



# PRODUCT MANUAL

FCF PM04A\_ENG

Date: **September 2004**

Supersedes: - -

## Chilled Water Fan Coils

### VERTICAL

Models: MFU-C MFU-H  
MFC-C MFC-H



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# VERTICAL FLOW FAN COIL

## THE NEW SHAPE OF WELLNESS

The new series F of fan coil with vertical air flow is characterised by flexibility in performance and quiet operation to offer a total wellness. It represents the best solution for apartments, shops, public and private offices, hospitals, residences, hotels and may others.

The series features 8 sizes, with cabinet for floor or wall installation and chassis for concealed installations.

The units are available in the 2-pipes version with 3 or 4-rows coil – nominal cooling capacity from 1.3 to 8.0kW; nominal heating capacity from 2.2 to 12.0kW – or in the 4-pipes version – nominal cooling capacity from 1.2 to 8.0kW; nominal heating capacity from 2.3 to 13.0kW. 2-pipes version models can also be equipped with 1 or 2-stage electrical heaters, from 0.8 to 3.0kW.



The AC2800 on-board electronic control allows, in its standard configuration, both the regulation of all functionalities and units operating modes and the connection into a network in Master & Slave configuration up to 16 units.

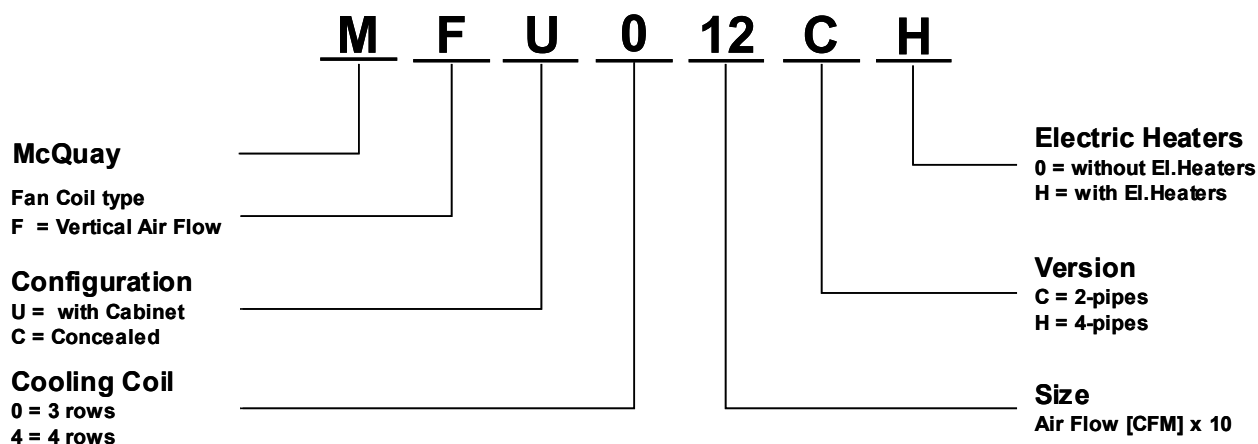
The control module has been designed to automatically set up according to the unit configuration:

- cooling or heating for 2-pipes application
- cooling or heating for 2-pipes application with electrical heater
- cooling or heating for 4-pipes application
- with/without 2-way or 3-way ON/OFF regulating valves

activating all parameters and routines of regulation which optimise the operation of the unit.

Through AC2800 units can also be directly integrated with Smart Manager, McQuay solution for the supervision of hydronic systems. With reference to Fan Coils, Smart Manager run up to 256 units and 120 zones.

## NOMENCLATURE



# GENERAL CHARACTERISTICS

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## Design

The design, elegant and considered in all details, harmonises well with all types of interiors.

Cover, grids and cabinet materials have been selected with a special care to grant both the quality of the finishing and the durability of the product.

Cover and grids are realised in ABS, RAL103; the cabinet is made of pre-painted sheet metal finished with high quality paint, RAL1013.

## Filter

The filter, located at the bottom of the unit, is easily accessible and self-locking, therefore no tools are required for removing and re-assembling it.

The filter material grade is G1 and thanks to its pleated surface grants a filtration surface up to 60% greater than traditional filters resulting in lower pressure drop and reduced noise emission.

## Connections

Units are available with left or right hand water connections, which can be easily switched in the field if required. Connections are equipped with air vents and drainage valves.

## Controls

### AC2800 Electronic control (optional)

Among the features of AC2800 control are:

- Selectable temperature interval: 10-30°C or 16-30°C according to the application
- Auto restart after power failure based on last temperature and mode setting
- Timer with 2 daily settings (14 weekly)
- Change-over heat/cool, based on control system signal
- Warm and cold draft protection  
(this feature stops the fan when the set-point condition is satisfied and the water temperature is too warm does not cause discomfort to the room occupants)
- Antifreeze protection  
(this function ensures that the room temperature is kept above a minimum level; if the unit is in off mode, and the room temperature drops below 9°C, antifreeze protection is enabled and the unit temperature rises above 11°C. At this point the unit is switched off again.)
- Ambient temperature sensor incorrect operation
- Air temperature sensor  
(this is unit-mounted – if the control is wall-mounted, a second air sensor located in the control can be used for fine tuning of the desired room temperature.)
- Valves 2 or 3 ways with ON/OFF control
- 2-stage electric heater regulation
- Smart manager integration

Besides the led present on the cover allow an immediate display of the unit operation status - fan speed, operating mode, ON/OFF - and at the same time they are used with auto-diagnosis function.

# GENERAL CHARACTERISTICS

The **AC2800** control can be connected straight to Fan Coil Network, without any further components; in fact the electronic board has integrated the NIM Module [ Network Interface Module].

The Network allows to control from a unique place all the operating parameters of the connected units.

