

Ceiling Concealed Chilled Water Fan Coil Unit

Models: MCW200 MCW300 MCW400 MCW500
MCW600 MCW700 MCW800 MCW1000
MCW1200 MCW1400
Air Flow: 340-2380m³/h



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NOTE: Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.

Caution: Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

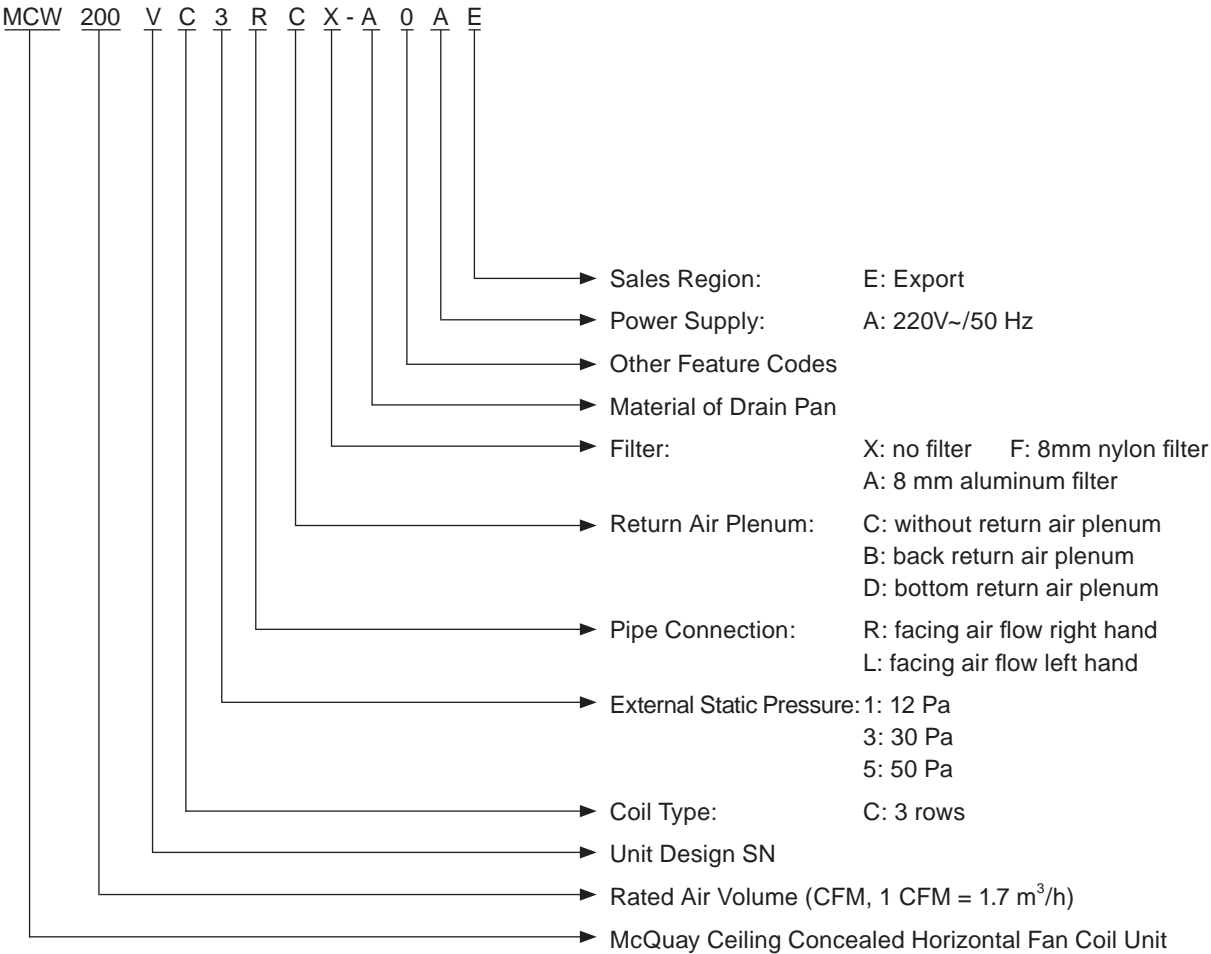
Warning: Moving machinery and electrical power hazard. May cause severe personal injury or death. Disconnect and lock off power before servicing equipment.

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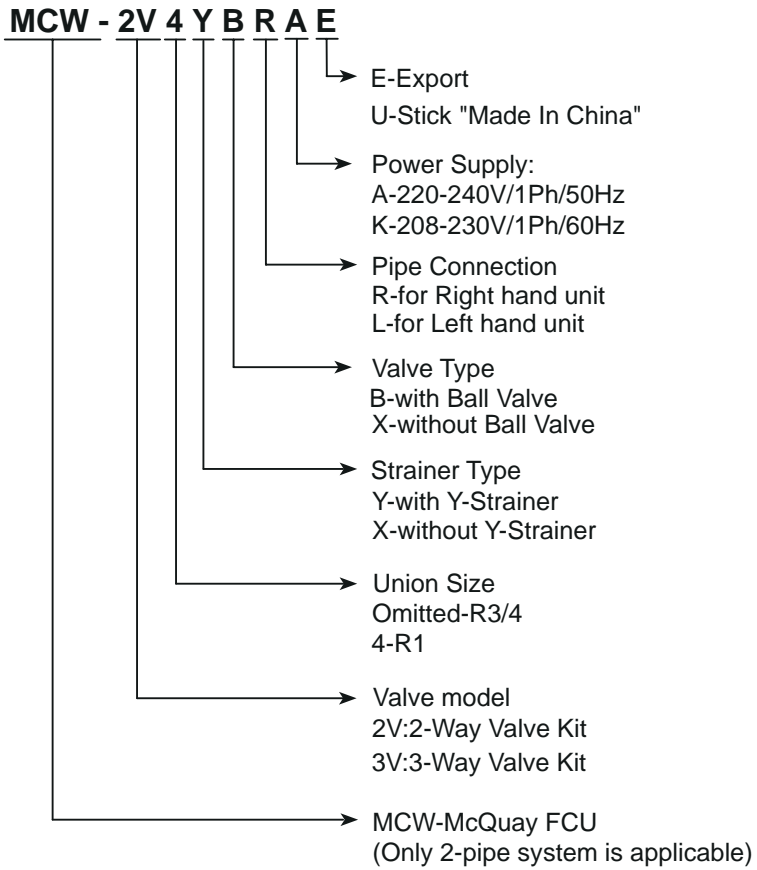
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Nomenclature



Valve Nomenclature



Features

Compact

- Light-weighted, good-looking appearance, and compact and solid structure.
- 235 mm height, allowing installation on the ceiling with a limited space.

