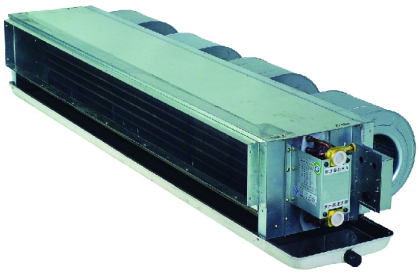
Midea®
Commercial Aircon
Climate Solution for Green Environment

Operation Maintenance Manual

Fan Coil Unit
Cassette and Ceiling Concealed Series



MKA/MKB/MKC/MKT/MKT2
200CFM~1500CFM
(50Hz/60Hz)

Introduction

Fan coil unit is a kind of compound device which assemble fan and surface-type coil heating-exchanger together. Fan coil with fresh air supply system is a main type of center air-conditioner system, so it is an important component of AC devices. Fan coil has horizontal type, vertical type, etc. A cooling (heating) supply system usually consists of fan coil terminals and chilled water system (heated water system).

Midea® commercial AC fan coil is designed and manufactured on the base of advanced technology, and utilize qualified galvanized iron as material. Due to its supper-thin design, it has such advantages: beautiful outlook, space saving, easy installation, etc. And the most obvious advantage is that it can decrease the outlet air Temp-difference as low as possible to make room more comfortable, as well as don't decrease cooling capacity output. For the large air flow volume design, it can increase room ventilation frequency, supply more flesh air, and balance room temperature distribution. Benefiting from adoption of advanced material and technology, it can effectively decrease the running noise and keep running smoothly. With the advantages above, it can be widely applied in market, hospital, office building, hotel airport, etc.

Part 1
General Information

1. Model Names of Fan Coil

<table>
<tr><td>MKB-300</td><td colspan="2" rowspan="4">Compact cassette type fan coil</td></tr>
<tr><td>MKB-400</td></tr>
<tr><td>MKB-450</td></tr>
<tr><td>MKB-500</td></tr>
<tr><td>MKA-600</td><td colspan="2" rowspan="7">Cassette type fan coil</td></tr>
<tr><td>MKA-750</td></tr>
<tr><td>MKA-850</td></tr>
<tr><td>MKA-950</td></tr>
<tr><td>MKA-1200</td></tr>
<tr><td>MKA-1500</td></tr>
<tr><td>MKT2(H)-200</td><td rowspan="9">2 Rows</td><td rowspan="22">Duct type fan coil</td></tr>
<tr><td>MKT2(H)-300</td></tr>
<tr><td>MKT2(H)-400</td></tr>
<tr><td>MKT2(H)-500</td></tr>
<tr><td>MKT2(H)-600</td></tr>
<tr><td>MKT2(H)-800</td></tr>
<tr><td>MKT2(H)-1000</td></tr>
<tr><td>MKT2(H)-1200</td></tr>
<tr><td>MKT2(H)-1400</td></tr>
<tr><td>MKT-300</td><td rowspan="13">3 and 4 Rows</td></tr>
<tr><td>MKT-400</td></tr>
<tr><td>MKT-450</td></tr>
<tr><td>MKT-500</td></tr>
<tr><td>MKT-600</td></tr>
<tr><td>MKT-750</td></tr>
<tr><td>MKT-850</td></tr>
<tr><td>MKT-950</td></tr>
<tr><td>MKT-1200</td></tr>
<tr><td>MKT-1500</td></tr>
<tr><td>MKT-2000</td></tr>
<tr><td>MKC-300</td><td colspan="2" rowspan="3">One way cassette type fan coil</td></tr>
<tr><td>MKC-400</td></tr>
<tr><td>MKC-600</td></tr>
</table>

2. External Appearance

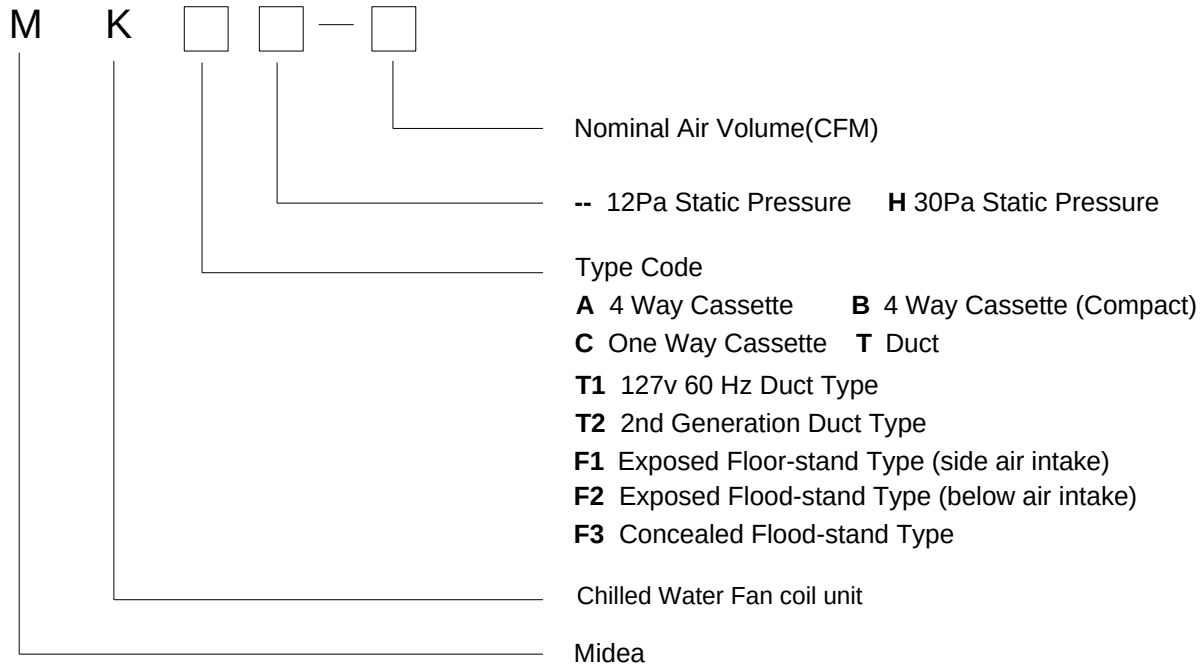
Compact four way cassette type

Duct type

Four way cassette type

One way cassette type

3. Nomenclature



4. Features

- ✧ Chilled water/Hot water (2 pipes)
- ✧ Low height for easy installation
- ✧ Low noise fan direct driven by single phase, 3 speed permanent split capacitor motor.
- ✧ Copper tube/aluminum fin coils
- ✧ Hydrophilic aluminum fin coils coated (optional)
- ✧ Unit constructed by electrostatic galvanized sheet, providing maximum protection against corrosion
- ✧ Heavy gauge zinc coated steel drainage pan with good insulation processing, avoiding sweating and corrosion
- ✧ Unit tested performance comply with GB4706.32-2004、JB9063-1999 and JB/T4283-1991.

Part 2
Indoor Units

Four Way Cassette Type

1. Features

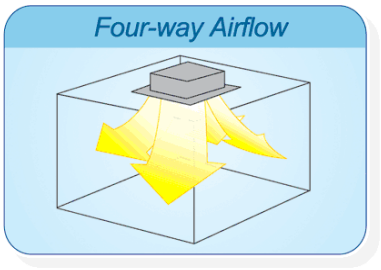
(1) Low operation noise

---Streamline plate ensures quietness

---Creates natural and comfortable environment

(2) Efficient cooling

---Equal, fast and wide—range cooling



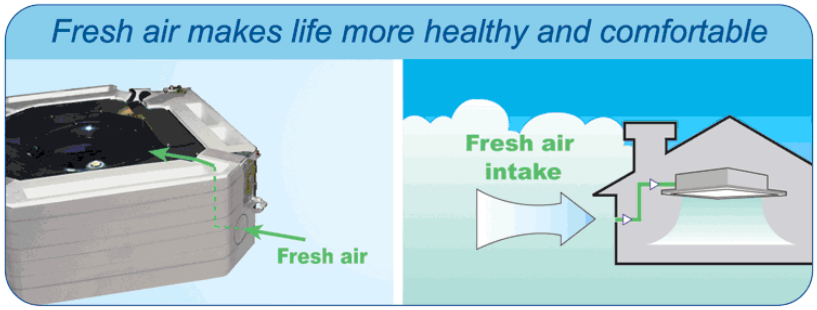
(3) The adoption of the most advanced 3- Dimensional Screw fan

---Reduces the air resistance passing through

---Smoothes the air flow

---Makes air speed distribution to the heat exchange uniform

(4) Fresh air makes life healthier and more comfortable.



2. Specification

TYPE			MKA-950	MKA-850	MKA-750	MKA-600
Airflow		CFM	950	850	750	600
		m^3/h	1600	1400	1250	1000
Cooling Capacity		W	8110	7260	6385	5109
		Btu/h	27635	24910	21835	17400
Heating Capacity		W	11311	10240	8850	7160
		Btu/h	38690	34870	30570	24360
Noise		dB(A)	44	44	41	41
Water flow		LPH	1541	1382	1204	1005
Water resistance		kPa	30	27	25.2	23.8
Indoor Coil	Number of rows		2	2	2	2
	Tube pitch(a)x row pitch(b)	mm	25.4×22			
	Fin spacing	mm	1.3			
	Fin type		Hydrophilic aluminum			
	Tube outside dia.and type	mm	φ7，inner groove tube			
	Coil length x height x width	mm	2000×250×27		2000×170×27	
	Number of circuits		6	6	4	4
Fan motor	Type		Low noise 3 speed fan motor			
	Number		1			
	Model		YDK56-6		YDK55-6	
	Input	W	144	144	128	120
	Capacitor	uF	3.5	3.5	3.5	3.5
Indoor unit	Dimension (W*H*D)	mm	840×310×840		840×240×840	
	Packing (W*H*D)	mm	1020×410×930		1020×330×930	
	Net/Gross weight	kg	40/50		36/46	
Panel	Dimension (W*H*D)	mm	950×40×950			
	Packing (W*H*D)	mm	1030×145×1030			
	Net/Gross weight	kg	6/11			
Control mode			wired controller(optional), remote controller (standard)			
Pipe	Water-inlet pipe		RC3/4” internal thread			
	Water-return pipe		RC3/4” internal thread			
	Condensation water-outlet pipe		EVA+LDPE 3/4” external thread			

Remark: 1. All performance data above is based upon 0Pa ambient static pressure.

