

AIRSIDE PRODUCTS

YMA Custom Air Handling Units



Air Volume Range • 0.25 m³/s to 60 m³/s

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The YMA family of air handling units consists of a range of models having air volumes ranging from 0.25 m³/s to 60 m³/s and total static pressures as high as 2000 Pascal: to ensure maximum flexibility and the best solution for your application, units are available in increments of 40mm in height and 50mm in width.





Unit frames are constructed from extruded aluminium profiles and have flush fitting panels and doors to provide aesthetically pleasing lines, all panels are completely removable.

The thermally insulated rigid enclosure is fully sealed and gives good acoustic performance.

The complete YMA range is Eurovent certified for guaranteed performance and peace of mind.

Accurate computer selection ensures cost effective matching of all components to satisfy the specified conditions.

YMA Air Handling Units can be manufactured in varied configurations, with a wide selection of components, to meet customer requirements.

Units are also available in line with the requirements of hospital sector specifications.

Units may include combinations of any of the following:

- **Single or double decked units**
- **Indoor or outdoor applications**
Outdoor units are available with a flat or sloping roof, louvres, rainhoods, birdscreens and special finishes.

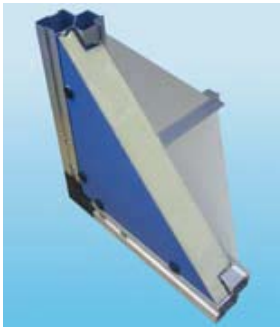
- **Site assembled units**

Where space constraints restrict the size of a single item modules can easily be aligned and locked together by gaskets and stainless steel bolts inserted into factory predrilled assembly holes.

- **Air mixing boxes**
- **Various filter options**
- **Gas fired burners**
- **Cooling and heating coils**
- **Humidifiers**
- **Heat recovery systems**
- **UV sterilising lamps**
- **Dessicant and thermal wheels**
- **Sound attenuation**
- **Factory packaged controls and sensors**
- **ATEX Certification**
- **Packaged Air Systems**
These include all necessary piping, wiring, controls and refrigeration equipment to provide a complete central air conditioning plant.
- **DIN 1946-4 & VDI 6022 APPROVED**

The Frame

The low weight corrosion resistant marine aluminium alloy twin box section profile is designed to provide strength and stability. Gaskets between panels and profiles ensure airtight sealing. The smooth radiused profiles of the framework allow efficient cleaning and prevent the trapping and subsequent growth of harmful bacteria. A thermal bridge free profile can be provided. Unit sections are mounted on a 3 mm thick galvanised steel bolted base frame.



Standard Construction



Cold Bridge Free Construction



Panels

Standard 60mm thick (30mm optional) double skinned galvanised panels comprising 0.7mm internal and external skins with 40kg/m³ density pressure injected polymerised polyurethane foam insulation, giving a 'K' value of 0.2 W/m²°C. Optional panels can be manufactured from pre-plastic coated steel, pre-painted metal or

Stainless Steel. Panels are fixed to frame with stainless steel screws. 88mm Panels are also available upon special request, offering a thermal bridging factor of TB1 - the highest classification available when tested in accordance with EN1886

Access

Panels are fully re-movable. Access doors are equipped with half turn nylon handles and cam locks. Hinges are fibreglass re-inforced plastic with stainless steel pivots. Optional double glazed viewing portholes can be supplied.

Mechanical characteristics- prEN 1886:2003

PANEL TYPE	CASING STRENGTH	CASING AIR LEAKAGE	THERMAL TRANSMITTANCE	THERMAL BRIDGING
60mmTB	D1	L1	T2	TB2
60mm	D1	L1	T3	TB3
60mmRW	D1	L1	T2	TB4
30T	D2	L2	T3	TB4

Fans

YMA units are supplied with one or two double inlet, double width forward or backward curved centrifugal fans. Fan inlets are aerodynamically designed and wheels statically and dynamically balanced according to airflow and speed.

Smaller fans have sealed for life bearings and larger versions have block type self aligning ball journals and split blocks with grease points.

Vee belt fan drives have removable fan guards.

Motors are totally enclosed fan cooled type class F insulation to IP55 protection. (Category 2 Zone 1 ATEX certified motors available as an option).

The total fan assembly is installed on a separate frame isolated from the unit structure by spring anti-vibration mounts.