Low-noise

- Low-noise motor for driving the low speed fan with a wide impeller; strictly tested before delivery.
- Precise distance between the impeller inlet/outlet and the heat exchanger for more reasonable air flow distribution.
- Highly efficient sound-absorbing and heat-preserving materials inside to minimize noises produced by the unit.

Reliable

- Single-phase capacitor motor with the protection grade IP20 and insulation grade B to ensure operation safety.
- Permanently lubricated and sealed ball bearing with high precision, which is provided by internationally famous brands and receives processing including hardening and tempering as well as chroming.
- Motor power outlet wires protected by metal hoses to ensure its durability.
- Working pressure up to 1.6 MPa and test pressure up to 2.0 MPa for the heat exchanger to endure high pressures and prevent leakage.

High Efficiency

- Heat exchanger with the high-quality mechanically expanded copper pipe and hydrophilic aluminum fins to ensure high efficiency.
- Intensified air supply using a large air flow fan with a wide impeller to maximize the heat transfer performance.
- Precise matching of the fan and motor to guarantee the maximum cooling capacity but a low power input.

Flexible

- Multiple external static pressures designed based on the unit's cooling capacity, meeting the air supply requirements at different distances.
- Optional bottom return air plenum or back return air plenum with support for onsite changes, featuring time saving.
- Variable accessories for more options.

Anti-leakage

- Delicate condensate-proof drain pan made of the cold-rolled steel through one-time impact molding, with coating on both sides and high-quality heat-preserving materials on the exterior.
- Unique independent mounting bracket without soldering seams or joints, requiring no bolts for fixing to prevent damages to the drain pan heat-preserving layer or cold bridges.
- Tilt structure for rapid condensate water drainage.

Specifications

General Data

MCW-VC												
MODEL		MCW200VC	MCW300VC	MCW400VC	MCW500VC	MCW600VC	MCW700VC	MCW800VC	MCW1000VC	MCW1200VC	MCW1400VC	
Air Flow	HIGH	m ³ /h	340	510	680	850	1020	1170	1360	1700	2040	2380
		CFM	200	300	400	500	600	688	800	1000	1200	1400
	MEDIUM	m ³ /h	279	418	558	697	836	564	1115	1394	1673	1952
		CFM	164	246	328	410	492	332	656	820	984	1148
	LOW	m ³ /h	170	255	340	425	510	282	680	850	1020	1190
		CFM	100	150	200	250	300	166	400	500	600	700
EXTERNAL STATIC PRESSURE	Pa/in.wg	12,30,50/0.05,0.12,0.20										
TOTAL COOLING CAPACITY	W	2220	3300	4260	5050	5820	6600	8200	9300	11190	13000	
	Btu/h	7575	11260	14536	17231	19859	22520	27980	31733	38182	44358	
SENSIBLE COOLING CAPACITY	W	1380	2220	2770	3400	4000	4550	5500	6500	7700	9200	
	Btu/h	4709	7575	9452	11601	13649	15525	18767	22179	26273	31392	
TOTAL HEATING CAPACITY	W	3500	5330	6800	8400	9600	11100	13500	15800	18300	21500	
	Btu/h	11942	18187	23203	28662	32757	37875	46064	53912	62442	73361	
WATER FLOW RATE	m ³ /h	0.37	0.58	0.72	0.88	1.02	1.14	1.41	1.67	1.95	2.29	
	USGPM	1.6	2.6	3.2	3.9	4.5	5.0	6.2	7.4	8.6	10.1	
HEAD LOSS (COOLING)	Pa	25	21	33	32	32	35	32	40	40	47	
	in.wg.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
UNIT WEIGHT (WITHOUT PLENUM)	kg	10.3	12.4	12.8	15.1	16.7	17.6	25.2	28.6	31.0	33.5	
	lb	22.7	27.3	28.2	33.3	36.8	38.8	55.6	63.1	68.3	73.9	
UNIT GROSS WEIGHT (Without plenum)	kg	12.4	14.7	15.3	17.8	19.4	20.4	28.9	32.4	35.4	38.5	
	lb	27.3	32.4	33.7	39.2	42.8	45.0	63.7	71.4	78.0	84.9	
DIMENSIONS	Without Return Air Plenum	mm	625x465x235	815x465x235	865x465x235	945x465x235	1045x465x235	1095x465x235	1425x465x235	1475x465x235	1675x465x235	1825x465x235
	With Back Return Air Plenum	mm	625x516x235	815x516x235	865x516x235	945x516x235	1045x516x235	1095x516x235	1425x516x235	1475x516x235	1675x516x235	1825x516x235
	With Bottom Return Air Plenum	mm	625x497x235	815x497x235	865x497x235	945x497x235	1045x497x235	1095x497x235	1425x497x235	1475x497x235	1675x497x235	1825x497x235
UNIT WEIGHT (With plenum)	kg	13.2	16.0	16.7	19.3	21.2	22.4	31.3	34.8	38.0	41.5	
	lb	29.1	35.3	36.8	42.5	46.7	49.4	69.0	76.7	83.8	91.5	
UNIT GROSS WEIGHT (With plenum)	kg	15.3	18.3	19.2	22.0	23.9	25.2	35.0	38.6	42.4	46.5	
	lb	33.7	40.3	42.3	48.5	52.7	55.6	77.2	85.1	93.5	102.5	
CONDENSATE DRAIN SIZE	R3/4											

NOTES:

- 1) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.
- 2) ALL THE UNITS ARE BEING TESTED UNDER FOLLOWING CONTITION:
 - COOLING-27°C DB/19.5°C WB INDOOR AND WATER INLET 7°C OUTLET 12°C
 - HEATING-21°C DB INDOOR AND WATER 60°C INLET.WATER FLOW:WAME WITH COOLING CONDITION.
- 3) SOUND PRESSURE LEVEL ARE ACCORDING TO MICROPHONE POSITION OF THE MEASUREMENT POINT IS 1m IN FRONT AND