2. Cooling capacity test condition: air inlet Temp. : 27DB℃/19.5WB℃, water inlet Temp. 7℃, water Temp. difference 5℃.

3. Heating capacity test condition:
Air inlet Temp. 21DB℃, water inlet Temp. 60 DB℃
The volume of air and water is same as cooling.

4. Noise level is tested in full-anechoic room.

TYPE			MKA-1500	MKA-1200
Airflow		CFM	1500	1200
		m^3/h	2500	2000
Cooling Capacity		W	11556	9849
		Btu/h	39240	33440
Heating Capacity		W	14920	13745
		Btu/h	51000	46810
Noise		dB(A)	45	45
Water flow		LPH	2388	1928
Water resistance		kPa	46	44
Indoor Coil	Number of rows		2	
	Tube pitch(a)x row pitch(b)	mm	25.4×22	
	Fin spacing	mm	1.3	
	Fin type		Hydrophilic aluminum	
	Tube outside dia.and type	mm	φ7，innergroove tube	
	Coil length x height x width	mm	2000×250×27	
	Number of circuits		6	
Fan motor	Type		Low noise 3 speed fan motor	
	Number		1	
	Model		YDK110-6	
	Input	W	190	180
	Capacitor	uF	5	
Indoor unit	Dimension (W*H*D)	mm	840×310×840	
	Packing (W*H*D)	mm	1020×410×930	
	Net/Gross weight	kg	40/50	
Panel	Dimension (W*H*D)	mm	950×40×950	
	Packing (W*H*D)	mm	1030×145×1030	
	Net/Gross weight	kg	6/11	
Control mode			wired controller(optional) , remote controller (standard)	
Pipe	Water-inlet pipe		RC3/4” internal thread	
	Water-return pipe		RC3/4” internal thread	
	Condensation water-outlet pipe		EVA+LDPE 3/4” external thread	

Remark: 1. All performance data above is based upon 0Pa ambient static pressure.

2. Cooling capacity test condition: air inlet Temp. : 27DB℃/19.5WB℃, water inlet Temp. 7℃, water Temp. difference 5℃.

3. Heating capacity test condition:
Air inlet Temp. 21DB℃, water inlet Temp. 60 DB℃
The volume of air and water is same as cooling.

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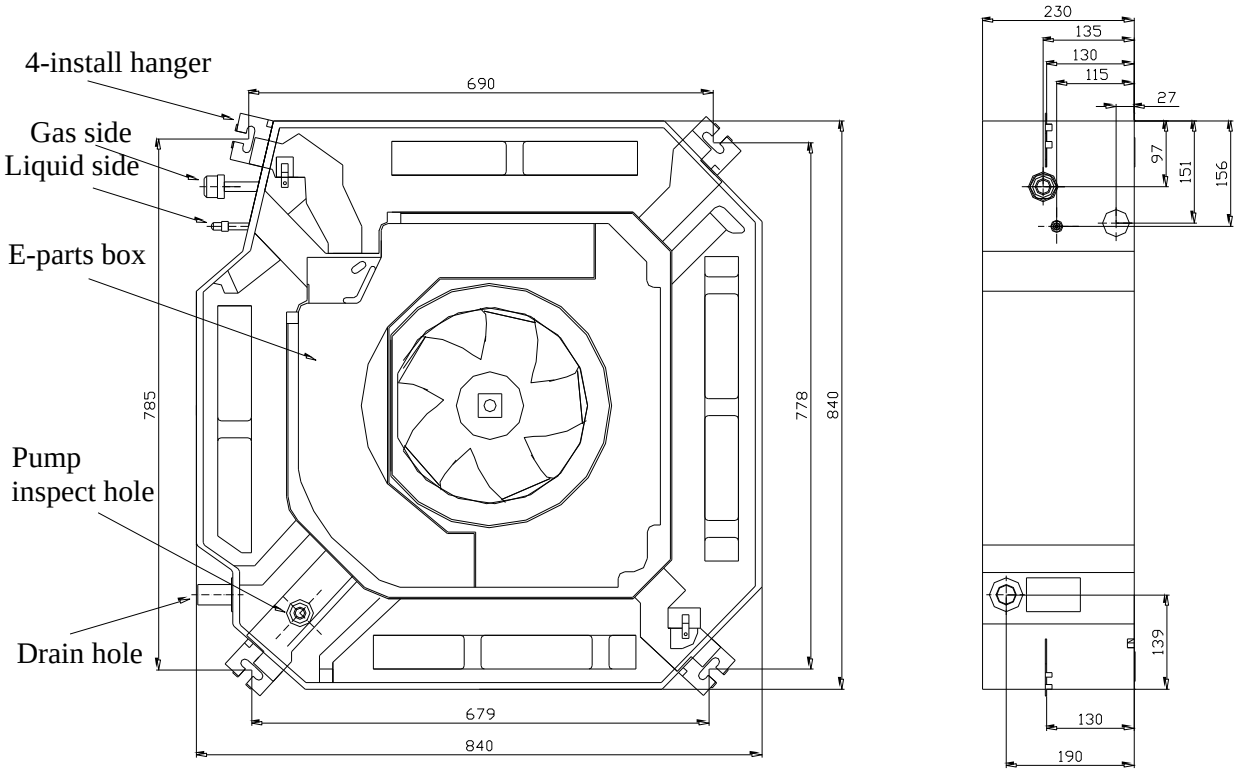
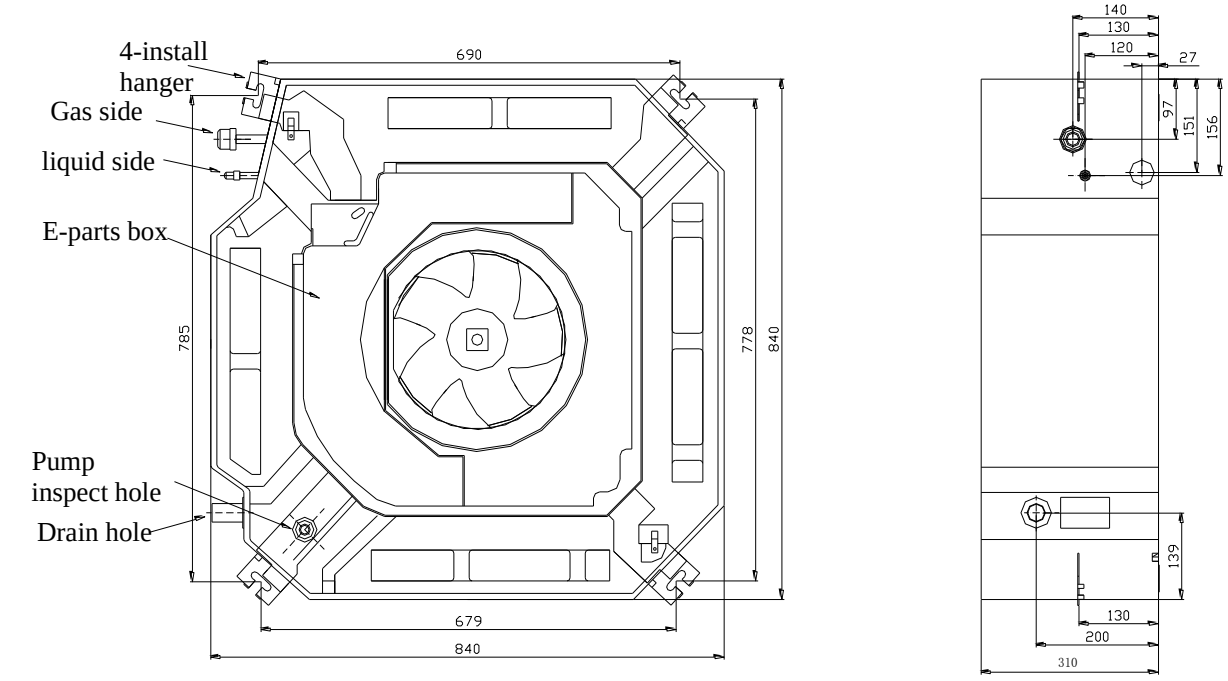
3. Dimensions