The general control is executed through the Master unit and can be carry out through the electronic control on board, the wall mounted installed thermostat or the infra-red handset.

Across AC2800, the units can be connected straight to Smart Manager, the McQuay hydronic systems supervision solution. With reference to hydronic units, Smart Manger manages untill256 units and 120 zones.



# GENERAL CHARACTERISTICS

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## **AC8000 Electronic thermostat**

The thermostat AC8000 is predisposed for wall mounted and is composed of:

- LCD DISPLAY: back-light and with graphic extremely easy, allows also an easy reading of the operating parameters and auto-diagnosis
- KEYBOARD: allows to set parameters as: room temperature, fan speed, manual or automatic fan speed setting, operating mode summer/winter, ON/OFF, operating time setting
- INFRA-RED HANDSET AC5300: standard, assures an utilization more easy than other thermostat 2.5 metres.

**AC512 Mechanical thermostat** [for 2 pipes versions] and **Mechanical thermostat AC513** [for 4 pipes versions]

Easy utilization, allows to set essential operating parameter: room temperature, fan speed, ON/OFF

## **ACCESSORIES**

Valves kit [*standard condensate drain panel* ], 2 or 3 ways

Electrical heater

Controls

Feet (cover and/or support)

Base module

Frontal air intake module

External air intake module

# TECHNICAL DATA

2 PIPES

3 ROWS

MODELS		012C	020C	025C	035C	050C	060C	080C	090C
Nominal Air Flow (High/Medium/Low)	m <sup>3</sup> /h	290/245/197	380/296/210	497/349/260	705/565/400	853/695/465	1141/969/705	1360	1500
Available Static Pressure	Pa	--	--	--	--	--	--	--	--
Total Cooling Capacity <sup>1</sup>	kW	1.3	1.8	2.7	3.6	4.8	5.9	6.9	8.0
Total Sensible Capacity <sup>1</sup>	kW	1.0	1.5	1.9	2.6	3.6	4.6		
Heating Capacity <sup>2</sup>	kW	2.2	2.7	3.6	4.8	6.2	8.1	10.5	12.0
Water Flow Rate	l/s	0.063	0.085	0.129	0.170	0.227	0.282		
Water Pressure Drop - Cooling	kPa	4	5	10	16	28	33		
Lp (Sound Pressure Level) <sup>3</sup>	dB(A)	38/35/33	42/37/32	42/35/32	48/44/39	47/39/31	53/48/41		
Power Supply	V/ph/Hz	230/1/50							
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply <sup>4</sup>	kW	0.024	0.044	0.044	0.059	0.068	0.102	0.125	0.150
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total volume	litres	0.792		1.158		1.525			
Weight [with package]	kg	20 [22]		24 [27]		26 [30]			
Weight with cabinet [with package]	kg	22 [25]		29 [32]		32 [37]			
Dimens. unit (LxA xP)	mm	704x224x540		904x224x540		1104x224x540			
Dimens. with cabinet (LxA xP)	mm	910x539x230		1110x539x230		1310x539x230		1510x539x230	

2 PIPES

4 ROWS

MODELS		412C	420C	425C	435C	450C	460C	480C	490C
Nominal Air Flow (High/Medium/Low)	m <sup>3</sup> /h	254/215/176	369/321/240	445/330/250	677/545/380	811/663/456	1068/915/672	1300	1450
Available Static Pressure	Pa	--	--	--	--	--	--	--	--
Total Cooling Capacity <sup>1</sup>	kW	1.5	2.7	3.1	4.6	5.3	6.4	7.1	8.3
Total Sensible Capacity <sup>1</sup>	kW	1.1	1.7	2.1	2.8	3.7	5.0		
Heating Capacity <sup>2</sup>	kW	2.3	2.8	4.2	5.3	6.8	8.4	11.0	12.5
Water Flow Rate	l/s	0.073	0.098	0.149	0.193	0.251	0.304		
Water Pressure Drop - Cooling	kPa	4	5	10	14	21	20		
Lp (Sound Pressure Level) <sup>3</sup>	dB(A)	38/36/33	42/37/32	41/34/32	47/43/38	47/39/31	53/48/41		
Power Supply	V/ph/Hz	230/1/50							
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply <sup>4</sup>	kW	0.021	0.050	0.051	0.056	0.077	0.107	0.130	0.155
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total volume	litres	1.056		1.545		2.033			
Weight [with package]	kg	24 [24]		28 [30]		30 [33]			
Weight with cabinet [with package]	kg	26 [27]		31 [35]		35 [40]			
Dimens. unit (LxA xP)	mm	704x224x540		904x224x540		1104x224x540			
Dimens. with cabinet (LxA xP)	mm	910x539x230		1110x539x230		1310x539x230		1510x539x230	

NOTES

- 1 At the following nominal conditions: nominal air flow; 7/12°C inlet/outlet water temperature; 27°C db/19°C wb inlet air temperature; High speed
- 2 At the following nominal conditions: nominal air flow 50°C inlet water temperature; 20°C inlet air temperature; same water flow as for cooling; High speed
- 3 At High/Medium/Low speed; nominal air flow; measured in a room of 100m volume and 0.5 sec. reverberation time ( e.g. office/conference room with carpet on the floor)
- 4 Nominal Air Flow; High Fan Speed