Components Data

MCW-VC													
			MCW200VC	MCW300VC	MCW400VC	MCW500VC	MCW600VC	MCW700VC	MCW800VC	MCW1000VC	MCW1200VC	MCW1400VC	
FAN	TYPE		GALVANIZED STEEL DOUBLE STAGE IMPELLER CENTRIFUGAL (BLADE: FORWARD)										
	QUANTITY		1	2	2	2	2	2	3	3	4	4	
	MATERIAL		GALVANIZED STEEL										
	DRIVE		DIRECT DRIVE										
	DIAMETER	mm	150										
		in	5.904										
	LENGTH	mm	150/200/240										
in		5.91/7.87/9.45											
MOTOR	TYPE		SINGLE PHAZE BALL BEARING CAPACITOR RUNNING										
	QUANTITY		1	1	1	1	1	1	2	2	2	2	
	IP/INSULATION GRADE		IP20/B										
COIL	TUBE	MATERIAL		COPPER									
		DIAMETER	mm	7									
			in	0.28									
		THICKNESS	mm	0.25									
	in		0.01										
	FIN	MATERIAL		HYDROPHILIC ALUMINUM									
		THICKNESS	mm	0.11									
			in	0.0043									
		FACE AREA	m ²	0.08	0.12	0.13	0.15	0.17	0.18	0.25	0.26	0.30	0.34
			ft ²	0.86	1.29	1.40	1.61	1.83	1.94	2.69	2.80	3.23	3.66
		ROW		3									
FIN PER INCH		17											
AIR FILTER (Option)	TYPE		NYLON/ALUMINIUM FRAME										
	LENGTH	mm	438	628	678	758	858	908	1238	1288	1488	1638	
		in	17.24	24.72	26.69	29.83	33.77	35.74	48.73	50.70	58.57	64.47	
	WIDTH	mm	196										
		in	7.71										
	THICKNESS	mm	8										
in		0.31											

NOTES:

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Sound Data

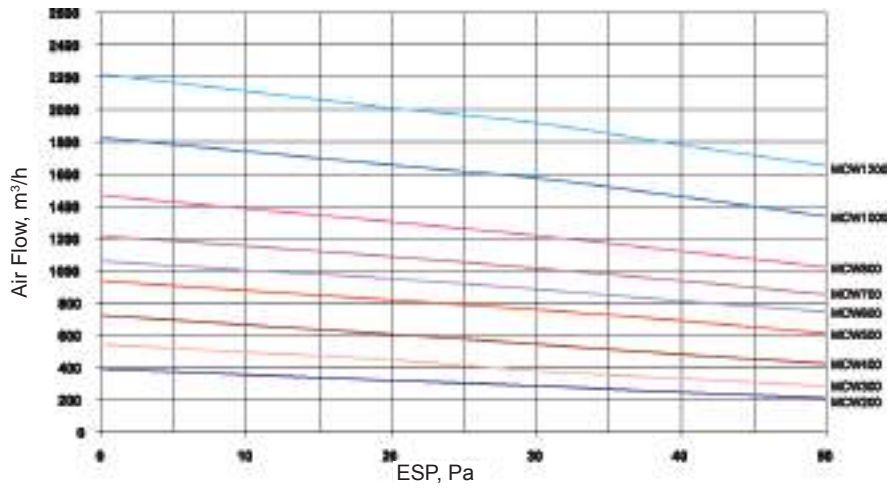
MCW-VC												
Model			MCW200VC	MCW300VC	MCW400VC	MCW500VC	MCW600VC	MCW700VC	MCW800VC	MCW1000VC	MCW1200VC	MCW1400VC
Sound Pressure Level (ESP: 12Pa)	High	dBA	33.9	33.2	40.0	40.3	44.4	45.2	43.9	47.9	48.0	51.0
	Middle	dBA	29.3	28.8	35.5	36.3	39	40.3	38.6	43.6	44.3	47.5
	Low	dBA	20.1	24.2	24.0	25.6	29.8	27.9	27.4	32.6	33.4	38.0
Sound Pressure Level (ESP: 30 Pa)	High	dBA	37.3	37.6	41.6	44.3	46.5	46.6	46.2	49.3	50.9	52.0
	Middle	dBA	32.5	32.5	36.5	39.5	41.1	41.8	41.3	44.9	45.7	46.0
	Low	dBA	20.9	22.8	25.8	27.3	27.3	29.4	30.6	36.4	34.7	35.5
Sound Pressure Level (ESP: 50 Pa)	High	dBA	41.2	42.2	44.4	46.4	47.5	47.5	48.3	50.6	51.8	53.5
	Middle	dBA	37.3	35.8	40.5	42.7	43.9	43.6	43.7	46.4	47.1	49.0
	Low	dBA	26.1	25.8	32.3	31.3	33.9	37.3	31.8	37.6	41.7	41.0

NOTES:

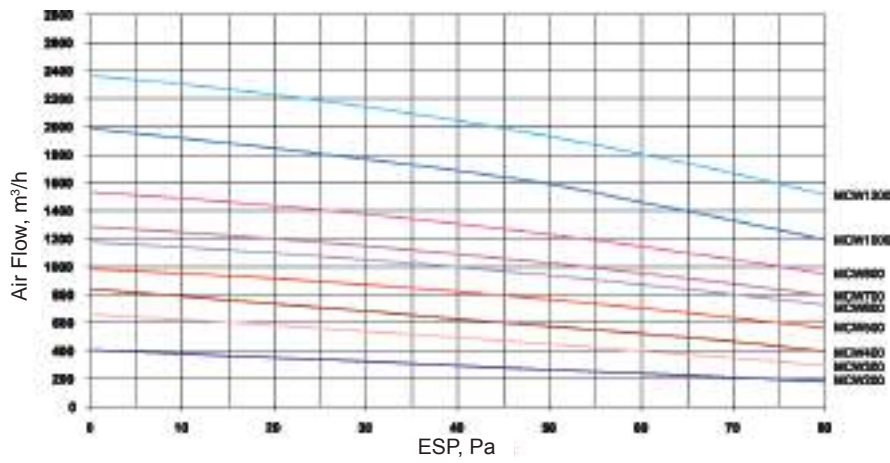
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- 2) SOUND PRESSURE LEVEL ARE ACCORDING TO MICROPHONE POSITION OF THE MEASUREMENT POINT IS 1m IN FRONT AND 1m BELOW THE UNIT.