MKA-600、MKA-750



MKA-850、MKA-950、MKA-1200、MKA-1500



4. Service Spaces

MKA-600、MKA-750、MKA-850、MKA-950、MKA-1200、MKA-1500

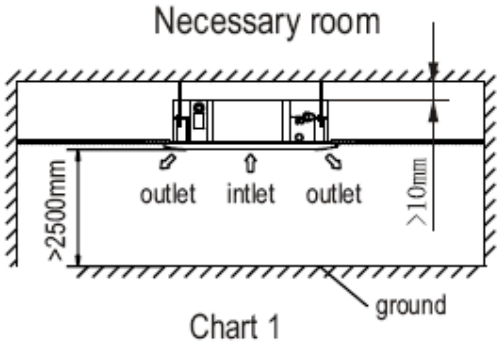


Chart 1

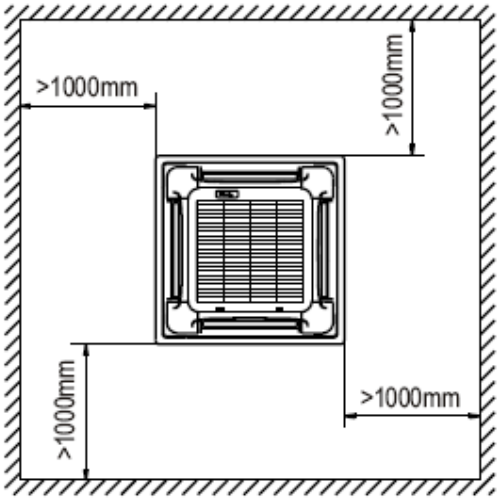
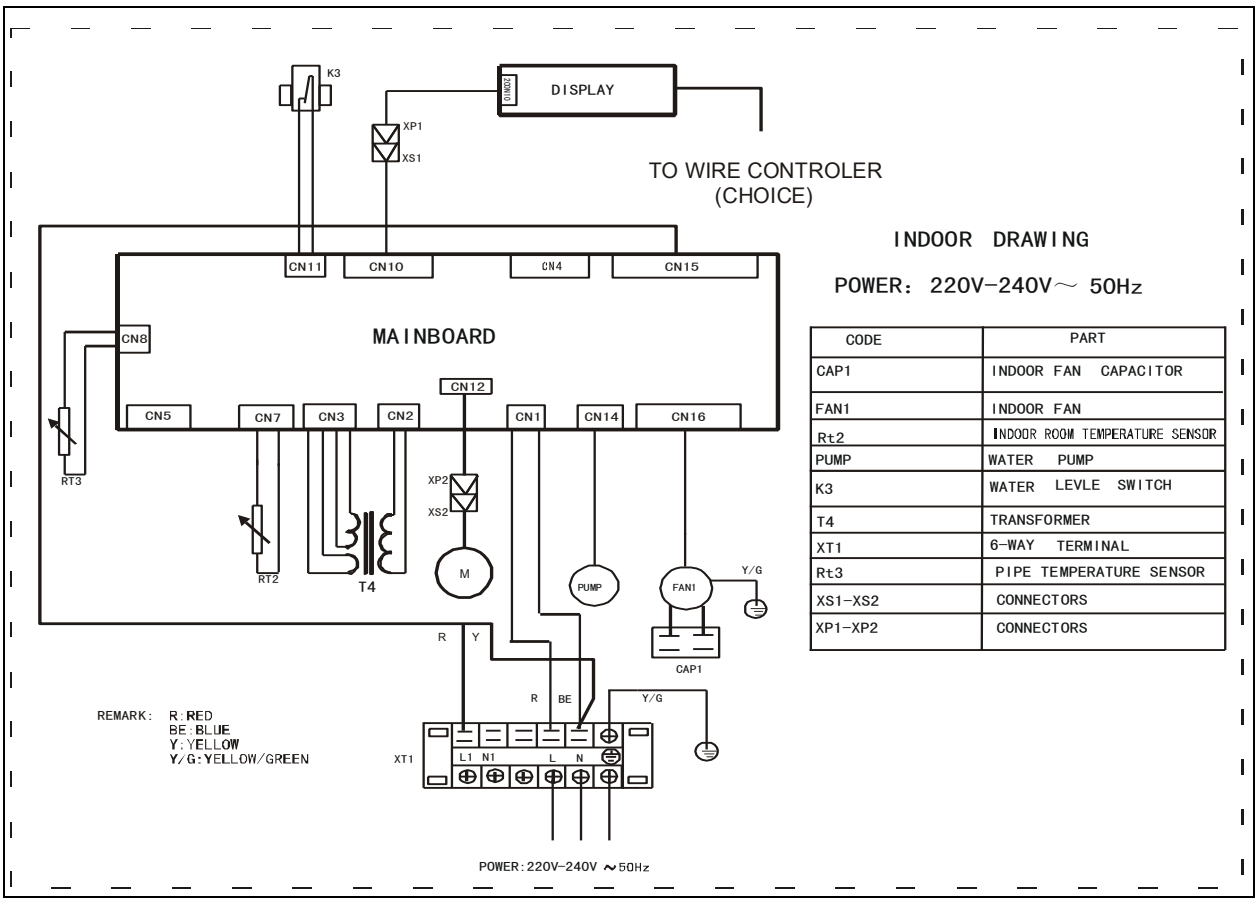


Chart 2

5. Wiring Diagram

MKA-600、MKA-750、MKA-850、MKA-950、MKA-1200、MKA-1500



CODE	PART
CAP1	INDOOR FAN CAPACITOR
FAN1	INDOOR FAN
Rt2	INDOOR ROOM TEMPERATURE SENSOR
PUMP	WATER PUMP
K3	WATER LEVLE SWITCH
T4	TRANSFORMER
XT1	6-WAY TERMINAL
Rt3	PIPE TEMPERATURE SENSOR
XS1-XS2	CONNECTORS
XP1-XP2	CONNECTORS

6. Capacity Tables

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-600	5	10	13.5	3439	4047	3537	4449	3636	4860	3823	5074	3823	5717
		15	30.4	3716	4735	3850	5217	3975	5708	4172	5958	4207	6736
		20	54	3913	5181	4056	5708	4199	6262	4404	6539	4467	7406
		25	84.4	4029	5458	4181	6012	4333	6593	4547	6896	4627	7817
	6	10	13.5	3296	3734	3404	4127	3502	4538	3689	4744	3689	5387
		15	30.4	3555	4368	3689	4842	3815	5333	4011	5583	4047	6352
		20	54	3734	4788	3877	6218	4020	5851	4225	6137	4297	6995
		25	84.4	3841	5038	3993	5601	4154	6173	4359	6477	4449	7388
	7	10	13.5	3162	3413	3270	3806	3368	4208	3555	4413	3564	5047
		15	30.4	3395	4002	3529	4467	3654	4958	3850	5100	3895	5967
		20	54	3555	4386	3707	4904	3850	5449	4056	5726	4118	6575
		25	84.4	3654	4618	3815	5172	3966	5753	4181	6039	4261	6959
	8	10	13.5	3028	3082	3136	3475	3234	3877	3421	4083	3430	4717
		15	30.4	3243	3627	3368	4091	3502	4574	3698	4815	3743	5574
		20	54	3386	3975	3529	4493	3672	5029	3877	5306	3949	6155
		25	84.4	3466	4199	3627	4744	3788	5315	3993	5610	4083	6512
	9	10	13.5	2894	2894	3002	3145	3109	3547	3296	3743	3305	4368
		15	30.4	3082	3243	3216	3707	3341	4181	3538	4431	3591	5181
		20	54	3207	3564	3359	4083	3502	4610	3707	4878	3779	5726
		25	84.4	3287	3761	3448	4306	3600	4878	3815	5163	3904	6066
	10	10	13.5	2760	2760	2877	2877	2975	3207	3162	3404	3180	4029
		15	30.4	2930	2930	3064	3314	3189	3788	3386	4029	3439	4779
		20	54	3037	3145	3189	3654	3332	4181	3538	4449	3618	5288
		25	84.4	3109	3323	3270	3859	3421	4422	3636	4708	3725	5601

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-750	5	15	11.9	4001	4838	4121	5316	4241	5811	4455	6058	4472	6839
		20	21.2	4217	5372	4368	5907	4504	6465	4727	6752	4774	7636
		25	33.1	4392	5779	4551	6369	4711	6975	4942	7285	5006	8250
		30	47.7	4504	6034	4679	6656	4847	7294	5078	7772	5166	8640
	6	15	11.9	3834	4455	3962	4934	4081	5421	4296	5676	4313	6448
		20	21.2	4041	4950	4185	5492	4328	6042	4551	6448	4592	7206
		25	33.1	4193	5333	4360	5922	4519	6520	4742	6831	4815	7787
		30	47.7	4296	5580	4472	6193	4639	6831	4879	7158	4958	8162
	7	15	11.9	3675	4073	3802	4551	3921	5038	4137	5284	4153	6050
		20	21.2	3858	4536	4001	5309	4145	5779	4368	6385	4416	6767
		25	33.1	4001	4886	4161	5548	4320	6146	4551	6433	4624	7326
		30	47.7	4097	5110	4264	5723	4440	6353	4671	6679	4759	7684
	8	15	11.9	3507	3690	3643	4161	3762	4639	3977	4886	4001	5644
		20	21.2	3675	4105	3826	4639	3970	5181	4193	5539	4241	6321
		25	33.1	3810	4432	3970	5006	4129	5603	4360	5907	4432	6847
		30	47.7	3890	4639	4065	5245	4232	5875	4472	6193	4560	7189
	9	15	11.9	3356	3356	3484	3762	3611	4241	3826	4487	3842	5237
		20	21.2	3499	3675	3651	4200	3794	4742	4017	5022	4073	5875
		25	33.1	3611	3970	3778	4543	3938	5134	4169	5436	4249	6369
		30	47.7	3690	4161	3866	4759	4033	5380	4273	5699	4360	6688
	10	15	11.9	3197	3197	3324	3364	3452	3842	3666	4081	3690	4830
		20	21.2	3324	3324	3475	3762	3619	4296	3842	4568	3898	5421
		25	33.1	3428	3499	3587	4065	3754	4655	3985	4950	4065	5882
		30	47.7	3491	3666	3666	4264	3834	4886	4073	5197	4169	6177

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				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-850	5	15	11.9	4637	5607	4775	6161	4914	6734	5163	7020	5182	7925
		20	21.2	4886	6225	5062	6844	5219	7491	5477	7823	5533	8849
		25	33.1	5089	6697	5274	7380	5459	8082	5727	8442	5801	9560
		30	47.7	5219	6992	5422	7713	5616	8452	5884	9006	5985	10013
	6	15	11.9	4443	5163	4591	5717	4729	6281	4979	6576	4997	7472
		20	21.2	4683	5736	4849	6364	5015	7001	5274	7472	5320	8350
		25	33.1	4858	6179	5052	6863	5237	7556	5496	7916	5579	9024
		30	47.7	4979	6466	5182	7177	5376	7916	5653	8295	5745	9458
	7	15	11.9	4258	4720	4406	5274	4544	5838	4794	6124	4812	7011
		20	21.2	4471	5256	4637	6152	4803	6697	5062	7260	5117	7842
		25	33.1	4637	5662	4822	6429	5006	7121	5274	7454	5357	8488
		30	47.7	4748	5921	4942	6632	5145	7362	5413	7740	5514	8904
	8	15	11.9	4064	4277	4221	4822	4360	5376	4609	5662	4637	6540
		20	21.2	4258	4757	4434	5376	4600	6004	4858	6419	4914	7325
		25	33.1	4415	5136	4600	5801	4785	6493	5052	6844	5136	7934
		30	47.7	4507	5376	4711	6078	4905	6807	5182	7177	5283	8331
	9	15	11.9	3889	3889	4036	4360	4184	4914	4434	5200	4452	6068
		20	21.2	4055	4258	4230	4868	4397	5496	4655	5819	4720	6807
		25	33.1	4184	4600	4378	5265	4563	5948	4831	6299	4923	7380
		30	47.7	4277	4822	4480	5514	4674	6235	4951	6604	5052	7750
	10	15	11.9	3704	3704	3852	3898	3999	4452	4249	4729	4277	5597
		20	21.2	3852	3852	4027	4360	4193	4979	4452	5293	4517	6281
		25	33.1	3972	4055	4156	4711	4350	5394	4618	5736	4711	6817
		30	47.7	4046	4249	4249	4942	4443	5662	4720	6022	4831	7158