# TECHNICAL DATA

## 4 PIPES

## 3+1 ROWS

MODELLI		012H	020H	025H	035H	050H	060H	080H	090H
Nominal Air Flow (High/Medium/Low)	m <sup>3</sup> /h	254/215/ 176	369/321/ 240	445/330/ 250	677/545/ 380	811/663/ 456	1068/915/ 672	1300	1450
Available Static Pressure	Pa	--	--	--	--	--	--	--	--
Total Cooling Capacity <sup>5</sup>	kW	1.2	1.8	2.5	3.5	4.6	5.7	6.9	8.0
Total Sensible Capacity <sup>5</sup>	kW	0.9	1.4	1.7	2.5	3.4	4.4		
Water Flow Rate	l/s	0.057	0.084	0.118	0.165	0.219	0.271		
Water Pressure Drop - Cooling	kPa	4	5	8	15	26	16		
Heating Capacity <sup>6</sup>	kW	2.3	2.9	4.3	5.6	7.0	8.6	12.0	13.0
Water Flow Rate	l/s	0.057	0.071	0.104	0.137	0.172	0.209		
Water Pressure Drop - Heating	kPa	11	18	30	18	35	40		
Lp (Sound Pressure Level) <sup>7</sup>	dB(A)								
Power Supply	V/ph/Hz	230/1/50							
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply <sup>4</sup>	kW	0.021	0.050	0.051	0.056	0.077	0.107	0.130	0.155
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total volume	litres	[0.792 + 0.264]		[1.158 + 0.386]		[1.525 + 0.508]			
Weight [with package]	kg	24 [24]		28 [30]		30 [33]			
Weight with cabinet [with package]	kg	26 [27]		31 [35]		35 [40]			
Dimens. unit (LxA xP)	mm	704x224x540		904x224x540		1104x224x540			
Dimens. with cabinet (LxA xP)	mm	910x539x230		1110x539x230		1310x539x230		1510x539x230	

### NOTES

4 Nominal Air Flow; High Fan Speed

5 At the following nominal conditions: nominal air flow; 7/12°C inlet/outlet water temperature; 27°C db / 19°C wb inlet air temperature; High speed

6 At the following nominal conditions: nominal air flow; 70/60 °C inlet/outlet water temperature; 20°C inlet air temperature; High speed

7 At High/Medium/Low speed; nominal air flow; measured in a room of 100 m volume and 0.5 sec. reverberation time ( e.g. office/conference room with carpet on the floor)

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# SOUND LEVEL

**2 PIPES**

**3 ROWS**

Model	Speed	1/1 Octave Sound pressure level								Lw [dB(A)]	Lp [dB(A)]	NR
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz			
012C	High	50,7	50,7	49,2	44,3	39,6	34,7	27,6	23,8	46,0	38,0	33,0
	Medium	48,9	48,9	46,7	41,7	36,6	30,2	23,6	22,5	43,5	35,5	30,0
	Low	47,1	47,1	44,4	39,1	32,8	25,8	20,5	22,4	40,5	32,5	28,0
020C	High	51,3	51,3	51,7	48,6	44,4	38,6	30,8	25,8	50,0	42,0	37,0
	Medium	48,0	48,0	47,1	43,8	38,0	30,2	22,8	23,8	44,5	36,5	32,0
	Low	45,3	45,3	43,3	39,0	32,2	24,0	19,3	22,8	40,0	32,0	28,0
025C	High	51,4	51,4	52,0	48,1	44,4	38,6	31,5	26,0	50,0	42,0	37,0
	Medium	46,9	46,9	46,1	42,4	36,9	29,2	21,8	22,7	43,0	35,0	31,0
	Low	45,4	45,4	43,6	39,1	32,6	24,5	19,2	22,6	40,0	32,0	28,0
035C	High	57,1	57,1	57,3	53,3	50,2	45,8	39,4	33,0	55,5	47,5	43,0
	Medium	53,2	53,2	53,7	50,0	46,2	41,2	33,8	27,8	51,5	43,5	39,0
	Low	48,9	48,9	49,2	45,6	40,7	34,4	26,0	23,6	47,0	38,5	34,0
050C	High	54,7	54,7	55,6	53,2	50,8	45,0	38,7	31,2	55,0	47,0	43,0
	Medium	48,7	48,7	48,1	45,9	41,4	34,0	26,4	23,8	47,0	39,0	35,0
	Low	47,8	47,8	41,6	37,5	30,1	21,7	19,5	23,1	39,0	31,0	26,0
060C	High	60,4	60,4	60,5	58,2	57,1	52,2	47,2	40,5	61,0	53,0	51,0
	Medium	56,1	56,1	55,4	53,3	51,8	46,4	40,7	33,7	56,0	48,0	44,0
	Low	53,2	53,2	49,5	47,6	44,6	38,1	31,8	26,8	49,0	41,5	38,0
080C	High											
	Medium											
	Low											
090C	High											
	Medium											
	Low											