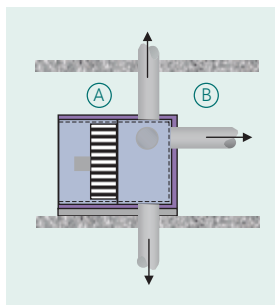
Where plant space is at a premium plenum type fans may be used. The plenum fan pressurises an acoustically lined fan chamber and circular or rectangular discharge duct connections can be located on the external faces of the chamber. This reduces the length of the air handling plant by eliminating the need for external attenuators or complicated duct transformation pieces. Please contact local sales office for fan application details.



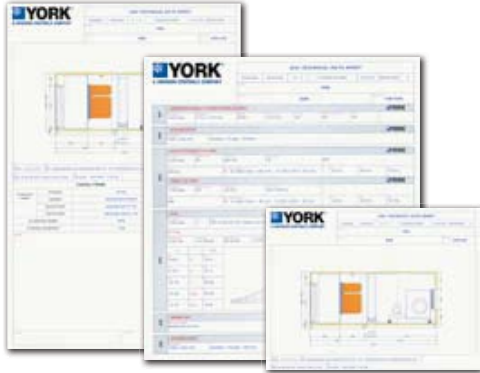
Drive Options

- Dual speed fan motors
- Direct drive fans
- Variable speed drives

Plenum Fan Configuration



- (A) Acoustically Lined Fan Section
- (B) Supply Air Ducts



Computer Selection Programme

The flexible computerised programme provides the optimum equipment selection to satisfy the specified conditions and provides full technical information plus General Arrangement drawings.

Cooling and Heating Coils

Cooling and heating coils are computer selected to achieve the optimum thermal and psychrometric efficiency with low air and water pressure drops.

Coils

Standard coils are constructed from copper tubes mechanically bonded to aluminium fins, with threaded steel headers, all contained in a galvanised steel frame. Air vents and drain connections are provided. Coils are leak tested at 30 bar with a maximum design pressure of 15bar.

The cooling coil assembly is located in a drain pan within the coil section on slide rails for easy withdrawal from either side.

Insulated condensate pans are a "dry pan" design inclined in 3 directions to ensure complete condensate removal, and manufactured from a choice of stainless steel or aluminium alloy.

Droplet eliminators are fitted after cooling coils when the air velocity exceeds 2.5m/s.



Coil options are:

- Medium/high pressure steam coils
- Copper fins
- Electro-tinned copper fins
- Pre-painted and epoxy coated fins
- Copper headers
- All steel coils
- All aluminium coils
- Direct expansion coils
- Stainless steel slide rails
- Stainless steel frame
- Aluminium and PPTM droplet eliminators
- Fully removable drain pan

Electric Heating Coils

Manufactured from low temperature screened stainless steel tube and spiral fin heating elements secured to a heavy gauge steel frame. A manual reset safety thermostat, a high temperature cutout and an airflow switch are fitted. Step or modulating control options are available.

Gas Burners

Indirect gas fired burners can be supplied with a choice of on/off, staged, or fully modulating control, and are suitable for use in both draw through and blow through applications.

The burner design ensures no transition sections from the fan are necessary on draw through systems, thereby reducing fabrication cost. Also, burners can be horizontally mounted on 'downflow' applications, eliminating the need for turning sections and saving cost, space and weight.

Low NOx / carbon monoxide free burners are also available in order to increase safety and reduce atmospheric pollution.



Humidifiers

Generated Steam Humidifier

Consists of immersed electrodes, steam cylinder, stainless steel distribution pipe and electronic controls for water regulation and automatic flushing.

Air Washer

An externally mounted pump, with a removable strainer, draws water from an aluminium alloy tank, which has a liquid level regulator, overflow, drain and flushing device. Spray distribution is via a nylon pipe and nozzles. Sprays may be single or double row. An air tight access hatch, with porthole, an internal light, a perforated air equaliser plate and a droplet eliminator are incorporated.

Wet Deck Humidifier

A viscose-coated evaporating pack is moistened with water, circulated by an internally mounted pump with removable strainer, from a header tank. The base tank includes a ball valve, overflow and drain. The assembly is constructed from aluminium alloy sheets.

Direct Injection Humidifier

Electrically or pneumatically operated steam humidifiers can be installed to inject dry, sterile steam into the airstream via steam distribution pipes. Units are normally supplied with a control valve for actuation by others.



Filters

Filter sections are designed for easy front or side withdrawal of the following filter types:

Prefilters

Synthetic or glass-fibre media panel filters, class EU2 to EU4 (EU3 supplied as standard) arranged in galvanised steel frames or sliding rails.