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				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-950	5	15	11.9	5180	6263	5334	6882	5490	7522	5768	7842	5789	8853
		20	21.2	5459	6955	5654	7646	5830	8368	6118	8740	6180	9885
		25	33.1	5686	7481	5891	8245	6098	9029	6397	9431	6480	10679
		30	47.7	5830	7811	6057	8616	6274	9441	6573	10060	6686	11185
	6	15	11.9	4963	5768	5128	6387	5283	7017	5561	7346	5582	8347
		20	21.2	5232	6407	5417	7109	5603	7821	5891	8347	5944	9328
		25	33.1	5428	6903	5644	7666	5850	8440	6139	8843	6232	10081
		30	47.7	5561	7223	5789	8017	6005	8843	6315	9266	6418	10566
	7	15	11.9	4757	5273	4922	5891	5076	6521	5355	6841	5376	7832
		20	21.2	4994	5871	5180	6872	5365	7481	5654	8110	5717	8760
		25	33.1	5180	6325	5386	7181	5592	7956	5891	8327	5985	9483
		30	47.7	5304	6614	5520	7408	5747	8224	6047	8646	6160	9946
	8	15	11.9	4540	4777	4716	5386	4870	6005	5148	6325	5180	7305
		20	21.2	4757	5314	4953	6005	5138	6707	5428	7171	5490	8182
		25	33.1	4933	5737	5138	6480	5345	7254	5644	7646	5737	8863
		30	47.7	5035	6005	5262	6789	5479	7604	5789	8017	5902	9307
	9	15	11.9	4344	4344	4509	4870	4675	5490	4953	5809	4974	6779
		20	21.2	4530	4757	4726	5438	4911	6139	5201	6501	5273	7604
		25	33.1	4675	5138	4890	5881	5097	6645	5396	7037	5500	8245
		30	47.7	4777	5386	5004	6160	5221	6965	5531	7377	5644	8657
	10	15	11.9	4137	4137	4303	4354	4468	4974	4747	5283	4777	6253
		20	21.2	4303	4303	4499	4870	4685	5561	4974	5912	5046	7017
		25	33.1	4437	4530	4643	5262	4860	6026	5159	6407	5262	7615
		30	47.7	4519	4747	4747	5520	4963	6325	5273	6728	5396	7997

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-1200	5	25	18.2	6858	8651	7094	9517	7322	10418	7680	10873	7750	12282
		32	29.8	7059	9141	7313	10060	7558	11022	7925	11503	8022	13017
		35	35.6	7226	9526	7488	10497	7750	11494	8127	12011	8249	13603
		40	46.5	7392	9832	7637	10838	7908	11879	8293	12413	8424	14066
	6	25	18.2	6569	7978	6797	8844	7033	9736	7392	10191	7462	11591
		32	29.8	6753	8433	7007	9360	7252	10305	7619	10786	7715	12290
		35	35.6	6902	8800	7164	9762	7427	10751	7803	11267	7925	12842
		40	46.5	7024	9089	7304	10086	7575	11118	7960	11652	8100	13734
	7	25	18.2	6272	7304	6508	8162	6736	9045	7103	9054	7173	10882
		32	29.8	6438	7724	6701	8634	6946	9579	7313	9849	7418	11547
		35	35.6	6578	8057	6849	9010	7112	9999	7488	10506	7610	12081
		40	46.5	6683	8328	6972	9316	7243	10348	7628	10873	7768	12509
	8	25	18.2	5983	6613	6220	7471	6456	8345	6814	8791	6893	10174
		32	29.8	6132	7007	6395	7908	6639	8844	7016	9316	7121	10795
		35	35.6	6255	7304	6526	8258	6788	9238	7173	9745	7296	11293
		40	46.5	6360	7558	6639	8538	6919	9561	7304	10086	7444	11704
	9	25	18.2	5695	5922	5940	6762	6167	7637	6535	8074	6613	9447
		32	29.8	5835	6272	6088	7173	6342	8100	6718	8573	6823	10034
		35	35.6	5940	6543	6211	7488	6482	8468	6858	8966	6989	10506
		40	46.5	6027	6771	6316	7750	6587	8765	6981	9281	7121	10891
	10	25	18.2	5415	5415	5660	6053	5887	6919	6255	7357	6342	8713
		32	29.8	5529	5529	5791	6421	6045	7339	6421	7812	6526	9264
		35	35.6	5625	5773	5896	6709	6167	7672	6552	8170	6683	9701
		40	46.5	5703	5975	5992	6946	6272	7952	6657	8468	6806	10060

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKA-1500	5	25	18.2	8047	10151	8324	11167	8591	12224	9012	12758	9094	14410
		32	29.8	8283	10726	8581	11803	8868	12932	9299	13497	9412	15273
		35	35.6	8478	11177	8786	12317	9094	13487	9535	14092	9679	15960
		40	46.5	8673	11536	8960	12717	9278	13938	9730	14564	9884	16504
	6	25	18.2	7708	9361	7975	10377	8252	11424	8673	11957	8755	13600
		32	29.8	7924	9894	8221	10982	8509	12091	8940	12655	9053	14421
		35	35.6	8098	10325	8406	11454	8714	12614	9155	13220	9299	15067
		40	46.5	8242	10664	8570	11834	8888	13045	9340	13671	9504	16114
	7	25	18.2	7359	8570	7636	9576	7903	10613	8334	10623	8416	12768
		32	29.8	7554	9063	7862	10130	8149	11239	8581	11556	8704	13548
		35	35.6	7718	9453	8037	10572	8344	11732	8786	12327	8929	14174
		40	46.5	7842	9771	8180	10931	8498	12142	8950	12758	9114	14677
	8	25	18.2	7020	7759	7298	8765	7575	9792	7995	10315	8088	11937
		32	29.8	7195	8221	7503	9278	7790	10377	8232	10931	8355	12666
		35	35.6	7339	8570	7657	9689	7965	10839	8416	11434	8560	13251
		40	46.5	7462	8868	7790	10017	8119	11218	8570	11834	8734	13733
	9	25	18.2	6682	6949	6969	7934	7236	8960	7667	9473	7759	11085
		32	29.8	6846	7359	7144	8416	7441	9504	7883	10059	8006	11773
		35	35.6	6969	7677	7287	8786	7605	9935	8047	10520	8201	12327
		40	46.5	7072	7944	7410	9094	7729	10284	8191	10890	8355	12778
	10	25	18.2	6353	6353	6641	7103	6908	8119	7339	8632	7441	10223
		32	29.8	6487	6487	6795	7534	7092	8611	7534	9166	7657	10869
		35	35.6	6600	6774	6918	7872	7236	9001	7688	9586	7842	11383
		40	46.5	6692	7010	7031	8149	7359	9330	7811	9935	7985	11803

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Heating Capacity Table:

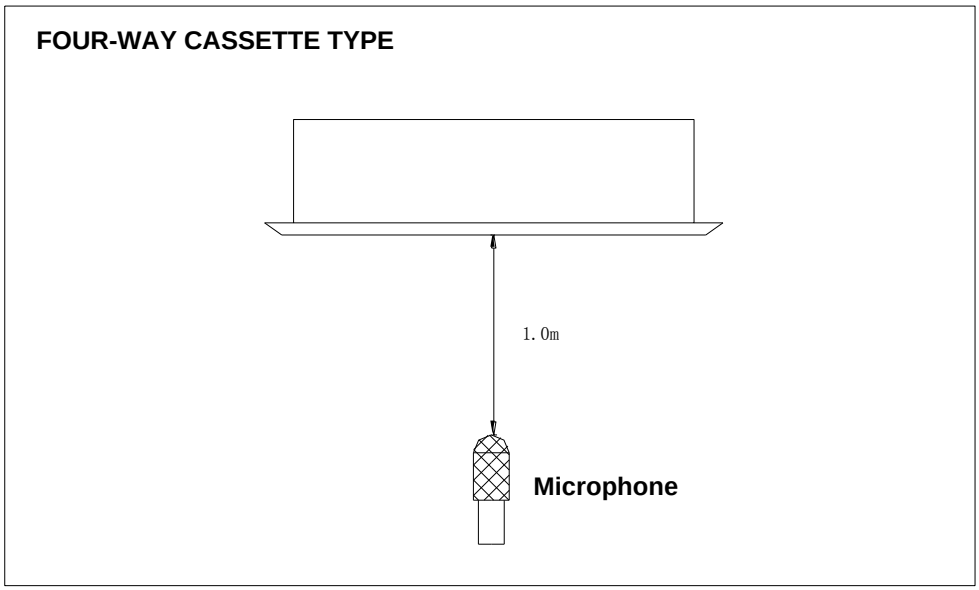
Model	Water Flow volume(LPM)	Hydraulic Pressure Drop (kPa)	Air inlet condition DB18℃						
			Water inlet temp.						
			40	45	50	55	60	70	80
MKA-600	10	13.5	3791	4650	5509	6375	7234	8959	10684
	15	30.4	4087	5013	5946	6871	7804	9663	11521
	20	54	4257	5227	6190	7160	8130	10063	12002
	25	84.4	4369	5361	6353	7345	8337	10329	12313
MKA-750	15	11.9	4589	5641	6839	7659	8850	10926	13042
	20	21.2	4777	5870	6960	8044	9114	11280	13454
	25	33.1	4978	6114	7247	8384	9486	11748	14008
	30	47.7	5109	6270	7438	8601	9738	12051	14372
MKA-850	15	11.9	5097	6261	7418	8582	9738	12058	14379
	20	21.2	5363	6581	7806	9023	10240	12682	15117
	25	33.1	5538	6794	8057	9312	10575	13093	15611
	30	47.7	5660	6946	8239	9525	10811	13382	15961
MKA-950	15	11.9	5869	7199	8537	9868	11180	13830	16498
	20	21.2	6174	7574	8971	10383	11754	14553	17351
	25	33.1	6366	7820	9270	10716	12139	15025	17920
	30	47.7	6518	7997	9473	10954	12403	15358	18315
MKA-1200	25	18.2	7315	8976	10637	12305	12694	17295	20617
	32	29.8	7527	9238	10955	12666	14376	17804	21225
	35	35.6	7690	9443	11189	12941	14687	18186	21684
	40	46.5	7817	9598	11372	13153	14935	18490	22045
MKA-1500	25	18.2	7761	9529	11293	13063	14794	18305	21838
	32	29.8	8063	9893	11729	13561	15353	19008	22666
	35	35.6	8271	10155	12035	13912	15758	19502	23268
	40	46.5	8437	10347	12263	14186	16066	19882	23710