**2 PIPES**

**4 ROWS**

Model	Speed	1/1 Octave Sound pressure level								Lw [dB(A)]	Lp [dB(A)]	NR
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz			
412C	High	50,3	50,3	48,8	43,9	39,2	34,3	27,2	23,4	46,0	38,0	33,0
	Medium	48,9	48,9	46,7	41,7	36,6	30,2	23,6	22,5	43,5	35,5	30,0
	Low	46,9	46,9	44,2	38,9	32,6	25,6	20,3	22,2	40,5	32,5	27,0
420C	High	51,5	51,5	51,9	48,8	44,6	38,8	31,0	26,0	50,0	42,0	38,0
	Medium	48,7	48,7	47,8	44,5	38,7	30,9	23,5	24,5	45,0	37,0	33,0
	Low	45,7	45,7	43,7	39,4	32,6	24,4	19,7	23,2	40,5	32,5	28,0
425C	High	50,7	50,7	51,1	48,0	43,8	38,0	30,2	25,2	49,0	41,0	37,0
	Medium	46,2	46,2	45,3	42,0	36,2	28,4	21,0	22,0	43,0	34,5	31,0
	Low	45,0	45,0	43,0	38,7	31,9	23,7	19,0	22,5	39,5	31,5	27,0
435C	High	56,5	56,5	57,3	52,8	49,5	44,8	38,4	32,1	55,0	47,0	42,0
	Medium	52,9	52,9	53,7	49,5	45,5	40,2	33,0	27,3	51,5	43,0	38,0
	Low	48,7	48,7	49,0	45,2	40,2	33,6	25,7	24,1	46,0	38,0	34,0
450C	High	54,7	54,7	55,6	53,2	50,8	45,0	38,7	31,2	55,0	47,0	43,0
	Medium	48,7	48,7	48,1	45,9	41,4	34,0	26,4	23,8	47,0	39,0	35,0
	Low	48,1	48,1	41,9	37,8	30,4	22,0	19,8	23,4	39,0	31,0	26,0
460C	High	60,4	60,4	60,5	58,2	57,1	52,2	47,2	40,5	61,0	53,0	51,0
	Medium	56,1	56,1	55,4	53,3	51,8	46,4	40,7	33,7	56,0	48,0	44,0
	Low	53,2	53,2	49,5	47,6	44,6	38,1	31,8	26,8	49,0	41,5	38,0
480C	High											
	Medium											
	Low											
490C	High											
	Medium											
	Low											

Sound pressure level and NR are measured to a room of 100 m volume and 0.5 sec. reverberation time ( e.g. office/conference room with carpet on the floor).

# SOUND LEVEL

**4 PIPES**

**3+1 ROWS**

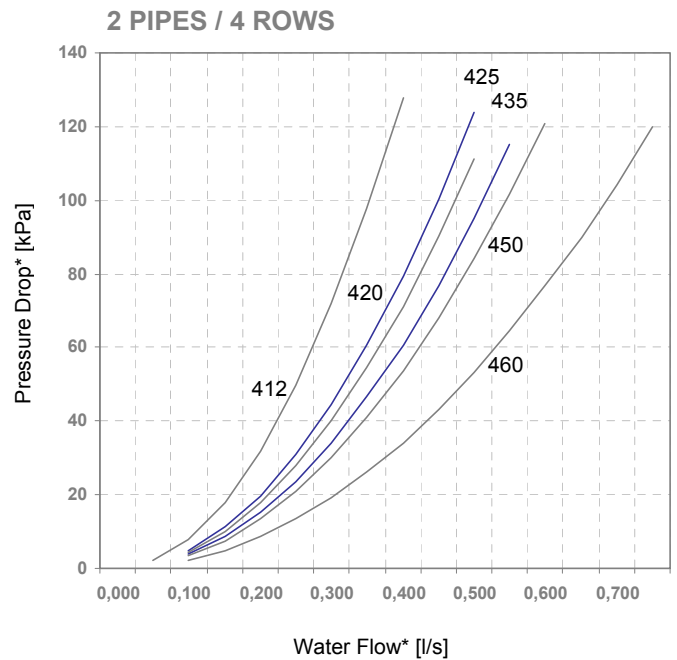
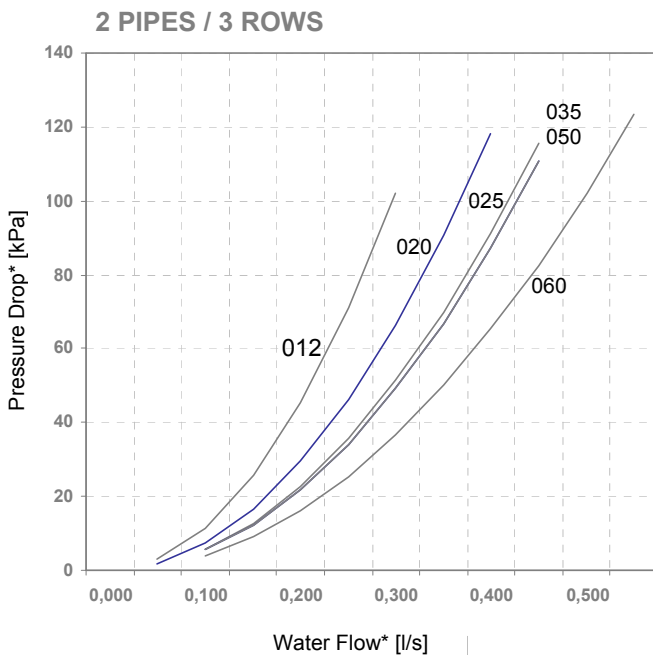
Model	Speed	1/1 Octave Sound pressure level								Lw [dB(A)]	Lp [dB(A)]	NR
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz			
012H	High	50,3	50,3	48,8	43,9	39,2	34,3	27,2	23,4	46,0	38,0	33,0
	Medium	48,9	48,9	46,7	41,7	36,6	30,2	23,6	22,2	43,5	35,5	30,0
	Low	46,9	46,9	44,2	38,9	32,6	25,6	20,3	22,2	40,5	32,5	27,0
020H	High	51,5	51,5	51,9	48,8	44,6	38,8	31,0	26,0	50,0	42,0	38,0
	Medium	48,7	48,7	47,8	44,5	38,7	30,9	23,5	24,5	45,0	37,0	33,0
	Low	45,7	45,7	43,7	39,4	32,6	24,4	19,7	23,2	40,5	32,5	28,0
025H	High	50,7	50,7	51,1	48,0	43,8	38,0	30,2	25,2	49,0	41,0	37,0
	Medium	46,2	46,2	45,3	42,0	36,2	28,4	21,0	22,0	43,0	34,5	31,0
	Low	45,0	45,0	43,0	38,7	31,9	23,7	19,0	22,5	39,5	31,5	27,0
035H	High	56,5	56,5	57,3	52,8	49,5	44,8	38,4	32,1	55,0	47,0	42,0
	Medium	52,9	52,9	53,7	49,5	45,5	40,2	33,0	27,3	51,0	43,0	38,0
	Low	48,7	48,7	49,0	45,2	40,2	33,6	25,7	24,1	46,0	38,0	34,0
050H	High	54,7	54,7	55,6	53,2	50,8	45,0	38,7	31,2	55,0	47,0	43,0
	Medium	48,7	48,7	48,1	45,9	41,4	34,0	26,4	23,8	47,0	39,0	35,0
	Low	48,1	48,1	41,9	37,8	30,4	22,0	19,8	23,4	39,0	31,0	26,0
060H	High	60,4	60,4	60,5	58,2	57,1	52,2	47,2	40,5	61,0	53,0	51,0
	Medium	56,1	56,1	55,4	53,3	51,8	46,4	40,7	33,7	56,0	48,0	44,0
	Low	53,2	53,2	49,5	47,6	44,6	38,1	31,8	26,8	49,0	41,5	38,0
080H	High											
	Medium											
	Low											
090H	High											
	Medium											
	Low											