Main Filters

Synthetic or glass-fibre media bag filters, class EU5 to EU8 (EU6 supplied as standard) arranged in galvanised steel frames with gaskets to avoid air bypass.

Final Filters

High efficiency compact cell filters, class H10 to H14 according to EN 1822, fixed with brackets, nuts and bolts or clamps to a heavy galvanised steel gasketed structure. Stainless steel welded frames and DOP testing of filter bank available if required.



Dampers

Extruded aluminium dampers are the opposed or parallel blade type. The flanged frame is pre-drilled for ductwork connection. Side gaskets are installed to minimise air leakage. Spindles are manufactured from aluminium and have Teflon or nylon bushes. Control links are aluminium.



Heat Recovery

In an age where we all have to consider how what we do impacts on the environment, YMA air handling units are available with a range of Heat recovery devices that reduce energy usage and lower the equipment running costs...helping save our tomorrows today.

Plate Heat Exchanger

Manufactured from aluminium or plastic plates (optional stainless steel or polycarbonate) and turbulation channels to permit heat transfer from warm to colder air systems without mixing the two air streams.

Heat Pipe

Vertically mounted tubes, charged with refrigerant, exchange heat by the evaporation of warm air stream in the lower section and re-condensation in the cold air stream in the upper section.

Thermal Wheel

Available with a hygroscopic or non-hygroscopic rotor for recovering and transferring heat energy from the exhaust to the supply air streams.

Sound Attenuation

Standard attenuation sections comprise baffles of galvanised steel and non-hygroscopic material, with option for either perforated plate or 'melonex' liners.



Lighting & Electrical

Optional water resistant bulkhead lights and switches can be supplied. Fan motors and other electrical items can be pre-wired to local isolators and /or terminal.

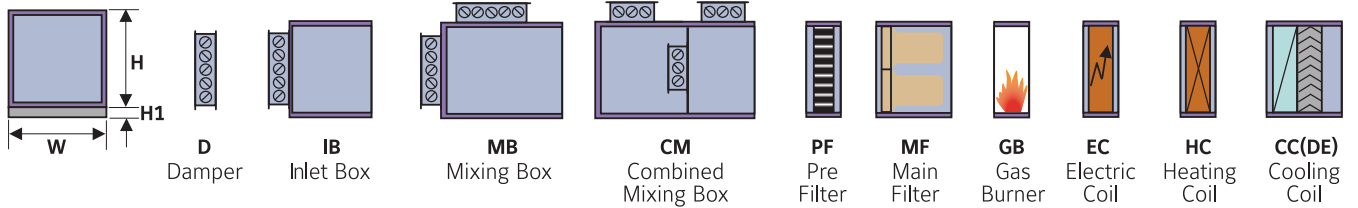


Factory Packaged Controls

All units can be supplied with factory fitted controls, sensors and control panels. Using YORK SmartPAC packaged control system incorporating Johnson Controls range of system controllers, units are supplied to site pre-wired, programmed and tested thus saving time and money associated with traditional site installation and commissioning methods. All installations will be compliant with the latest applicable National/European codes.