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp.
   TH: Total heat SH: Sensible heat
2. Table above is based on normal type fan coil high speed air-flow volume; heating capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

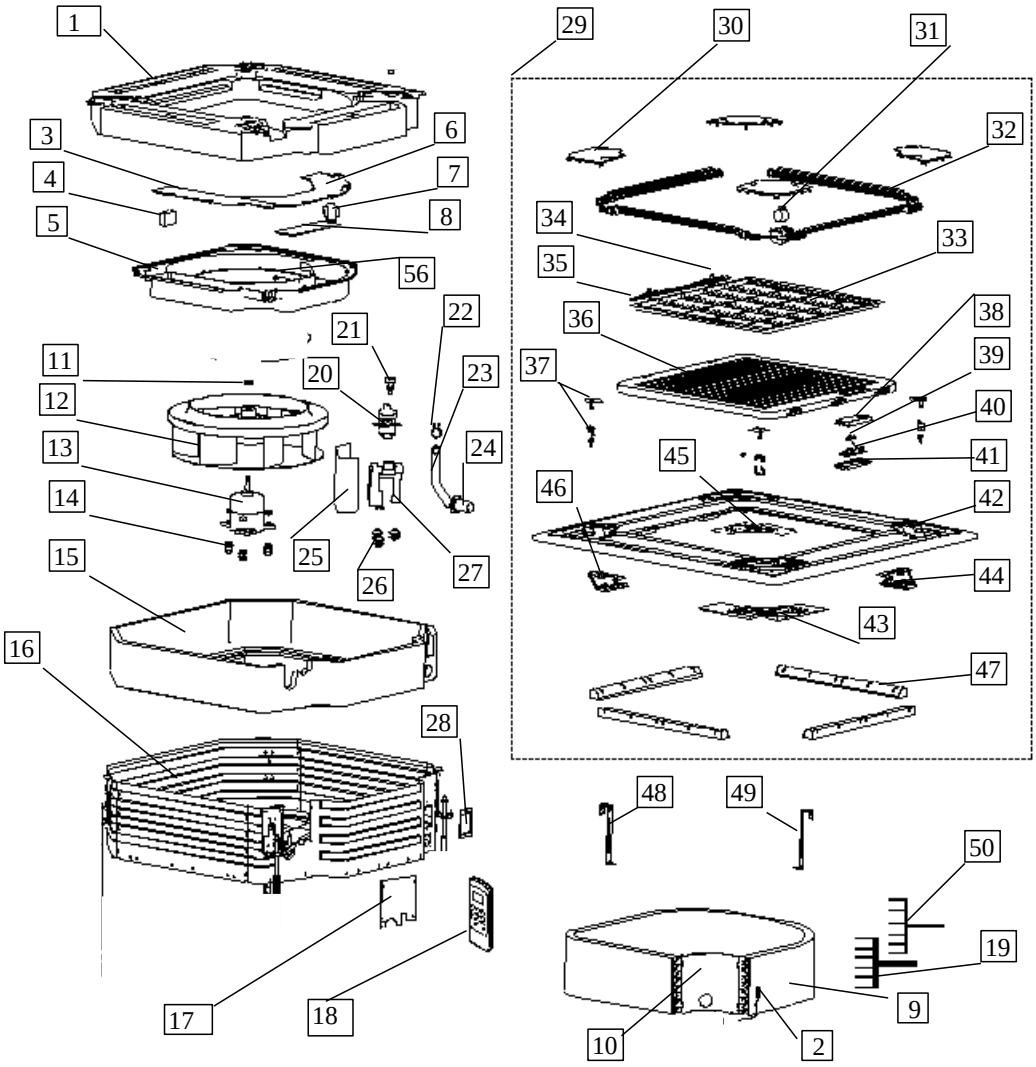
7. Sound Levels

TYPE		MKA-600	MKA-750	MKA-850	MKA-950	MKA-1200	MKA-1500
Noise	dB(A)	41	41	44	44	45	45



8. Exploded View

MKA-600、MKA-750、MKA-850、MKA-950、MKA-1200、MKA-1500



No.	Part Name	Quantity		No.	Part Name	Quantity
1	Water Receiver, Assembly	1		26	Rubber washer, pump	1
2	Pipe Temperature Sensor Assembly	1		27	holder, pump	1
3	E-Parts Box Cover1	1		28	Water trying board	1
4	Capacity	1		29	Panel Assembly	4
5	E-Parts Box Assembly	1		30	Cover, installing	1
6	E-Parts Box Cover2	1		31	Swing motor	4
7	Transformer	1		32	Fan guide	1
8	PCB Assembly	1		33	Filter	2
9	Evaporator assembly	1		34	Switch, air inlet grille	1

10	Fixing board, Evaporator	1		35	Switch cover, air inlet grille	1
11	Clamp, fan	1		36	Air inlet grille	4
12	Fan assembly	1		37	Hanger for panel, assembly	1
13	Fan Motor	1		38	Control box	1
14	Gasket, motor	4		39	LED holder	1
	Gasket, motor	4		40	Control board	1
15	Evaporator Base assembly	1		41	Cover, control box	1
16	Base Pan assembly	1		42	Panel	1
	Wire clamp board	1		43	Back board, Air out 1	1
17	Sealing board, pipe out	1		44	Back board, Air out 2	1
18	Remoter	1		45	Back board, Air out 3	1
19	Eva out pipe, assembly	1		46	Back board, Air out 4	4
20	Drain Pump assembly	1		47	Foam, air out 1	4
21	Water switch	1			Foam, air out 2	1
22	Clamp, water pipe	1		48	Fixing hanger, Evaporator	2
23	Water pipe	1		49	Fixing hanger, Evaporator	1
24	Extend water pipe	1		50	Eva in pipe, assembly	
25	Separate board, pump	1				

Compact Four Way Cassette Type

1. Features

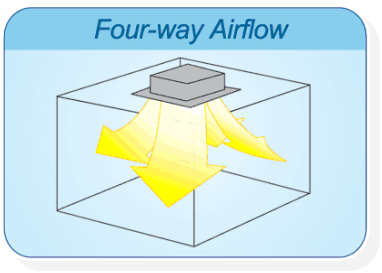
(1) Low operation noise

---Streamline plate ensures quietness

---Creates natural and comfortable environment

(2) Efficient cooling

---Equal, fast and wide—range cooling



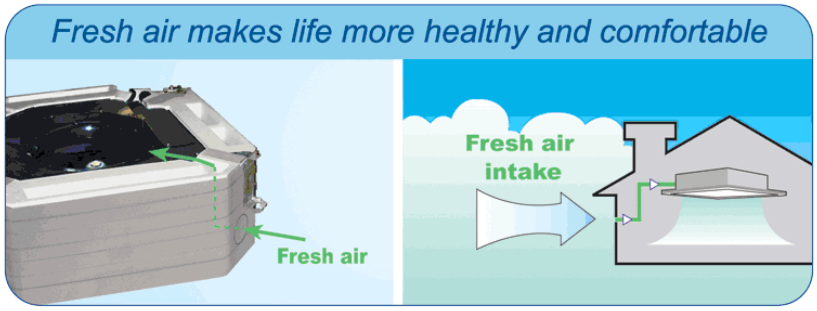
(3) The adoption of the most advanced 3- Dimensional Screw fan

---Reduces the air resistance passing through

---Smoothes the air flow

---Makes air speed distribution to the heat exchange uniform

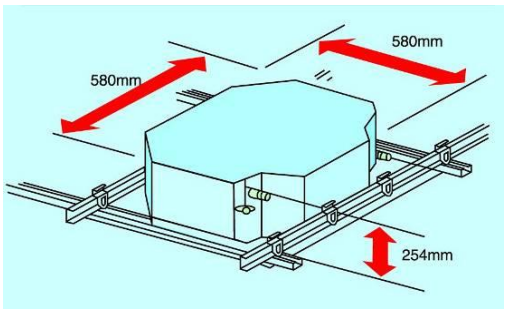
(4) Fresh air makes life healthier and more comfortable.



(4) Improvement for easy installation and maintenance (only available for small four-way cassette)

---Little space is required for installation into a shallow ceiling

---Because of the compactness and weight reduction of the main unit and panel, all models can be installed without a hoist



The sketch map of installation (compact type)

2. Specification

TYPE			MKB-300	MKB-400	MKB-450	MKB-500
Airflow		CFM	300	400	450	500
		m^3/h	500	630	710	800
Cooling Capacity		W	2635	3190	3750	3935
		Btu/h	8870	10920	12625	13310
Heating Capacity		W	3630	4425	5240	5510
		Btu/h	12420	15285	17675	18630
Noise		dB(A)	38	39	40	41
Water flow		LPH	530	653	740	850
Water resistance		kPa	10.1	14.5	18.3	27.1
Indoor Coil	Number of rows		2	2	2	2
	Tube pitch(a)x row pitch(b)	mm	21×13.37			
	Fin spacing	mm	1.3			
	Fin type		Hydrophilic aluminium			
	Tube outside dia.and type	mm	φ7.94，innergroove tube			
	Coil length×height×width	mm	1185×210×26.74			
	Number of circuits		10	10	10	10
Fan motor	Type		Low noise 3 speed fan motor			
	Number		1			
	Model		YDK45-4F			
	Input	W	30	45	55	70
	Capacitor	uF	1	1.5	2	3
Indoor unit	Dimension (W*H*D)	mm	580×254×580			
	Packing (W*H*D)	mm	750×340×750			
	Net/Gross weight	kg	21/30			
Panel	Dimension (W*H*D)	mm	650×30×650			
	Packing (W*H*D)	mm	715×115×715			
	Net/Gross weight	kg	3/5			
Control mode			wired controller(optional) , remote controller (standard)			
Pipe	Water-inlet pipe		RC3/4” internal thread			
	Water-return pipe		RC3/4” internal thread			
	Condensation water-outlet pipe		EVA+LDPE 3/4” external thread			

Remark: 1. All performance data above is based upon 0Pa ambient static pressure.