Sound pressure level and NR are measured to a room of 100 m volume and 0.5 sec. reverberation time ( e.g. office/conference room with carpet on the floor).

# OPERATING LIMITS AND PRESSURE DROPS

OPERATING LIMITS	MFU / MFC
<b>Water Circuit</b> Maximum water-side pressure Minimum entering water temperature Maximum entering water temperature	16.4 kg/cm <sup>2</sup> 3°C (cooling) 80°C (heating)
<b>Room air</b> Minimum temperature Maximum temperature	16°C (cooling), 10°C (heating) 36°C (cooling), 30°C (heating)
<b>Power supply</b> Nominal single-phase voltage Operating voltage limits	230 V / 50 Hz ± 10% Volt / ± 2 Hz

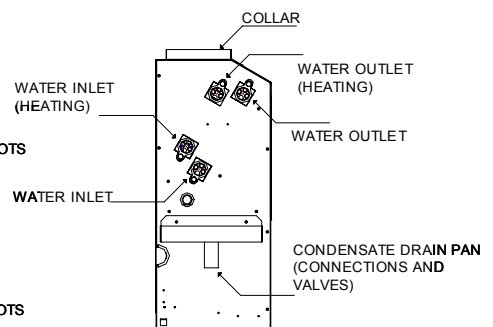
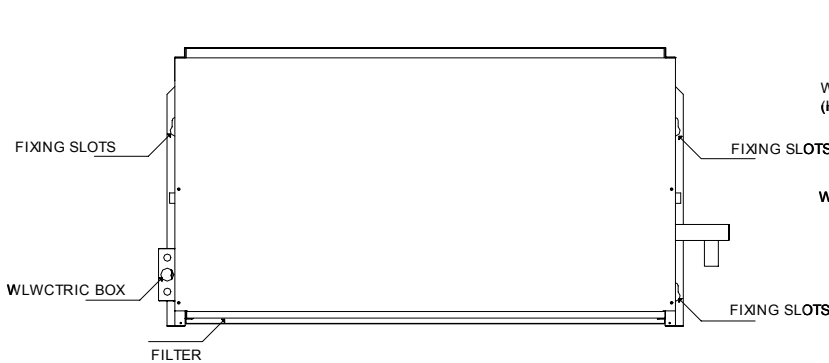
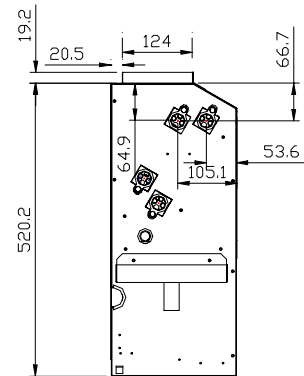
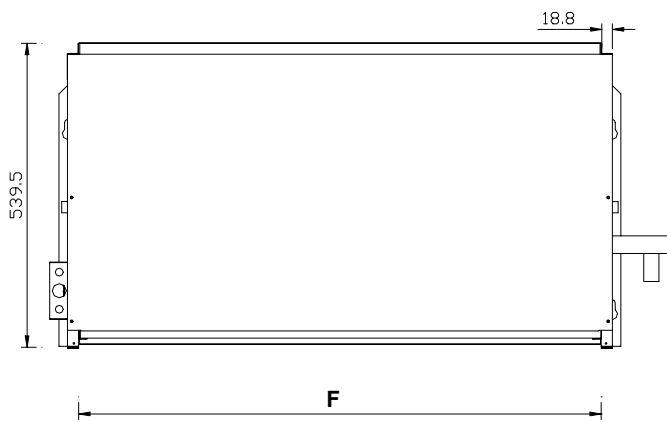
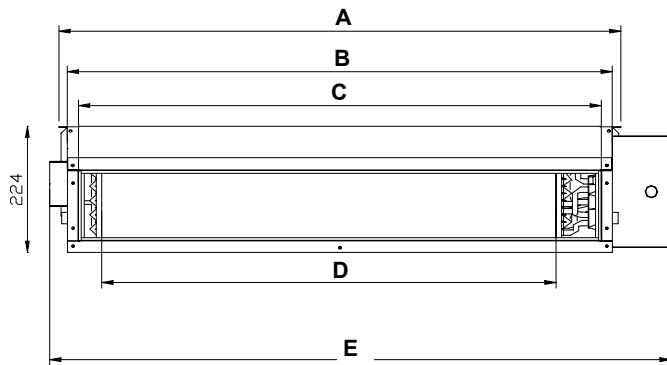
## PRESSURE DROPS



\*The pressure drop is for coil only and excludes water connections and valves.