YMA "Quick Size" Guide



YMA Size	Duty (m³/s)	Cross Section (mm)			D 1/1		D 1/2		1B (1)		MB		CM (1a)		PF		MF		GB		EC		HC
		H	H1	W	kg	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l
610/750	0.25-0.44	610	100	750	9	5	350	40	500	43	1000	71	350	34	800	66	N/A	#	450	77	350		
690/900	0.42-0.74	690	100	900	12	6	350	49	500	49	1000	82	350	39	800	76	N/A	#	450	84	350		
690/1050	0.55-0.95	690	100	1050	15	8	350	57	500	56	1000	93	350	44	800	86	N/A	#	450	93	350		
970/950	0.79-1.39	970	100	950	18	9	350	61	600	66	1200	111	350	47	800	86	Dimensions & weights variable dependent on duty & application. Please contact your local york office for verification.		450	125	350		
970/1150	1.08-1.90	970	100	1150	22	11	350	70	600	75	1200	124	350	52	800	96			450	153	350		
970/1350	1.37-2.40	970	100	1350	26	13	350	80	600	81	1200	138	350	58	800	109			450	187	350		
1210/1250	1.63-2.86	1210	100	1250	27	14	350	82	800	103	1600	181	350	60	800	110			450	181	350		
1210/1500	2.11-3.70	1210	100	1500	34	17	350	94	800	113	1600	198	350	66	800	124			450	209	350		
1210/1700	2.50-4.37	1210	100	1700	39	19	350	104	800	123	1600	215	350	72	800	136			450	237	350		
1210/2000	3.07-5.38	1210	100	2000	43	21	350	114	800	132	1600	232	350	78	800	145			450	265	350		
1530/1500	2.77-4.85	1530	100	1500	39	20	350	106	1000	150	2000	268	350	72	800	139			450	320	350		
1530/1750	3.40-5.95	1530	100	1750	48	24	350	120	1000	162	2000	289	350	79	800	152			450	343	350		
1530/2000	4.03-7.06	1530	100	2000	54	27	350	131	1000	173	2000	310	350	87	800	171			450	356	350		
1530/2200	4.54-7.94	1530	100	2200	59	29	350	142	1000	185	2000	331	350	93	800	180			450	369	350		
1890/1700	4.21-7.37	1890	100	1700	55	28	350	133	1250	207	2500	385	350	88	800	175			450	175	350		
1890/1900	4.86-8.51	1890	100	1900	58	29	350	141	1250	220	2500	411	350	94	800	185			450	399	350		
1890/2150	5.51-9.64	1890	100	2150	68	34	350	157	1250	234	2500	437	350	100	800	204			450	204	350		
1890/2400	6.32-11.06	1890	100	2400	78	39	350	172	1250	248	2500	462	350	107	800	214			450	497	350		
2170/1950	5.76-10.1	2170	100	1950	68	34	350	158	1400	268	2800	491	350	104	800	206			450	446	350		
2170/2150	6.53-11.42	2170	100	2150	79	39	350	174	1400	283	2800	520	350	109	800	215			450	493	350		
2170/2400	7.49-13.1	2170	100	2400	87	43	350	188	1400	298	2800	548	350	116	800	227			450	550	350		
2170/2650	8.45-14.78	2170	100	2650	98	49	350	204	1400	314	2800	577	350	123	800	243			450	607	350		
2410/2250	7.78-13.61	2410	100	2250	91	46	350	193	1600	339	3200	628	350	118	800	234			450	570	350		
2410/2500	8.86-15.50	2410	100	2500	100	50	350	207	1600	356	3200	660	350	124	800	251			450	636	350		
2410/2750	9.94-17.40	2410	100	2750	113	56	350	225	1600	373	3200	693	350	132	800	274			450	702	350		
2410/2950	10.80-18.90	2410	100	2950	122	61	350	240	1600	390	3200	725	350	140	800	298			450	769	350		
2650/2550	10.08-17.64	2650	100	2550	113	56	350	227	1700	399	3400	740	350	134	800	262			450	721	350		
2650/2800	11.28-19.74	2650	100	2800	128	64	350	247	1700	418	3400	774	350	141	800	286			450	787	350		
2650/3050	12.48-21.84	2650	100	3050	138	69	350	262	1700	435	3400	809	350	148	800	309			450	853	350		
2650/3300	13.68-23.94	2650	100	3300	148	74	350	278	1700	453	3400	843	350	157	800	319			450	919	350		
2650/3550	14.8-26.0	2650	100	3550	158	79	350	293	1700	470	3400	877	350	168	800	332			450	984	350		

1. IB weight with D1/1

1a. CM data for 100% fresh air/exhaust

2. Section length variable 600mm - 1800mm dependent on module arrangement

3. HC weight for 1 row dry coil

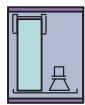
4. CC weight for 6 row dry coil

5. Adiabatic evaporating pack

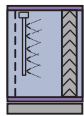
6. AW dry weight.

7. CF weight includes motor and drive set.

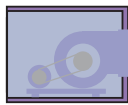
Dimensions are for guidance only - units are available in increments of 40mm in height and 50mm in width. Section