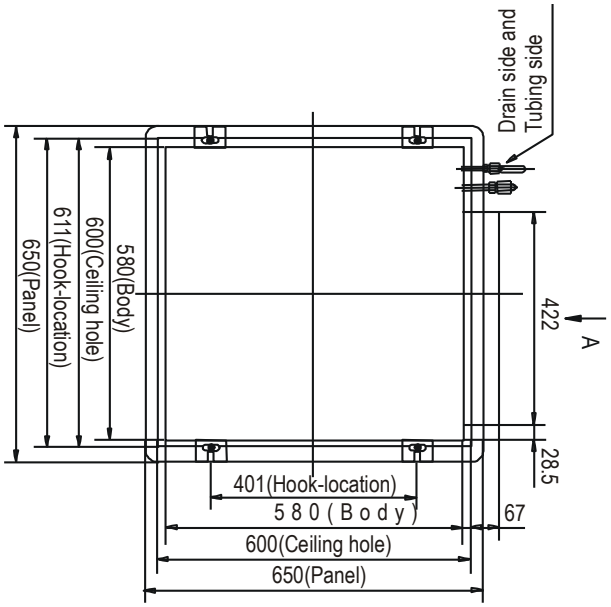
2. Cooling capacity test condition: air inlet Temp. : 27DB℃/19.5WB℃, water inlet Temp. 7℃, water Temp. difference 5℃.

3. Heating capacity test condition:
air inlet Temp. 21DB℃, water inlet Temp. 60 DB℃
the volume of air and water is same as cooling.

4. Noise level is tested in full-anechoic room.

3. Dimensions

MKB-300、MKB-400、MKB-450、MKB-500



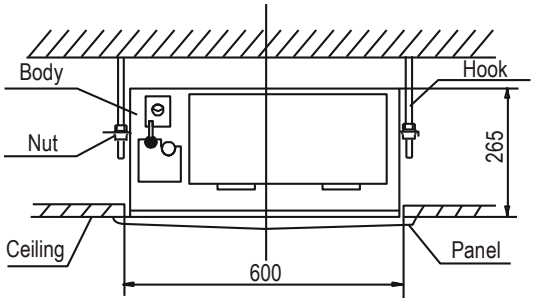
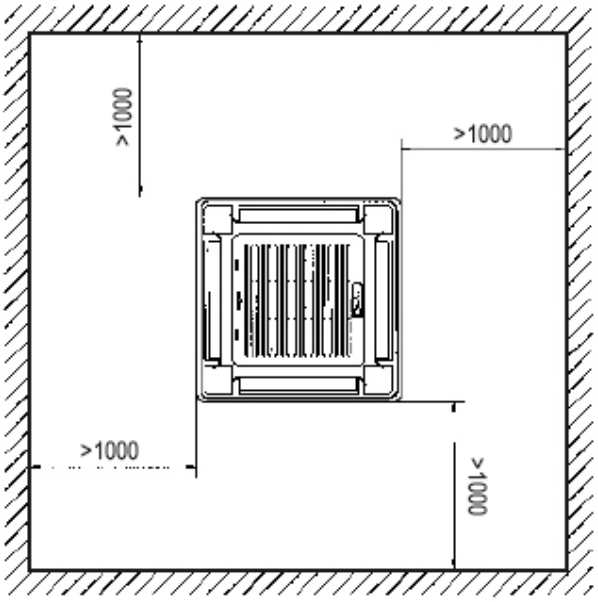
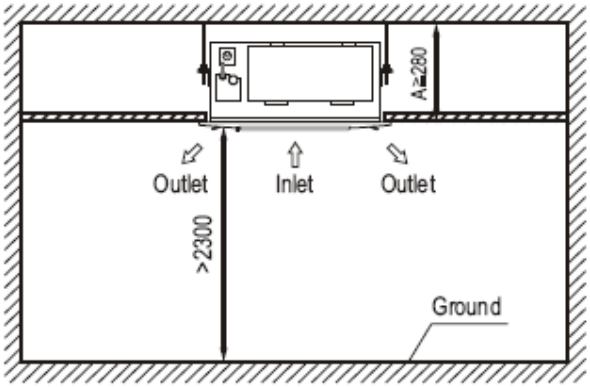


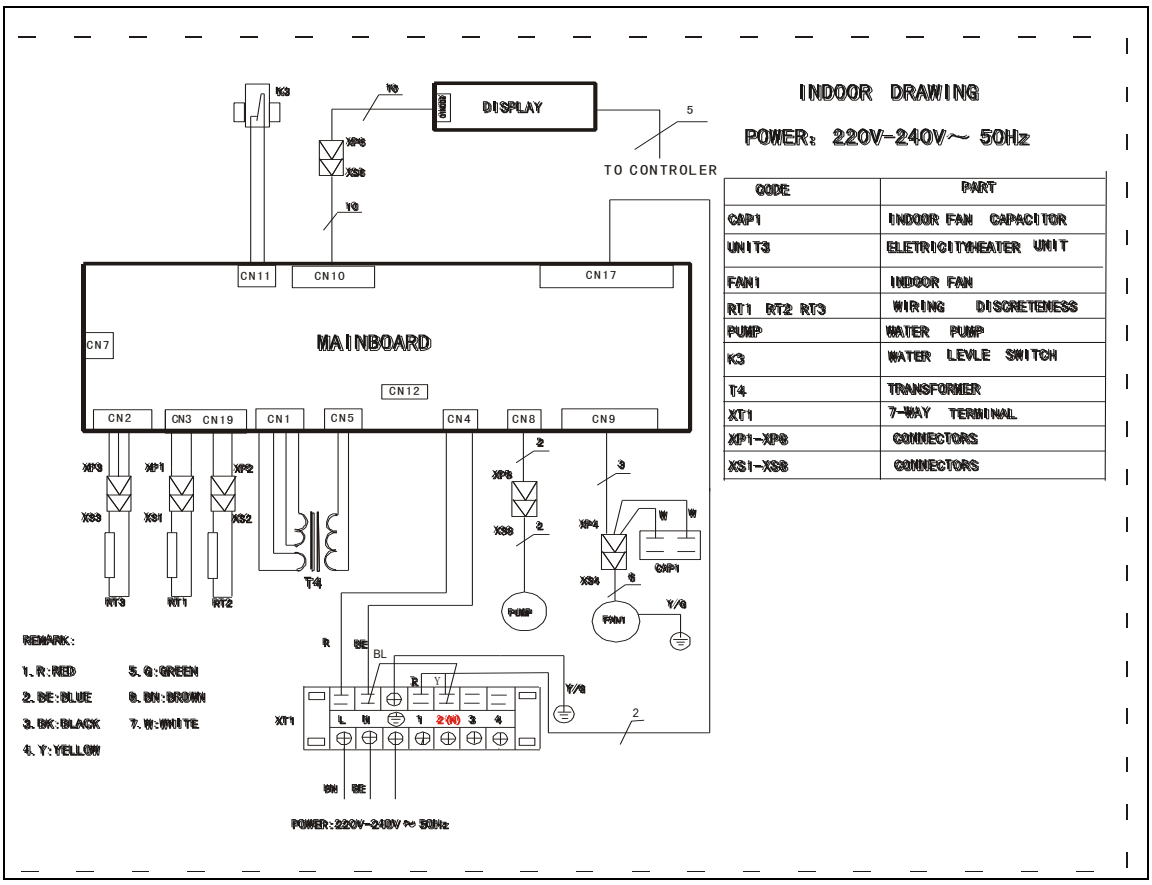
Chart 4

4. Service Space





5. Wiring Diagram



CODE	PART
CAP1	INDOOR FAN CAPACITOR
UNIT3	ELETRICITYHEATER UNIT
FAN1	INDOOR FAN
RT1 RT2 RT3	WIRING DISCRETENESS
PUMP	WATER PUMP
K3	WATER LEVLE SWITCH
T4	TRANSFORMER
XT1	7-WAY TERMINAL
XP1~XP8	CONNECTORS
XS1~XS8	CONNECTORS

6. Capacity Tables

Cooling Capacity Table													unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKB-300	5	6	4.6	1531	1809	1578	1989	1620	2170	1709	2273	1703	2553
		8	8.1	1627	2038	1683	2239	1731	2448	1822	2559	1836	2886
		10	12.7	1692	2193	1755	2414	1815	2643	1899	2761	1927	3122
		12	18.2	1753	2322	1815	2559	1878	2810	1968	2935	2003	3324
	6	6	4.6	1474	1669	1516	1843	1565	2024	1648	2121	1648	2406
		8	8.1	1558	1878	1613	2079	1662	2288	1753	2392	1767	2726
		10	12.7	1523	1620	1676	2246	1739	2476	1829	2587	1850	2948
		12	18.2	1669	2149	1739	2385	1802	2629	1892	2754	1927	3144
	7	6	4.6	1412	1523	1460	1696	1502	1878	1584	1974	1585	2253
		8	8.1	1488	1717	1544	1920	1601	2130	1717	2267	1696	2559
		10	12.7	1544	1850	1606	2072	1662	2295	1753	2635	1781	2775
		12	18.2	1592	1968	1655	2336	1724	2608	1815	2816	1843	2955
	8	6	4.6	1349	1377	1398	1551	1446	1731	1530	1822	1530	2107
		8	8.1	1419	1558	1474	1753	1530	1961	1609	2061	1634	2392
		10	12.7	1467	1676	1530	1899	1592	2121	1683	2239	1703	2594
		12	18.2	1509	1788	1578	2017	1641	2260	1739	2378	1767	2761
	9	6	4.6	1294	1294	1342	1405	1384	1585	1467	1676	1474	1954
		8	8.1	1356	1391	1412	1592	1467	1795	1551	1899	1565	2218
		10	12.7	1398	1502	1537	1717	1516	1940	1606	2059	1634	2406
		12	18.2	1433	1599	1502	1829	1565	2072	1662	2190	1690	2573
	10	6	4.6	1182	1231	1280	1280	1328	1433	1412	1523	1419	1802
		8	8.1	1287	1287	1342	1419	1398	1627	1488	1724	1502	2045
		10	12.7	1321	1321	1384	1537	1446	1760	1537	1871	1565	2225
		12	18.2	1356	1412	1426	1641	1488	1878	1585	1996	1620	2371