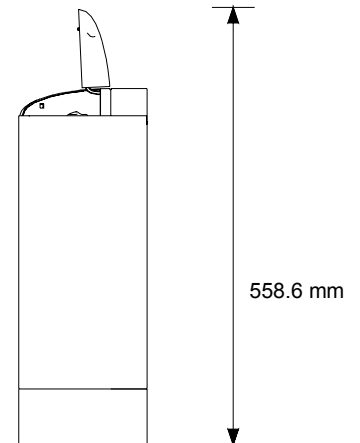
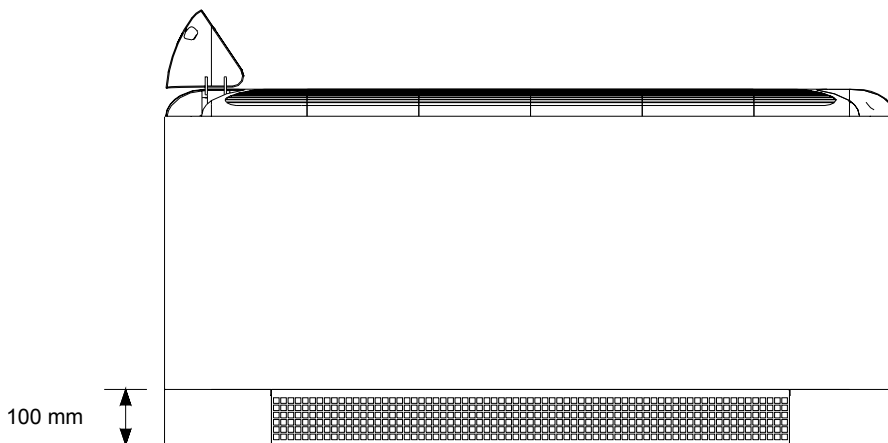
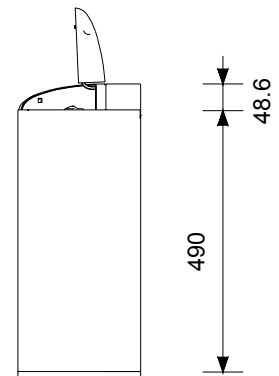
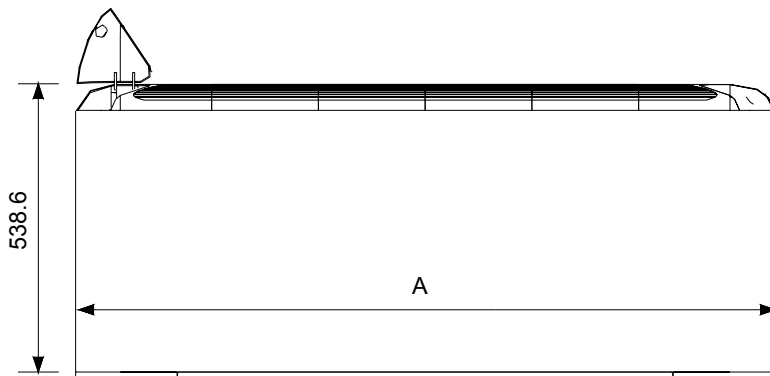
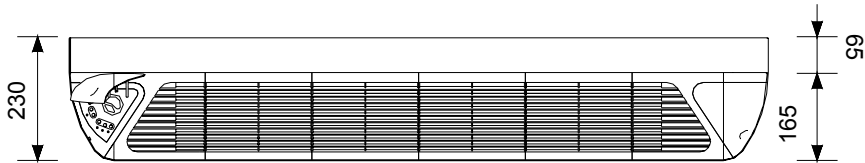
# OUTLINES AND DIMENSIONS

MFC – C/H	012 / 020 412 / 420	025 / 035 425 / 435	050 / 060 450 / 460	080 / 090 480 / 490
A	598	798	998	
B	568	768	568	
C	526	726	926	
D	407	607	807	
E	704	904	1104	
F	529	729	929	



# OUTLINES AND DIMENSIONS

MFU – C/H	012 / 020 412 / 420	025 / 035 425 / 435	050 / 060 450 / 460	080 / 090 480 / 490
A	910	1110	1310	1510




Height = 100 mm from the wall for:

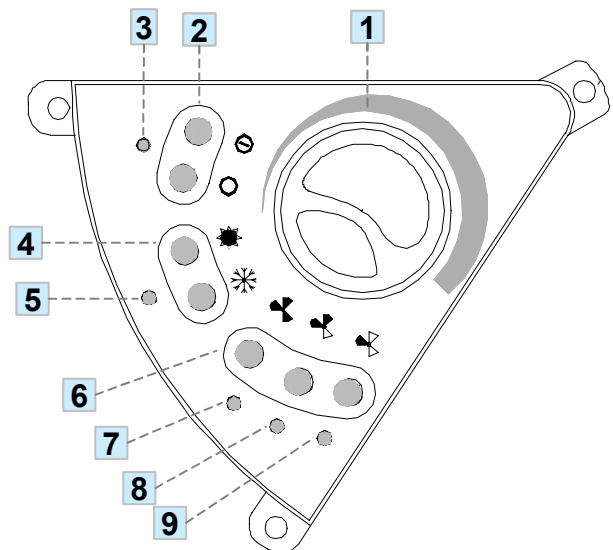
- Feet ( cover and/or support)
- Base module
- Frontal air intake module
- External air intake module

# CONTROL FEATURES


## ELECTROMECHANICAL CONTROL AC

Location	On Board	
Models	Standard for MFU series, all versions	
Parameters	On / Off	
	Temperature	
	Fan Speed	
	Operation Mode	
Main Functions	Selectable Temperature operation range: 10-30°C Warm and cold draft protection Valves 2 or 3 ways with ON/OFF control	
Integration into FCU Network	---	
Integration with Smart Manager	---	