EH
Evaporative Humidifier



AW
Air Washer



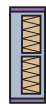
CF
Centrifugal Fan Section



DS
Diffuser Section



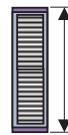
SA
Sound Attenuator



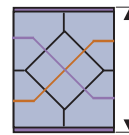
FF
Final Filter



ES
Empty Section



HW
Heat Wheel



PX
Plate Heat Exchanger



EP
End Panel

(3)	CC (4)		DE	EH (5)			AW (6)			CF (7)		DS		SA (8)		FF (9)		ES		HW (10)		PX		EP
kg	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	l	kg	kg
34	650	60	5	N/A	####	N/A	####	1100	140	350	33	1050	107	350	36	600	48	800	160	1050	90	9		
40	650	74	10	N/A	####	N/A	####	1100	154	350	40	1050	119	350	42	600	56	800	170	1050	110	12		
47	650	88	20	N/A	####	N/A	####	1100	168	350	46	1050	142	350	45	600	64	800	180	1050	155	15		
50	650	100	10	700	125	1600	195	1300	175	700	75	1050	154	350	45	600	66	800	170	1400	147	18		
57	650	120	20	700	140	1600	223	1300	197	700	85	1050	183	350	60	600	75	800	220	1400	176	22		
64	650	140	25	700	161	1600	252	1300	216	700	94	1050	213	350	80	600	82	800	245	1400	242	26		
66	650	152	30	700	174	1600	273	1700	335	700	96	1050	216	350	85	600	82	800	200	1600	195	27		
75	650	178	35	700	195	1600	297	1700	360	700	107	1050	251	350	100	600	91	800	240	1600	240	34		
83	650	205	45	700	216	1600	321	1700	393	700	117	1050	285	350	140	600	98	800	265	1600	280	39		
91	650	231	50	700	236	1600	345	1700	452	700	126	1050	297	350	165	600	106	800	299	1600	320	43		
86	650	215	50	700	216	1600	346	1900	493	700	119	1050	298	350	140	600	100	800	252	1600	350	39		
95	650	247	60	700	243	1600	382	1900	541	700	128	1050	339	350	175	600	107	800	301	1600	415	48		
105	650	281	70	700	270	1600	417	1900	633	700	140	1050	353	350	200	600	115	800	376	1600	470	54		
113	650	308	80	700	296	1600	453	1900	654	700	149	1050	393	350	240	600	122	800	410	1600	534	59		
106	650	296	80	700	262	1600	404	2100	762	700	141	1050	357	350	210	600	116	800	333	1900	560	55		
118	650	330	90	700	291	1600	440	2100	791	700	152	1050	406	350	250	600	124	800	412	1900	635	58		
127	650	364	105	700	322	1600	478	2100	818	700	163	1050	451	350	290	600	133	800	447	1900	720	68		
138	650	401	115	700	351	1600	517	2100	842	700	173	1050	502	350	330	600	140	800	482	1900	795	78		
129	650	373	109	700	329	1600	517	2400	879	700	165	1050	505	350	290	600	133	800	424	1900	885	68		
141	650	417	125	700	358	1600	555	2400	907	700	176	1050	517	350	340	600	142	800	483	1900	1005	79		
152	650	463	145	700	388	1600	593	2400	1053	700	188	1050	571	350	375	600	148	800	523	1900	1115	87		
163	650	508	165	700	417	1600	630	2400	1081	700	198	1050	626	350	425	600	157	800	568	1900	1235	98		
155	650	472	140	700	380	1600	577	2700	1171	700	189	1050	627	350	395	600	150	800	495	2200	1242	91		
167	650	523	155	700	421	1600	623	2700	1368	700	199	1050	689	350	480	600	159	800	570	2200	1411	100		
189	650	574	170	700	461	1600	669	2700	1542	700	212	1050	701	350	505	600	166	800	609	2200	1542	113		
192	650	625	185	700	500	1600	715	2700	1576	700	223	1050	713	350	550	600	174	800	619	2200	1610	122		
182	650	584	170	700	472	1600	684	3000	1622	700	215	1050	763	350	500	600	168	800	676	2500	1600	113		
196	650	640	175	700	506	1600	725	3000	1660	700	224	1050	832	350	540	600	176	800	686	2500	1785	128		
208	650	698	185	700	540	1600	764	3000	1922	700	237	1050	900	350	590	600	183	800	730	2500	1970	138		
223	650	754	200	700	574	1600	806	3000	1958	700	245	1050	968	350	630	600	191	800	740	2500	2150	148		
236	650	811	220	700	609	1600	847	3000	2446	700	256	1050	980	350	680	600	198	800	754	2500	2330	158		

8. SA based on standard splitter length of 900mm. 600mm, 750mm, 1200mm, 1500mm, 1800mm long also available"

9. Minimum of 1 ES required for access/replacement of cells

10. Add 1 ES before and after HW

11. ALL DIMENSIONS AND WEIGHTS ARE APPROXIMATE ONLY

12. Lengths shown are for individually constructed sections; where 2 or more sections are manufactured in a single casing, subtract 75mm for each component section from total length."

lengths are sized to the nearest millimetre, with flexible shipping splits, to ensure the best solution to your application.