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKB-400	5	6	4.6	1852	2188	1911	2407	1961	2626	2062	2744	2062	3089
		8	8.1	1970	2466	2037	2710	2096	2963	2205	3097	2222	3493
		10	12.7	2045	2651	2121	2921	2197	3198	2298	3342	2331	3779
		12	18.2	2121	2811	2197	3097	2273	3400	2382	3552	2424	4023
	6	6	4.6	1784	2020	1835	2230	1894	2449	1995	2567	1995	2912
		8	8.1	1885	2273	1953	2517	2012	2769	2121	2895	2138	3299
		10	12.7	1843	1961	2028	2719	2104	2996	2214	3131	2239	3569
		12	18.2	2020	2601	2104	2887	2180	3182	2289	3333	2331	3804
	7	6	4.6	1709	1843	1768	2054	1818	2273	1919	2390	1919	2727
		8	8.1	1801	2079	1869	2323	1936	2576	2037	2702	2054	3097
		10	12.7	1869	2239	1944	2508	2012	2778	2121	3190	2155	3358
		12	18.2	1927	2382	2003	2828	2087	3156	2197	3409	2230	3577
	8	6	4.6	1633	1667	1692	1877	1751	2096	1852	2205	1852	2550
		8	8.1	1717	1885	1784	2121	1852	2374	1953	2500	1978	2895
		10	12.7	1776	2028	1852	2298	1927	2567	2037	2710	2062	3139
		12	18.2	1826	2163	1911	2441	1986	2735	2104	2879	2138	3342
	9	6	4.6	1566	1566	1624	1700	1675	1919	1776	2028	1784	2365
		8	8.1	1641	1683	1709	1927	1776	2172	1877	2298	1894	2685
		10	12.7	1692	1818	1860	2079	1835	2348	1944	2491	1978	2912
		12	18.2	1734	1936	1818	2214	1894	2508	2012	2651	2045	3114
	10	6	4.6	1431	1490	1549	1549	1608	1734	1709	1843	1717	2180
		8	8.1	1557	1557	1624	1717	1692	1970	1801	2087	1818	2475
		10	12.7	1599	1599	1675	1860	1751	2129	1860	2264	1894	2693
		12	18.2	1641	1709	1725	1986	1801	2273	1919	2416	1961	2870

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKB-450	5	6	4.6	2305	2693	2366	2955	2435	3227	2559	3366	2552	3793
		8	8.1	2505	3180	2591	3498	2676	3832	2808	4002	2831	4522
		10	12.7	2629	3475	2722	3832	2823	4196	2955	4382	3002	4964
		12	18.2	2722	3692	2831	4072	2932	4467	3079	4669	3134	5290
	6	6	4.6	2210	2482	2280	2746	2342	3009	2466	3149	2466	3576
		8	8.1	2397	2932	2482	3250	2567	3584	2699	3747	2722	4266
		10	12.7	2513	3211	2606	3560	2707	3924	2839	4110	2885	4684
		12	18.2	2598	3413	2707	3793	2808	4180	2947	4382	3009	5003
	7	6	4.6	2117	2265	2187	2528	2257	2792	2381	2932	2381	3351
		8	8.1	2288	2684	2373	3002	2459	2994	2590	3280	2622	3863
		10	12.7	2389	2940	2490	3134	2583	3266	2722	3506	2769	4095
		12	18.2	2473	3125	2575	3273	2683	3474	2823	3750	2885	4312
	8	6	4.6	2032	2047	2102	2311	2172	2575	2303	2707	2296	3126
		8	8.1	2179	2435	2272	2746	2358	3072	2490	3234	2513	3747
		10	12.7	2272	2668	2373	3009	2474	3374	2606	3553	2653	4126
		12	18.2	2342	2839	2451	3211	2559	3599	2699	3553	2761	4095
	9	6	4.6	1939	1939	2016	2086	2078	2350	2203	2490	2210	2901
		8	8.1	2078	2179	2164	2490	2249	2808	2381	2971	2412	3475
		10	12.7	2156	2389	2257	2730	2358	3087	2497	3273	2544	3832
		12	18.2	2218	2544	2327	2916	2435	3219	2583	3351	2645	3871
	10	6	4.6	1853	1853	1923	1923	1993	2125	2117	2257	2125	2668
		8	8.1	1970	1970	2063	2226	2148	2544	2280	2707	2311	3211
		10	12.7	2047	2102	2141	2451	2241	2800	2381	2978	2428	3545
		12	18.2	2102	2249	2210	2614	2319	2994	2459	3188	2521	3638

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

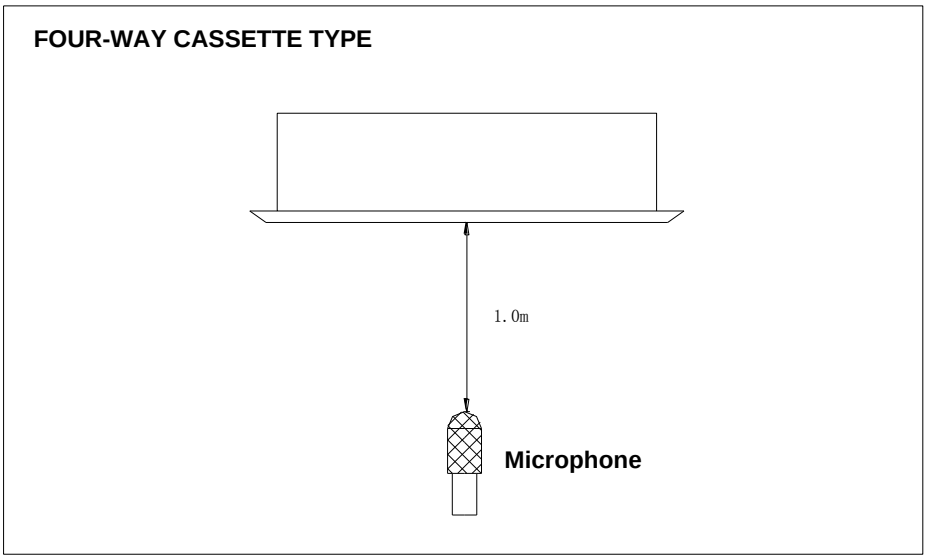
Cooling Capacity Table													Unit: W
Model	Water inlet temp. (℃)	Water FV (LPM)	Water PD (kPa)	Air inlet condition									
				DB24℃		DB25℃		DB26℃		DB27℃		DB28℃	
				WB17℃		WB18℃		WB19℃		WB19.5℃		WB21℃	
				SH	TH	SH	TH	SH	TH	SH	TH	SH	TH
MKB-500	5	10	13.5	2759	3646	2857	4020	2962	4403	3101	4598	3150	5209
		15	30.4	2857	3874	2971	4273	3076	4688	3231	4899	3288	5551
		20	54	2319	2604	2393	2881	2458	3158	2588	3304	2588	3752
		25	84.4	2515	3076	2604	3410	2694	3760	2832	3931	2857	4476
	6	10	13.5	2637	3369	2735	3736	2840	4118	2979	4313	3028	4916
		15	30.4	2726	3581	2840	3980	2946	4387	3093	4598	3158	5249
		20	54	2222	2376	2295	2653	2368	2930	2499	3076	2499	3516
		25	84.4	2401	2816	2490	3150	2580	3141	2718	3443	2751	4053
	7	10	13.5	2507	3085	2612	3288	2710	3426	2857	3679	2905	4297
		15	30.4	2596	3280	2702	3434	2816	3646	2962	3935	3028	4525
		20	54	2132	2149	2206	2425	2279	2702	2417	2840	2409	3280
		25	84.4	2287	2556	2385	2881	2474	3223	2612	3394	2637	3931
	8	10	13.5	2385	2800	2490	3158	2596	3540	2735	3727	2783	4330
		15	30.4	2458	2979	2572	3369	2686	3776	2832	3727	2897	4297
		20	54	2035	2035	2116	2189	2181	2466	2311	2612	2319	3044
		25	84.4	2181	2287	2271	2612	2360	2946	2499	3117	2531	3646
	9	10	13.5	2263	2507	2368	2865	2474	3239	2621	3434	2669	4020
		15	30.4	2328	2669	2442	3060	2556	3378	2710	3516	2775	4061
		20	54	1945	1945	2018	2018	2092	2230	2222	2368	2230	2800
		25	84.4	2067	2067	2165	2336	2254	2669	2393	2840	2425	3369
	10	10	13.5	2149	2206	2246	2572	2352	2938	2499	3125	2547	3719
		15	30.4	2206	2360	2319	2743	2433	3141	2580	3345	2645	3817
		20	54	2343	2426	2460	2819	2571	3226	2730	3433	2792	4081
		25	84.4	2398	2564	2523	2978	2640	3412	2805	3632	2875	4322

Remark:

1. DB: Dry Bulb Temp. WB: Wet Bulb Temp. FV: Flow Volume
   TH: Total heat SH: Sensible heat PD: Pressure Drop
2. Table above is based on normal type fan coil high speed air-flow volume; cooling capacity on other speed air flow volume should multiply with corresponding capacity modification coefficient (refer to capacity modification coefficient diagram.)

