 3	0.41	0.54	0.68	0.81	0.95	1.08

Unit Ref	UNIT DATA				
	Height	Width	Max Motor Power kW	FLC Amps	STC Amps
LHCU 1	380	710	2.20	5.00	26.00
LHCU 2	380	1040	2.20	5.00	26.00
LHCU 3	380	1370	2.20	5.00	26.00

Non-standard variations of the units can be designed to suit individual applications with units up to 2600mm wide or 350mm high.

Specification for the TF Range of Twin Fan Units

Twin Fan Extract Units

- TFD – Direct drive twin fan extract units.
- TFB – Belt driven twin fan extract units.

The TF range of twin fan units have been designed to provide the ultimate in simple box design. Constructed from either galvanised steel or aluminium with access via a removable top panel. Duct connections can be of the circular or rectangular spigot type.

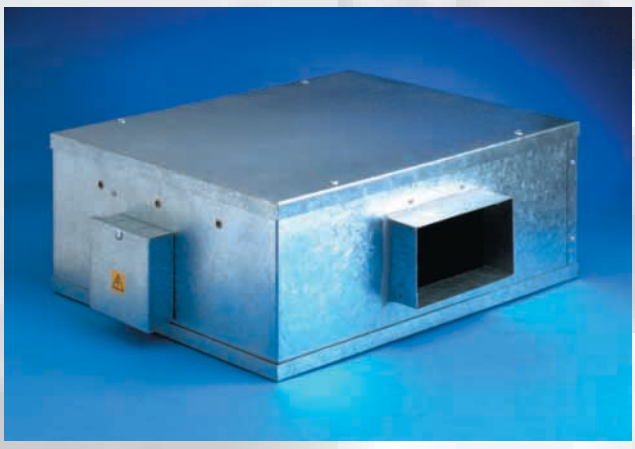
- Two DIDW forward curved centrifugal fans for run and standby operation.
- Non-return flaps fitted to prevent recirculation.
- Both fans are pre-wired to externally mounted terminal boxes.

All units can be provided with the following options:

- Single skin construction with acoustic lined casings.
- Aluminium construction.
- Bolt on silencers.
- Auto changeover panels with either manual / or automatic duty share.
- Airflow switches.
- Discharge louvers/cowls.
- Speed controllers

The units have a volume range of 0.05M3/s to 2.50M3/s utilising either direct driven or belt driven fans.

For volumes above 2.50M3/s pentapost framed units can be provided with double skin or triple skin panels.



Selection Chart for Direct Driven Units

Ref	Rpm	Airflow M3/s @ Static Pressure Pa											Motor Electrical Data			Sound Level dBA @ 3M (lined casing)
		0	25	50	75	100	150	200	250	300	350	400	Motor Input kW	Full Load Amps	Starting Amps	
TFD 1	2250	0.055	0.053	0.050	0.047	0.043	0.036	0.028	0.019				0.085	0.37	1.41	28
TFD 2	1330	0.179	0.158	0.133	0.107	0.070							0.098	0.43	1.38	35
TFD 3	1220	0.280	0.257	0.232	0.209	0.184	0.133	0.082	0.028				0.250	1.20	4.80	44
TFD 4	1415	0.465	0.436	0.404	0.372	0.340	0.272	0.109	0.104	0.030			0.500	2.70	9.60	47
TFD 5	1250	0.800	0.778	0.760	0.734	0.716	0.660	0.604	0.534	0.430	0.279	0.100	0.960	4.40	12.60	48
TFD 6	1310	0.960	0.945	0.915	0.898	0.875	0.825	0.770	0.682	0.565	0.302	0.150	1.100	5.20	18.90	52
TFD 7	820	1.410	1.370	1.320	1.280	1.220	1.100	0.965	0.785	0.430	0.150		1.400	7.00	20.70	50

Selection Chart for Belt Driven Units

Airflow M3/s	Model TFB 1 External Resistance Pa						
	50	100	150	200	250	300	
0.20	800 0.25 41	1100 0.25 47	1300 0.25 52	1500 0.25 55	1675 0.25 58	1820 0.25 63	Rpm kW dBA
0.30	900 0.25 43	1150 0.25 49	1370 0.25 53	1530 0.25 56	1700 0.37 60	1850 0.37 63	Rpm kW dBA
0.40	1120 0.25 49	1280 0.25 52	1400 0.37 53	1590 0.37 56	1730 0.37 60	1890 0.55 63	Rpm kW dBA
0.50	1300 0.37 52	1440 0.37 55	1570 0.55 56	1710 0.55 59	1825 0.55 63	2050 0.75 68	Rpm kW dBA
0.60	1500 0.55 55	1650 0.55 58	1760 0.75 60	1900 0.75 63	2040 0.75 68	-- -- --	Rpm kW dBA
0.70	1720 0.75 60	1830 0.75 63	1950 0.75 65	2070 0.75 68	-- -- --	-- -- --	Rpm kW dBA