YMA-C Air Handling Units

Air Volume Range 0.8 m³/s to 60 m³/s

A range of YORK
"Hygienic" Air Handling
Units, offering unique
solutions to the application
of Central Station Air
Conditioning in a sterile
environment.





There are many factors affecting air quality, comfort conditions and the efficient operation of Air Handling Units.

These include:

- **Mechanical Performance**
- **Thermal transmission through the Air Handling Unit casing**
- **Air leakage**
- **Noise transmission**
- **Bacteria protection**
- **Air cleanliness and filter efficiency**
- **Fan and motor efficiency**
- **Dehumidification**
- **Humidification**

These factors are valid for the air conditioning of commercial buildings and hotels etc., as well as hygiene sensitive environments such as hospitals, laboratories, clean rooms, food processing and a variety of other process systems.

YORK YMA-C AHU'S have been specifically designed to address all of these factors:

- **Mechanical Performance**
- **Thermal Efficiency**
- **Air Leakage and Cleanliness**

The YMA-C is an Air Handling Unit manufactured from 88mm thick sheet metal panels insulated with CFC free PU foam. In other types of Air Handling Unit construction, the majority of air leakage occurs between the frame and the panels.

YMA-C Air Handling Units comprise an extremely rigid sealed frame construction, therefore gaps between panel junctions are minimal, and consequently air leakage is greatly reduced.

The unit also includes a non-metallic isolating frame around the internal perimeter of each panel, which serves to all but eliminate Thermal Transmission through the casing. An external aluminium profile maintains structural integrity and air-tightness without compromising the thermal-bridging characteristics of the unit.

The construction of the units achieves the highest classification available for both thermal transmittance (**T1**) and thermal bridge factor (**TB1**) when measured against Eurovent test standards of prEN 1886:2003.

Mechanical characteristics-prEN 1886:2003

PANEL TYPE	CASING STRENGTH	CASING AIR LEAKAGE	THERMAL TRANSMITTANCE	THERMAL BRIDGING
88	D1	L1	T1	TB1

Flexibility

YMA-C Air Handling Units can be manufactured in varied configurations, with a wide selection of components, to meet customer requirements. To ensure maximum flexibility and the best solution for your application, units are available in 50mm increments in both height and width.

Units are also available in line with the requirements of all European hospital sector specifications.



Casing Materials	Centrifugal Fans	Filters	Cooling Coils	Heating Coils	Heat Recovery	Humidifiers
Prepainted Steel	Forward Curved	Panel	Chilled Water	Hot Water	Cross Flow	Electronic Steam
Plastic Coated steel	Backward Curved	Bag or HEPA	Direct Expansion	Electric	Run-Around	Mains Steam
Stainless Steel	External motor option	Carbon Activated		Steam	Dessicant	Cell
Aluminium	Plug Fan				Thermal Wheel	Spray

Bacteria Protection

There are two main ways to protect the system from bacteria development and maximise Indoor Air Quality:

1. Prevent the moist conditions that encourage bacterial and fungal development by using steam humidifiers rather than water spray systems.
2. Ensure that the Air Handling Unit is frequently cleaned.

To ensure high IAQ and cleanliness levels, the internal construction of the unit has been designed so that it has no exposed interior support members and the internal surface is perfectly smooth without

obstructions or crevices, thus offering no sanctuary for harmful bacteria to settle and breed. In addition, the whole of the AHU interior can be made from stainless steel, and has an option for all floor panels to be sloped to give continuous drainage for all sections and provide maximum opportunity for internal cleaning.

All units can be tested for air leakage at the factory, while HEPA filter installations can also be particulate (DOP) tested to eliminate any risk of contamination from dust, dust mites, moulds, mildew, pet dander, pollen and other micro-organisms. Other components available include silencers, dampers, and a range of accessories. Units can also be supplied with an on board DDC control package incorporating the JCI SmartPAC control system, which allows units to be pre-engineered, wired and tested before shipment. Where units are delivered in sections a plug-and-play quick connection system allows fast installation.

Accurate computer selection ensures cost effective matching of all components to satisfy the specified conditions – please contact your local JCI sales office for Air Handling Unit selections and further information.