Air Flow vs ESP Curve

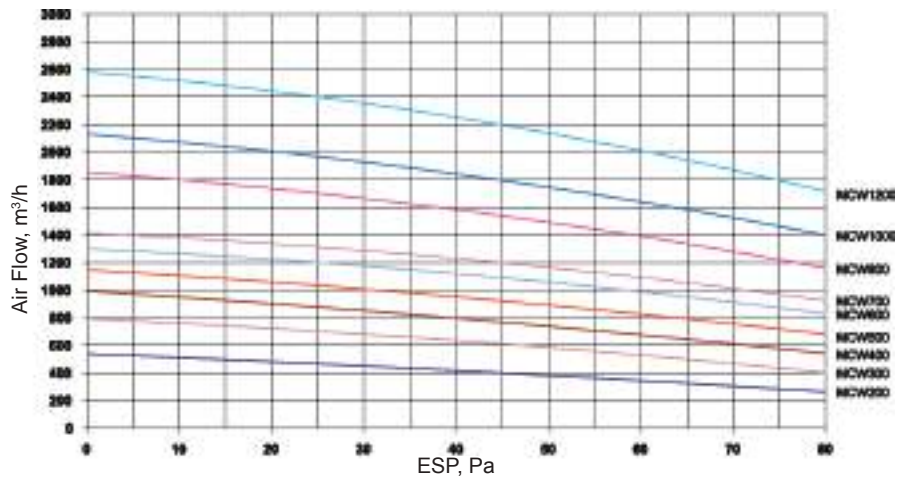
ESP, 12Pa



ESP, 30Pa



ESP, 50Pa

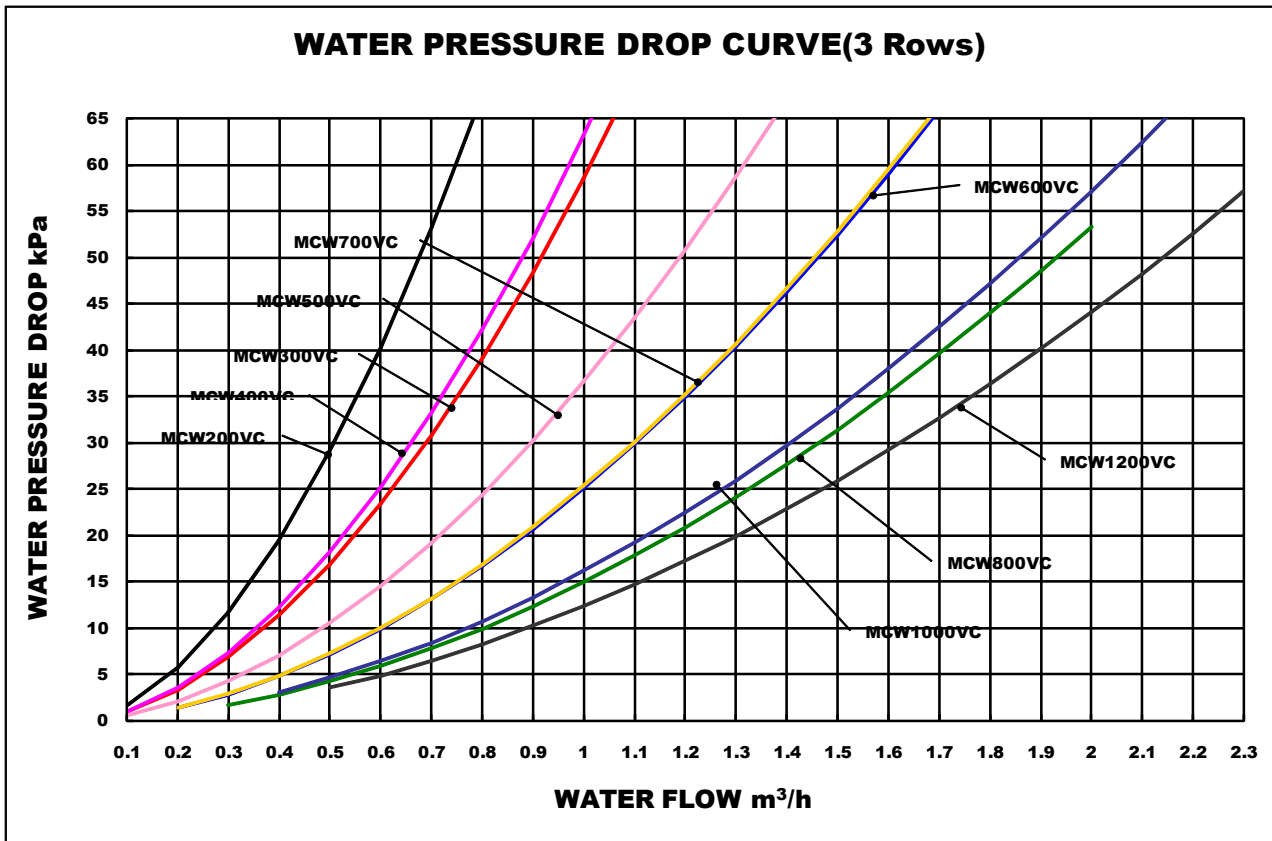


Operating Limits

Operating Limits	MCW-V
Water Circuit	
Max. Water side pressure	1.6MPa
Min. Entering water temperature	3°C (cooling)
Power supply	
Operating voltage limits	±10% Volt
Operating frequency limits	±2Hz