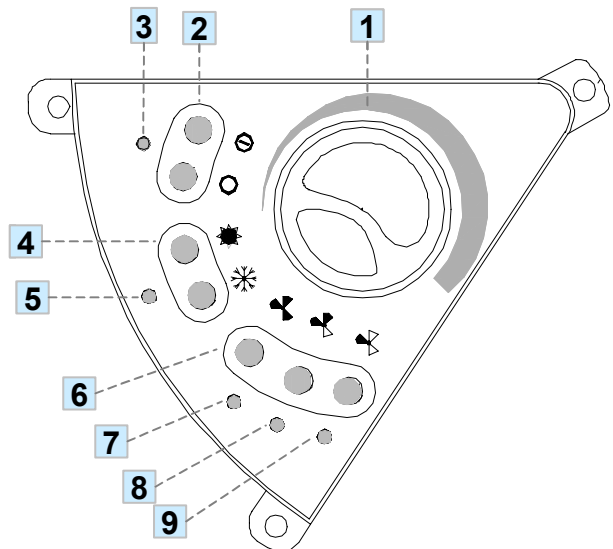
- 1 Potentiometer for temperature regulation
- 2 On/Off keys
- 3 On/Off led
- 4 Heating / Cooling mode keys
- 5 Heating / Cooling mode led
- 6 Fan Speed selection keys
- 7 Fan Speed led (HIGH)
- 8 Fan Speed led (MEDIUM)
- 9 Fan Speed led (LOW)



## ELECTRONIC CONTROL AC2800 (OPTIONAL)

Location	On Board	
Models	MFU series, all versions	
Parameters	On / Off	
	Temperature	
	Fan Speed	
	Automatic Fan Speed selection [available from December 2004]	
	Operation Mode	
Main Functions	Selectable Temperature operation range: 10-30°C or 16-30°C Automatic re-start with memory settings Heating/Cooling change-over based on system control input Auto - diagnosis Warm and cold draft protection Antifreeze protection Air sensor control Valves 2 or 3 ways with ON/OFF control	
Integration into FCU Network	Direct Connection	
Integration with Smart Manager	Direct Connection	

- 1 Potentiometer for temperature regulation
- 2 On/Off keys
- 3 On/Off led
- 4 Heating / Cooling mode keys
- 5 Heating / Cooling mode led
- 6 Fan Speed selection keys
- 7 Fan Speed led (HIGH)
- 8 Fan Speed led (MEDIUM)
- 9 Fan Speed led (LOW)



### AUTO-DIAGNOSIS


Led Blinking **7**: Ambient temperature sensor incorrect operation

Led Blinking **8**: Water temperature sensor incorrect operation

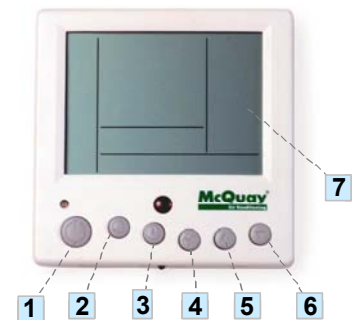
Led Blinking **9**: Potentiometer incorrect operation or on board control/wall mounted thermostat conflicting mode selection

Led Blinking **5**: Fan Coil / Chiller conflicting mode selection

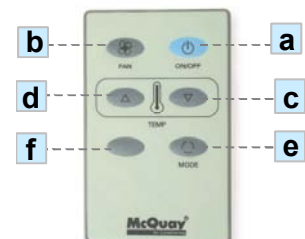
## ELECTRONIC THERMOSTAT AC8000 + REMOTE CONTROL AC5300

Location	Wall Mounted	
Models	All models; all versions	
Parameters	On/Off	
	Temperature	
	Fan Speed	
	Auto Fan Speed selection [available from December 2004]	
	Date / Time setting	
Mode		
Main Functions	Selectable Temperature operation range: 10-30°C or 16-30°C Automatic re-start with memory settings Heating/Cooling change-over based on system control input Auto-diagnosis Timer with 2 daily setting (14 weekly) Warm and cold draft protection Antifreeze protection Air sensor control Valves 2 or 3 ways with ON/OFF control Remote control – max. distance: 2.5 metres	
Integration into FCU Network	Connection through AC2800 control	
	Direct connection [available from December 2004]	
Integration with Smart Manager	Connection through AC2800 control	
	Direct connection [available from December 2004]	

- 1 On/Off key
- 2 Heating/Cooling mode key
- 3 Clock/Timer setting
- 4 Fan Speed selection key (HIGH/MEDIUM/LOW)
- 5 Temperature up key
- 6 Temperature down key
- 7 Back-light LCD Display



- a On/Off key
- b Fan Speed selection key (HIGH/MEDIUM/LOW)
- c Temperature up key
- d Temperature down key
- e Heating/Cooling mode key
- f Clock/Timer setting




### AUTO-DIAGNOSIS

- E1:** Ambient temperature sensor incorrect operation  
**E2:** Water temperature sensor incorrect operation  
**E3:** Potentiometer incorrect operation or on board control/wall mounted thermostat conflicting mode selection  
**E4:** Fan Coil / Chiller conflicting mode selection



## MECHANICAL THERMOSTAT AC512/AC513

Location	Wall Mounted	
Models	All models	
	AC512: 2 Pipes version	
	AC513: 4 Pipes version	
Parameters	On/Off	
	Temperature	
	Fan Speed	
Main Functions	Selection Temperature operation range: 10-30°C	
	Valves 2 or 3 ways with ON/OFF control	
Integration into FCU Network	---	
Integration with Smart Manager	---	

- 1 Potentiometer for temperature regulation
- 2 Fan speed keys (HIGH/MEDIUM/LOW)
- 3 Heating/Cooling mode buttons