Airflow M3/s	Model TFB 2 External Resistance Pa								
	50	100	150	200	250	300	400	450	
0.20	650 0.25 48	750 0.25 50	870 0.25 54	1020 0.25 58	1150 0.25 61	1240 0.37 63	1450 0.37 66	1560 0.55 69	Rpm kW dBA
0.40	660 0.25 48	770 0.25 50	900 0.25 57	1050 0.37 58	1170 0.37 61	1265 0.55 63	1460 0.55 66	1580 0.55 69	Rpm kW dBA
0.60	700 0.25 48	820 0.25 54	940 0.37 57	1070 0.37 58	1190 0.55 61	1290 0.55 63	1490 0.75 66	1600 0.75 69	Rpm kW dBA
0.80	850 0.37 54	950 0.55 57	1050 0.55 58	1140 0.75 61	1230 0.75 63	1300 0.75 63	1520 1.10 69	-- -- --	Rpm kW dBA
1.00	1010 0.75 58	1100 0.75 61	1180 0.75 61	1250 1.10 63	1320 1.10 65	1400 1.10 65	1580 1.50 69	-- -- --	Rpm kW dBA
1.20	1200 0.75 61	1250 1.10 63	1320 1.50 65	1400 1.50 65	1460 1.50 66	1550 1.50 69	-- -- --	-- -- --	Rpm kW dBA

Selection Chart for Belt Driven Units

Airflow M3/s	Model TFB 3 External Resistance Pa								
	100	150	200	300	400	500	600	700	
0.50	650 0.37 53	710 0.37 58	810 0.37 60	975 0.55 63	1105 0.75 66	1250 0.75 68	1350 1.10 71	1480 1.10 73	Rpm kW dBA
0.75	710 0.37 58	760 0.55 58	800 0.55 60	985 0.75 63	1120 0.75 66	1260 1.10 68	1365 1.10 71	1500 1.10 73	Rpm kW dBA
1.00	750 0.55 58	820 0.75 60	895 0.75 60	1000 1.10 63	1130 1.10 66	1275 1.50 68	1380 1.50 71	1510 2.20 75	Rpm kW dBA
1.25	880 1.10 60	950 1.10 63	1000 1.10 63	1075 1.50 65	1175 1.50 66	1300 2.20 68	1400 2.20 71	1540 3.00 75	Rpm kW dBA
1.50	900 1.50 63	1060 1.50 65	1100 2.20 65	1190 2.20 66	1290 2.20 68	1350 3.00 71	1450 3.00 73	1680 4.00 75	Rpm kW dBA
1.75	1110 2.20 66	1160 2.20 66	1220 3.00 68	1300 3.00 68	1410 4.00 73	1500 4.00 73	1650 4.00 77	-- -- --	Rpm kW dBA
2.00	1250 3.00 68	1300 4.00 68	1330 4.00 71	1410 4.00 73	1490 4.00 73	-- -- --	-- -- --	-- -- --	Rpm kW dBA
2.25	1400 4.00 71	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	Rpm kW dBA

Airflow M3/s	Model TFB 4 External Resistance Pa								
	100	150	200	250	300	400	500	600	
0.75	500 0.37 51	550 0.37 55	620 0.55 58	700 0.55 58	770 0.75 62	900 1.10 63	1000 1.10 68	1100 1.50 70	Rpm kW dBA
1.00	520 0.55 55	575 0.55 55	630 0.75 58	720 0.75 62	790 1.10 62	920 1.10 68	1010 1.50 70	1120 2.20 72	Rpm kW dBA
1.25	550 0.75 55	600 0.75 58	670 0.75 58	735 1.10 62	800 1.10 63	930 1.50 68	1035 2.20 70	1150 2.20 72	Rpm kW dBA
1.50	610 0.75 58	650 1.10 58	715 1.10 62	780 1.50 62	830 1.50 63	940 2.20 68	1055 2.20 70	1170 3.00 72	Rpm kW dBA
1.75	690 1.10 58	730 1.50 62	790 1.50 62	830 1.50 63	880 2.20 63	980 2.20 68	1100 3.00 72	-- -- --	Rpm kW dBA
2.00	750 1.50 62	800 2.20 63	840 2.20 63	890 2.20 63	930 3.00 68	1000 3.00 68	1150 4.00 72	-- -- --	Rpm kW dBA
2.25	800 3.00 63	850 3.00 63	900 3.00 68	955 3.00 68	995 3.00 68	1050 4.00 70	1200 4.00 72	-- -- --	Rpm kW dBA
2.50	880 3.00 63	920 4.00 68	960 4.00 68	1010 4.00 70	1075 4.00 70	-- -- --	-- -- --	-- -- --	Rpm kW dBA

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