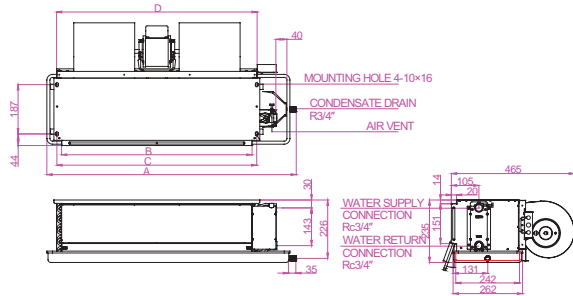
Water Flow Rate/Pressure Drop Chart

MCW-VC



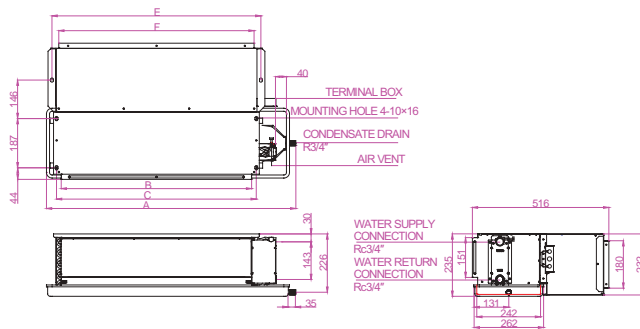
Outlines and Dimensions

WITHOUT PLENUM



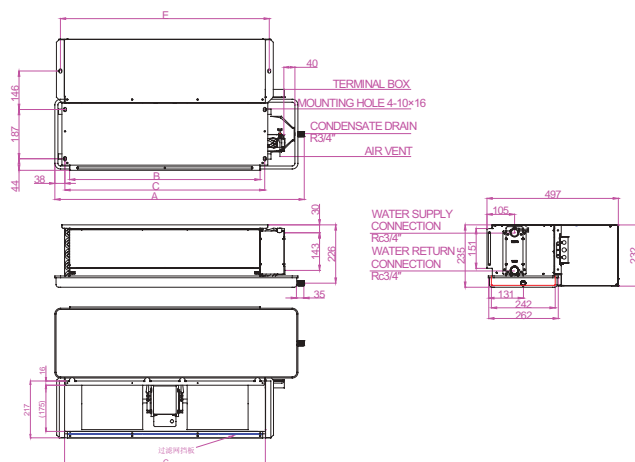
Model	A		B	C	D	Number Of Fans
	Standard Drain Pan	Long Drain Pan				
MCW200V	625	725	402	437	440	1
MCW300V	815	915	592	627	630	2
MCW400V	865	965	642	677	680	2
MCW500V	945	1045	722	757	760	2
MCW600V	1045	1145	822	857	860	2
MCW700V	1095	1195	872	907	910	2
MCW800V	1425	1525	1202	1237	1240	2
MCW1000V	1475	1575	1252	1287	1290	3
MCW1200V	1675	1775	1452	1487	1490	4
MCW1400V	1825	1925	1602	1637	1640	4

WITH BACK PLENUM



Model	A		B	C	D	E	F	Number Of Fans
	Standard Drain Pan	Long Drain Pan						
MCW200V	625	725	402	437	440	472	420	1
MCW300V	815	915	592	627	630	662	610	2
MCW400V	865	965	642	677	680	712	660	2
MCW500V	945	1045	722	757	760	792	740	2
MCW600V	1045	1145	822	857	860	892	840	2
MCW700V	1095	1195	872	907	910	942	890	2
MCW800V	1425	1525	1202	1237	1240	1272	1220	2
MCW1000V	1475	1575	1252	1287	1290	1322	1270	3
MCW1200V	1675	1775	1452	1487	1490	1522	1470	4
MCW1400V	1825	1925	1602	1637	1640	1672	1620	4

WITH BOTTOM PLENUM



Model	A		B	C	D	E	G	Number Of Fans
	Standard Drain Pan	Long Drain Pan						
MCW200V	625	725	402	437	440	472	441	1
MCW300V	815	915	592	627	630	662	581	2
MCW400V	865	965	642	677	680	712	681	2
MCW500V	945	1045	722	757	760	792	761	2
MCW600V	1045	1145	822	857	860	892	861	2
MCW700V	1095	1195	872	907	910	942	911	2
MCW800V	1425	1525	1202	1237	1240	1272	1241	2
MCW1000V	1475	1575	1252	1287	1290	1322	1291	3
MCW1200V	1675	1775	1452	1487	1490	1522	1491	4
MCW1400V	1825	1925	1602	1637	1640	1672	1641	4