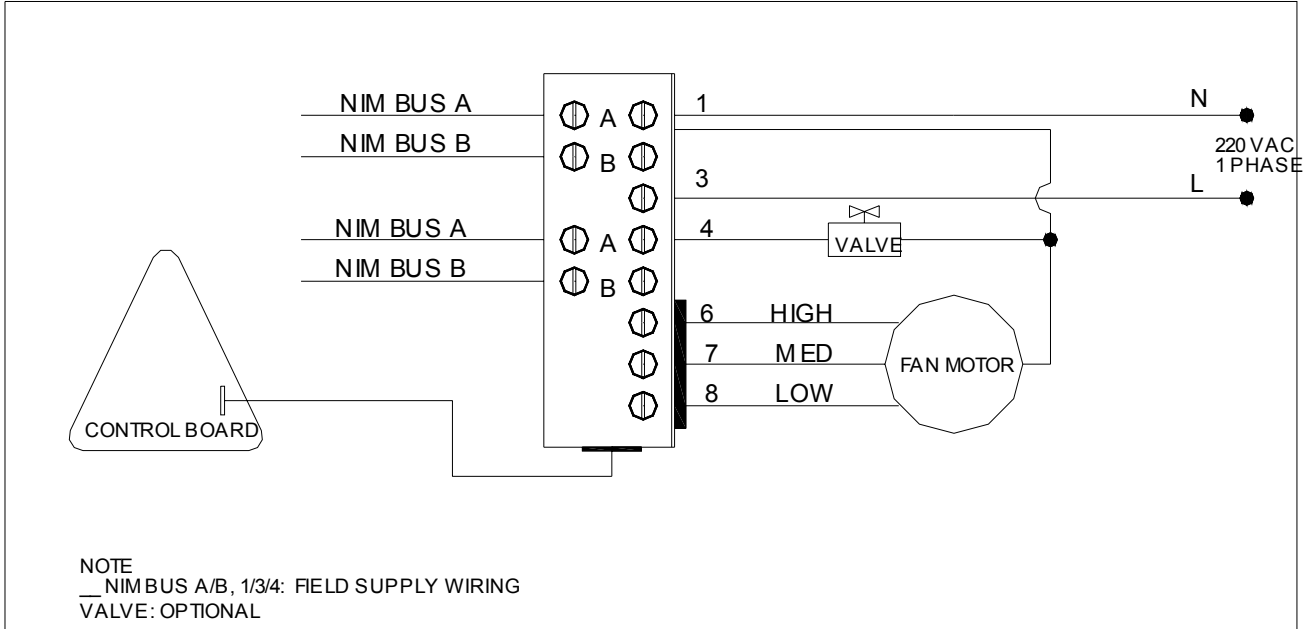


# WIRING DIAGRAMS

## MF – C

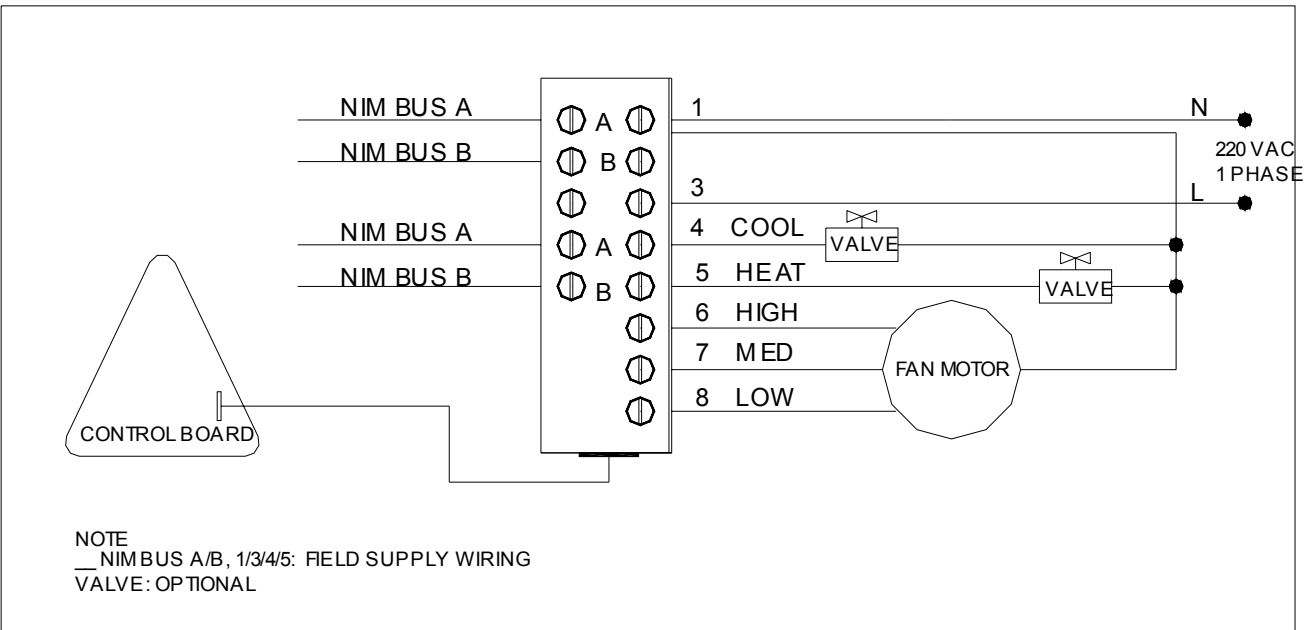
012 / 020 / 025 / 035 / 050 / 060 / 080 / 090

412 / 420 / 425 / 435 / 450 / 460 / 480 / 490



## MF – H

012 / 020 / 025 / 035 / 050 / 060 / 080 / 090



















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