Electrical Data

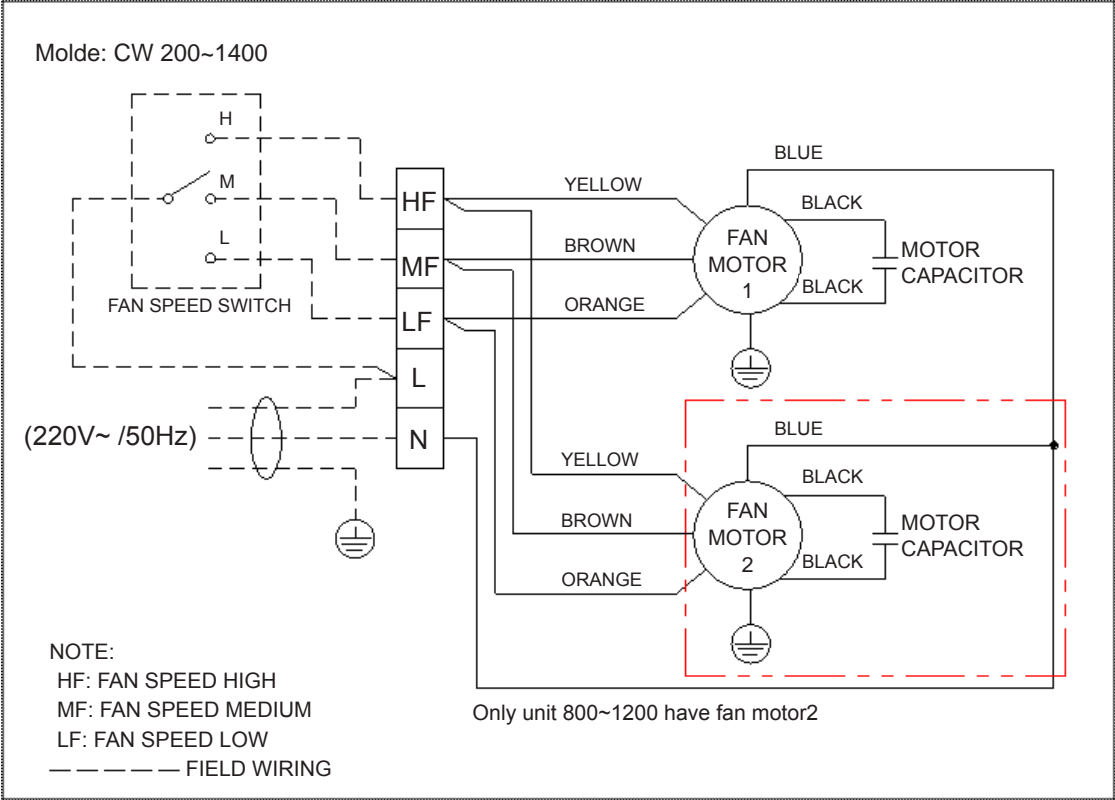
MCW-VC

MODEL		MCW200VC	MCW300VC	MCW400VC	MCW500VC	MCW600VC	MCW700VC	MCW800VC	MCW1000VC	MCW1200VC	MCW1400VC		
12Pa MOTOR	INSULATION GRADE	B											
	POWER SOURCE	V/Ph/Hz	220~/1/50										
	RATED INPUT POWER	W	32	43	56	73	93	113	133	152	188	228	
	RATED RUNNING CURRENT	A	0.15	0.20	0.26	0.34	0.43	0.52	0.61	0.70	0.86	1.12	
	POLES	4P											
30Pa MOTOR	INSULATION GRADE	B											
	POWER SOURCE	V/Ph/Hz	220~/1/50										
	RATED INPUT POWER	W	39	53	72	83	107	122	142	174	217	250	
	RATED RUNNING CURRENT	A	0.18	0.24	0.33	0.38	0.49	0.56	0.65	0.80	1.00	1.19	
	POLES	4P											
50Pa MOTOR	INSULATION GRADE	B											
	POWER SOURCE	V/Ph/Hz	220~/1/50										
	RATED INPUT POWER	W	46	62	80	95	112	131	168	200	237	290	
	RATED RUNNING CURRENT	A	0.21	0.28	0.37	0.44	0.51	0.60	0.77	0.92	1.09	1.45	
	POLES	4P											

NOTES:

- 1) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.
- 2) ALL ELECTRIC DATA ARE BEING TESTED UNDER HIGH SPEED.

Wiring Diagrams



Installation

Receiving

All units leaving the McQuay plant have been inspected to ensure the shipment of high quality products and reasonable means are utilized to properly pack the fan coil units to protect them in transit.

Carefully inspect all shipments immediately upon delivery. When damage is visible, note this fact on the carrier's freight bill and request that the carrier sends a representative to inspect the damage. This may be done by telephone or in person, but should always be confirmed in writing.

The shipment should be unpacked in the presence of the agent so that the damage or loss can be determined.

The carrier's agent will make an inspection report and a copy will be given to the consignee for forwarding to the carrier with a formal claim.

Location

Before installation, please check the following:

There must be enough space for unit installation and maintenance. Please refer to the unit's drawings and dimensions and fig.1 for the minimum distance between the unit and obstacle.

Please ensure enough space for piping connection and electrical wiring.

Please make sure that the hanging rods can support weight of the unit.

Installation

The unit is designed for concealed ceiling installation.

There are holes on the top of the unit for hanging. Please refer to Fig.1, Fig.2 and Fig.3.

Make sure that the top of the unit is level.

Insulation

- 1) Use proper insulation material only
- 2) Chilled water pipes and all parts on the pipes should be insulated
- 3) It is also necessary to insulated air ducted
- 4) Adhesive for insulation should work under range 0°F(-18°C) to 200°F(93.3°C).

Fig.1

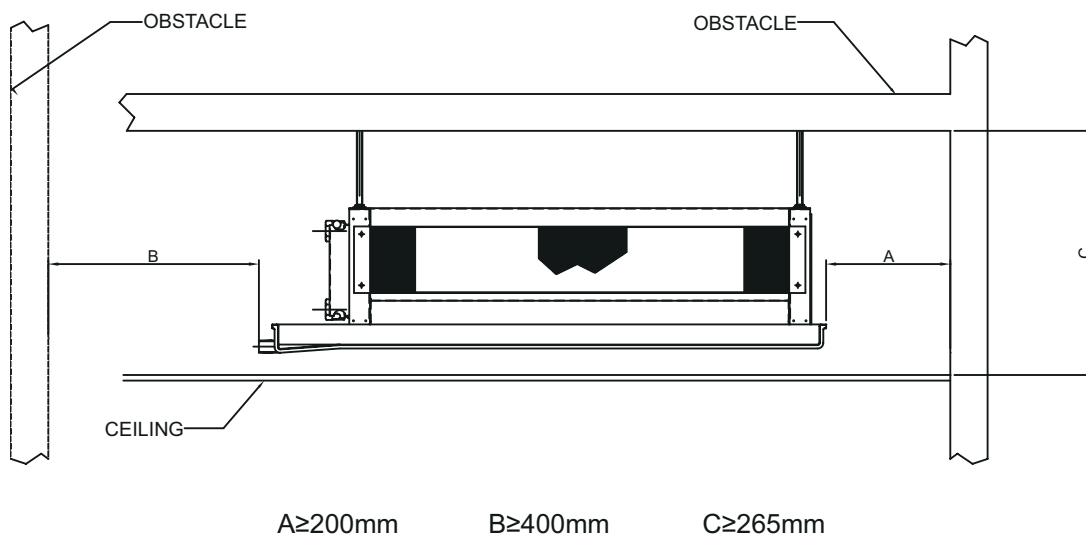


Fig.2 WITH AND WITHOUT PLENUM FORM:

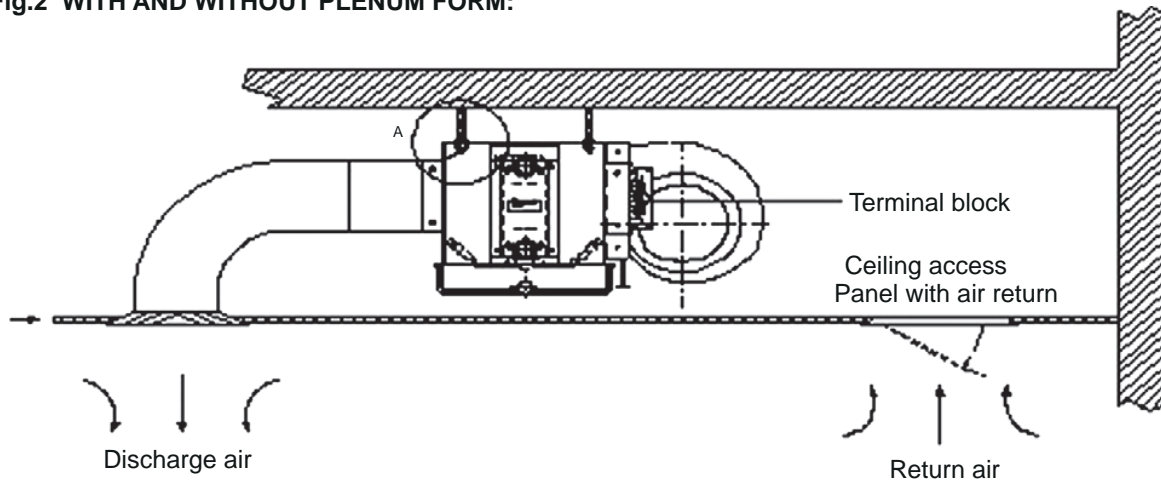
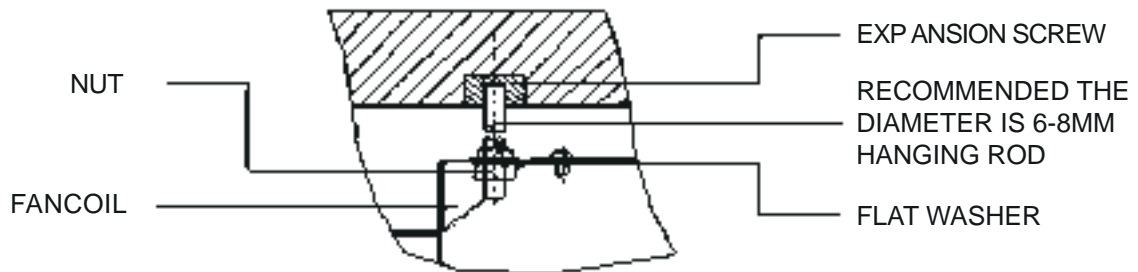


Fig.3 DETAIL A:



Air Duct Connection

Circulatory air pressure drop should be within External Static Pressure

Galvanized steel air ducts are suitable

Make sure there is no leak of air.

Air duct should be fireproof, refer to concerned country national and local regulations.

Pipe Connection

Using suitable fittings as water pipe connections. Refer to the specification

The water inlet is on the bottom while outlet on top.

The connection must be concealed with rubberized fabric to avoid leakage.

Drainpipe can be PVC or steel.

The suggested slope of the drainpipe is at least 1:50.

Wiring

- 1) Wiring connection must be done according to the wiring diagram on the unit.
- 2) The unit must be GROUNDED well.
- 3) An appropriate strain relief device must be used to attach the power wires to the terminal box.
- 4) A 7/8" knockout hole is designed on the terminal box for field installation of the strain relief device.
- 5) Field wiring must be complied with the national security regulations.

Valve Kit

The valve kit is applied for 2-pipe system.

The kit consists of (refer structure figure 0):

- **2/3 way valve body** is made of brass, maximum working pressure 1.6MPa.
- **Electric actuator** has the following specifications:
 - Power supply: 220V±10%/50/60Hz (±2Hz)
 - Activation: ON/OFF
- **Hydraulic kit** for the installation of the valve on the heat exchanger, complete with 2 ball valves for adjusting the water flow and for closing the water circuit when perform maintenance to the unit.
- **Y-strainer** protects unit from impurity, increases the service life and insulating valves.

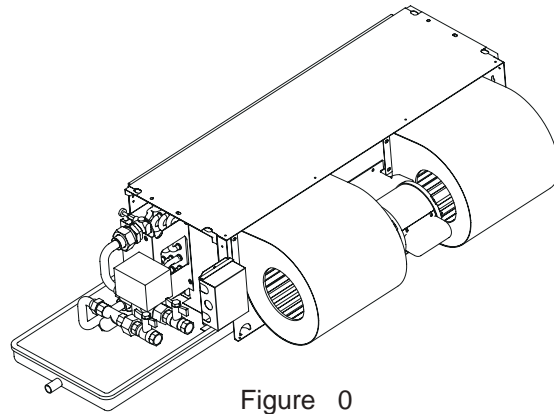


Figure 0

All parts of 2-way valve kit are indicated in the figure 1. (For right pipe connection unit.)

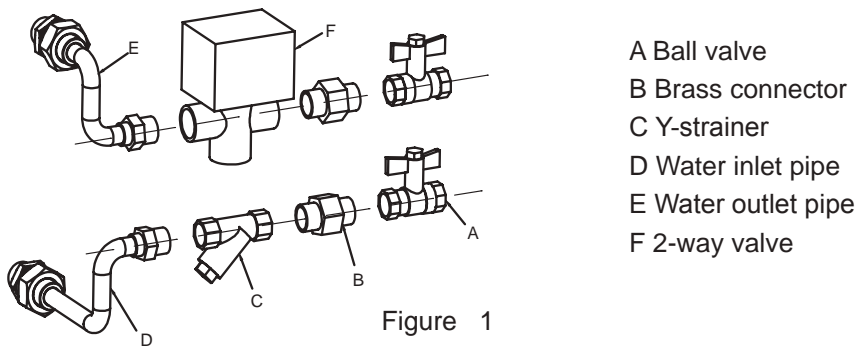


Figure 1

All parts of 3-way valve kit are indicated in the figure 2. (For right pipe connection unit.)

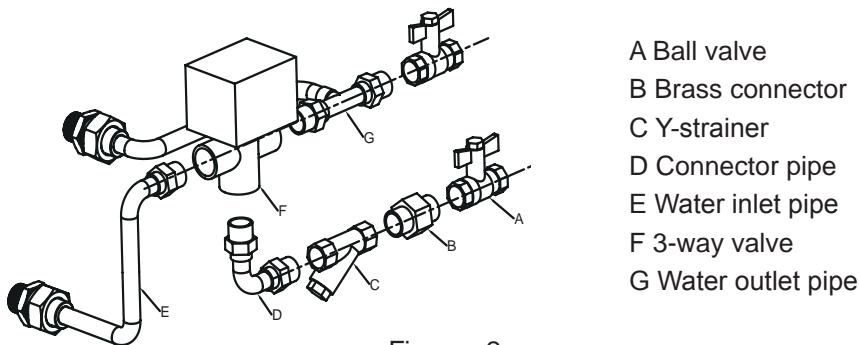


Figure 2

Installation

1. Install the 2-way valve kit as indicated in the pictures of figure 3. (For right pipe connection unit.) As shown as detail A, firstly take apart connector, then install ① to unit with necessary sealing material . Fix ② between ① and ③. At last tighten ③, make sure all of connectors are sealed.
2. Install the 3-way valve kit as indicated in the pictures of figure 4. (For right pipe connection unit.) Detail is as same as 2-way valve unit.

⚠ The valve kit has been pre-assembled for easy installation.

- Where needed the connections are pre-coated with sealing material.
- The connections are not tightened for easy adjustment.
- After determining the final position of the valve kit, tighten all connections to obtain water tightness.

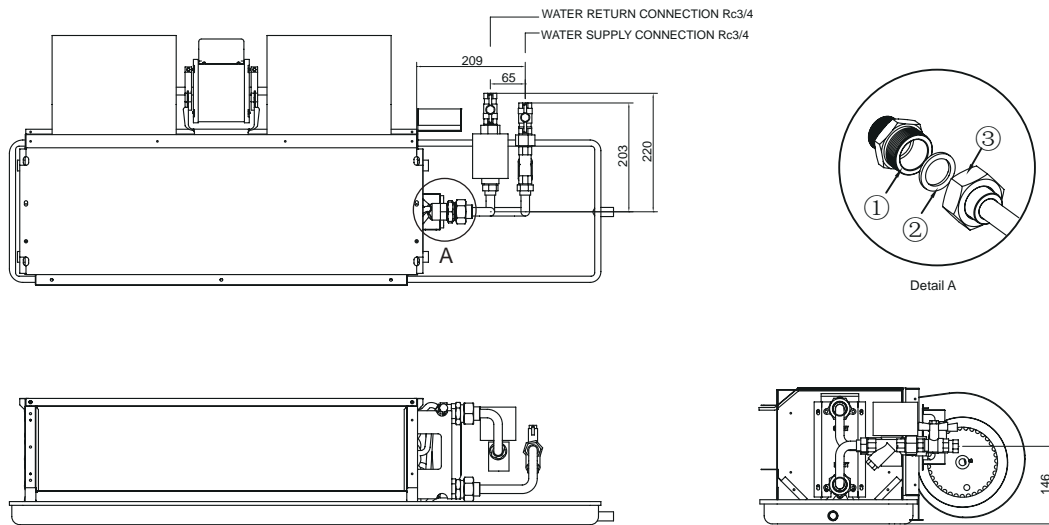
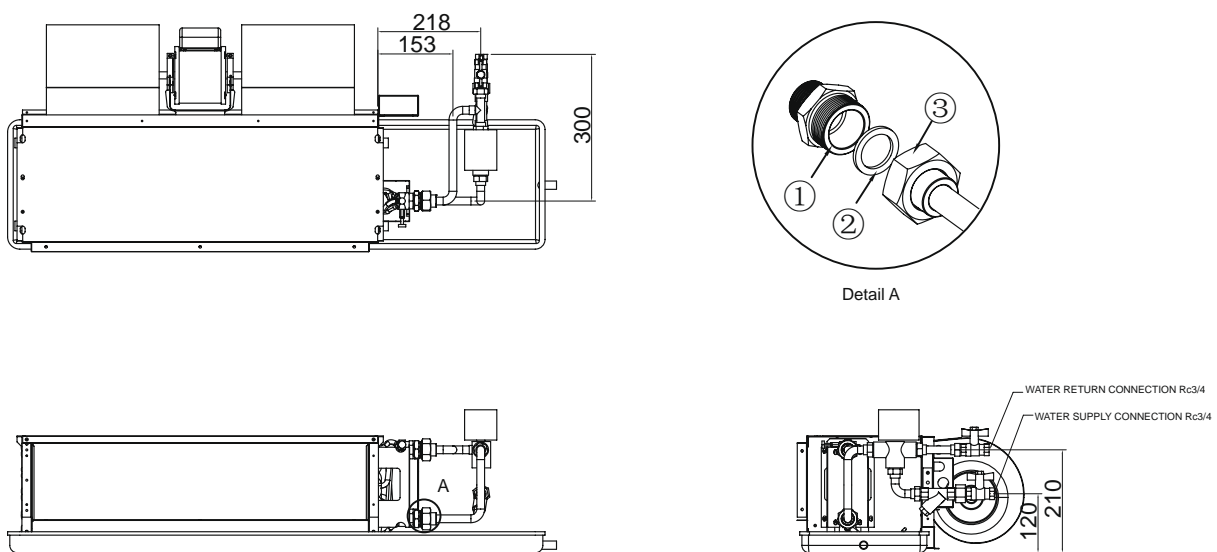


Figure 3 2-Way Valve



Insulation

1. The insulation design and materials should be complying with local and national codes and regulations.
2. Chilled water pipes and all parts on the pipes should be insulated.

The flow resistance of the connecting valve/hydraulic kit assembly is obtained from the following formula:

$$\Delta P_w = (Q_w/100K_v)^2$$

P_w is the flow resistance (Pa)

Q_w is the water flow rate (m³/h)

K_v is the flow rate identified in the table

Valve Model	DN	Connction Type	Valve Type	KV	Shut-off Pressure Difference (MPa)
MC-FCV3335G	20	Rc3/4"	3-way Valve	3.4	0.18
MC-FCV2334G	20	Rc3/4"	2-way Valve	3.0	0.18

Pipe Connection

1. Using suitable fittings as water pipe connections with reference to the outline and dimensions.
2. The water inlet is on the bottom while outlet on top.
3. The connection must be concealed with rubberized fabric to avoid leakage.
4. Tightening torque should not be too high when connecting water pipes, in order to avoid brass deformation or water-leakage by torsion split.

Wiring

1. Refer to the wiring diagram of the appropriate controller.
2. For connection with the McQuay controller, position the water temperature probe into the appropriate position. Refer to the dedicated controller installation and operation manual.



ISO 9001
Certificate No.: 9601019



BS-OHSAS 18001
Certificate No.: 7644



ISO 14001
Certificate No.: EMS 80362



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