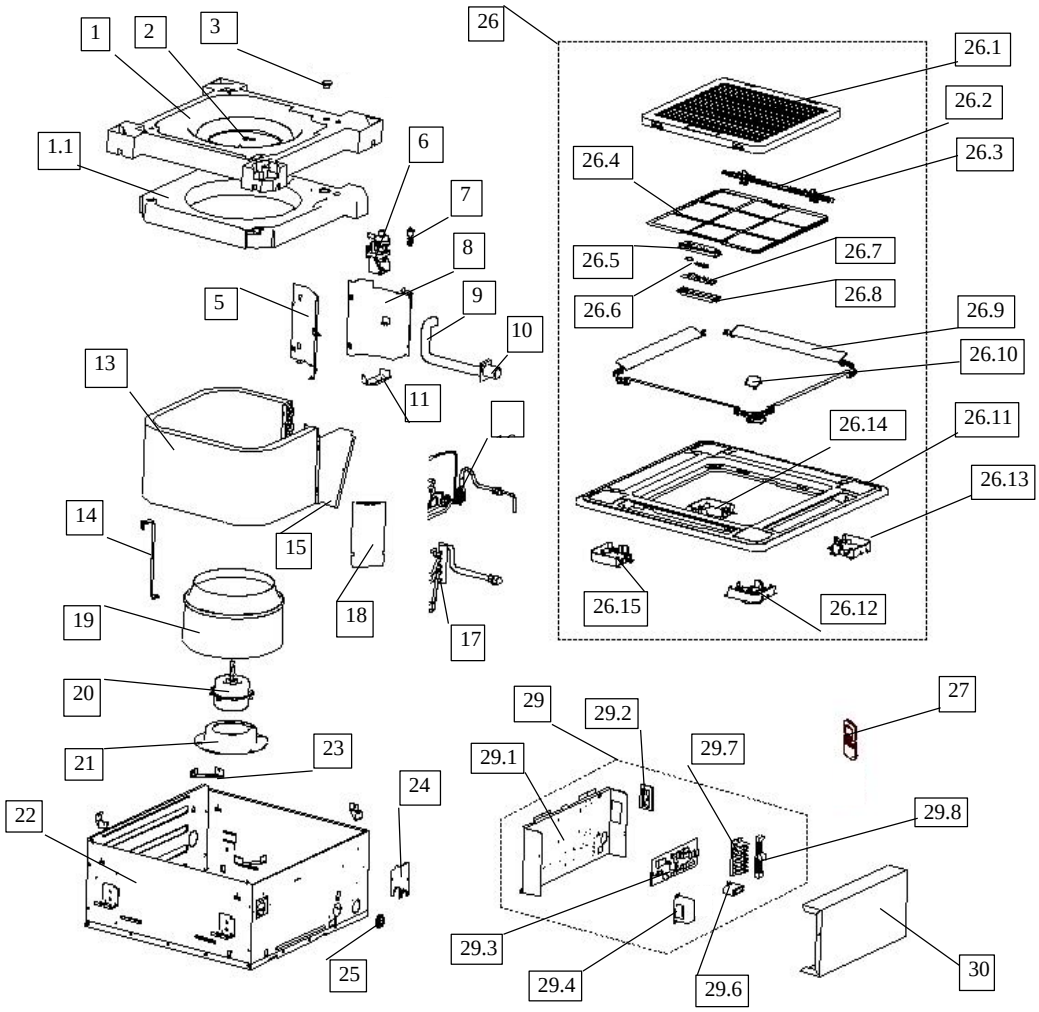
7. Sound Levels

TYPE		MKB-300	MKB-400	MKB-450	MKB-600
Noise	dB(A)	38	39	40	41



8. Explored View

MKB-300、MKB-400、MKB-450、MKB-500



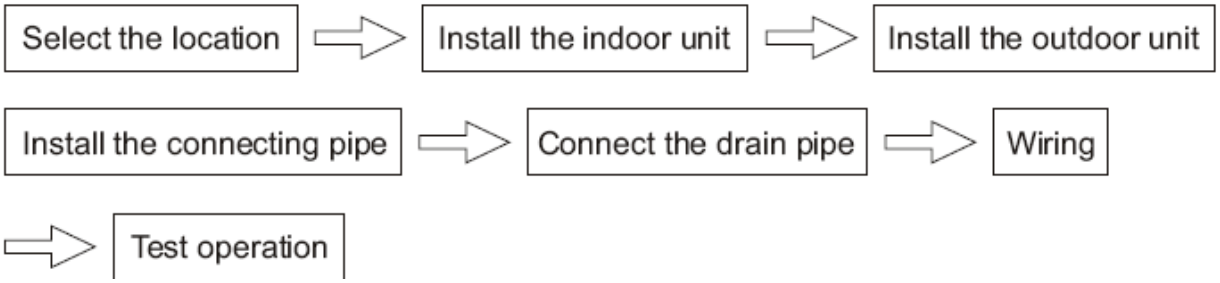
No.	Part Name	Quantity		No.	Part Name	Quantity
1	Collect Water Pan ,Assembly	1		26.1	Air inlet grille	1
1.1	Foam, Collect Water Pan	1		26.2	Switch cover, air inlet grille	1
2	Wire fixing board	1		26.3	Switch, air inlet grille	2
3	Stopper, Water Drain	1		26.4	Filter	1
5	Evaporator Fixture Board Assembly	1		26.5	Control box	1
6	Drain Pump	1		26.6	LED holder	1
7	Liquid Position Sensor Assembly	1		26.7	Control board	1
8	Desperation board, right	1		26.8	Cover, control box	1
9	Drain pipe	1		26.9	Fan guide	4

10	Extend water pipe	1		26.10	Swing motor	1
11	Drain Pump Holder	1		26.11	Panel	1
13	Evaporator Assembly	1		26.12	Install cover, swing motor	1
14	Fixing clamp, evaporator	1		26.13	Install cover I	1
15	Desperation board, left	1		26.14	Install cover II	1
16	Inlet pipe, evaporator	1		26.15	Install cover I	1
17	Outlet pipe, evaporator	1		27	Remoter	1
18	Wire crossing board	1		29	E-control Assembly	1
19	Fan	1		29.1	Control Box	1
20	Fan Motor	1		29.2	Rubber, wire crossing	1
21	Fan Motor Underlay	1		29.3	PCB Assembly	1
22	Base Pan Assembly	1		29.4	Transformer	1
23	Fixing board, water pan	4		29.6	Capacitor	1
24	Sealing board, pipe out I	1		29.7	Base, wire fixing	1
24.1	Sealing board, pipe out II	1		29.8	Cover, wire fixing	1
25	Rubber, wire c	2		30	Control Box Cover	1
26	Panel Assembly	1				

The Installation of MKA

1. Before Installation

Please check whether the accessories are of full scope. If there are some fittings free from use, please restore them carefully.



2. Install the Main Body

A. The existing ceiling (to be horizontal)

a. Please cut a quadrangular hole of 880 880mm in the ceiling according to the shape of the installation paper board. (Refer to Chart3, 4)

The center of the hole should be at the same position of that of the air conditioner body.

Determine the lengths and outlets of the connecting pipe, drain pipe and cables.

To balance the ceiling and to avoid vibration, please enforce the ceiling when necessary.

b. Please select the position of installation hooks according to the hook holes on the installation board.

Drill four holes of Ø12mm, 50~55mm deep at the selected positions on the ceiling. Then embed the expansible hooks (fittings).

Face the concave side of the installation hooks toward the expansible hooks. Determine the length of the installation hooks from the height of ceiling, and then cut off the unnecessary part.

If the ceiling is extremely high, please determine the length of the installation hook according to facts.

Cut the installation hook open in the middle position, and then use appropriate length of reinforcing rod (Ø12) to weld together.

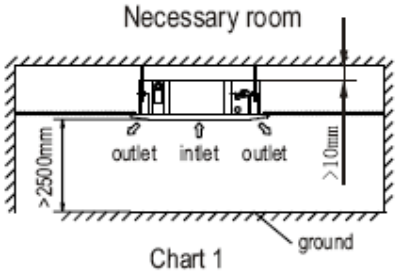


Chart 1

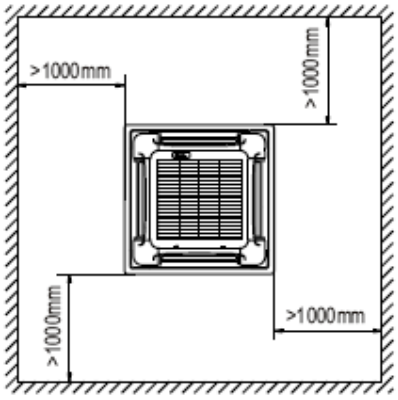


Chart 2

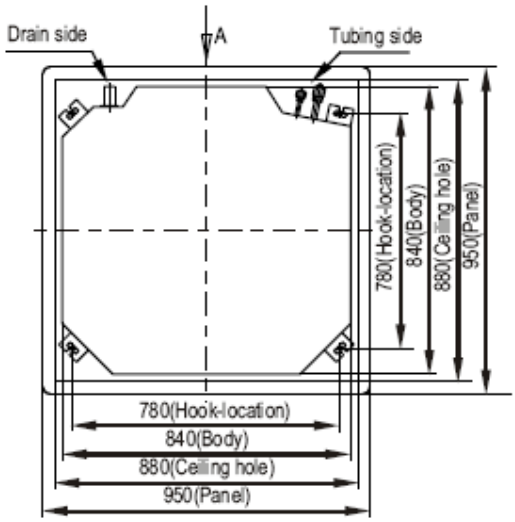


Chart 3

(Unit: mm)

The length could be calculated from Chart5:

Length=H-181+L (in general, L=100mm and is half of the whole length of the installation hook).

c. Please adjust the hexangular nuts on the four installation hooks evenly, to ensure the balance of the body.

1. The transparent hose filled with water to check the lever of the main body from the four sides or diagonal line direction, the lever indicator also can check the lever from four sides of the main body Refer to chart 6)

2. The drainpipe is awry, leakage will be caused by the malfunction of the water-level switch.

Adjust the position to ensure the gaps between the body and the four sides of ceiling are even.

3. The body's lower part should sink into the ceiling for 10~12mm (Refer to chart5).

Locate the air conditioner firmly by wrenching the nuts after having adjusted the body's position well.

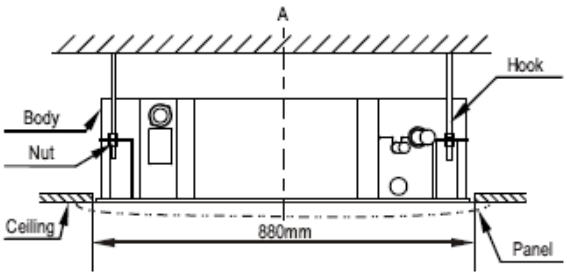


Chart 4

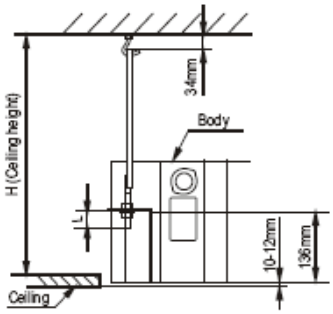


Chart 5

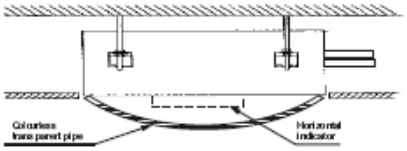


Chart 6

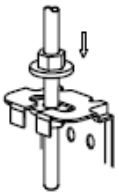


Chart 7

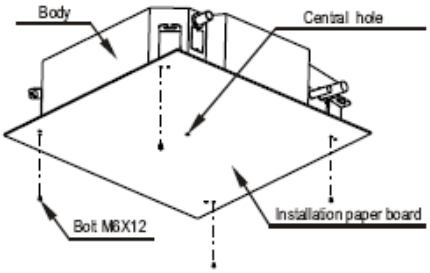


Chart 8

B. New built houses and ceilings

a. In the case of new built house, the hook can be embedded in advance (refer to the A.b mentioned above). But it should be strong enough to bear the indoor unit and will not become loose because of concrete shrinking.

b. After installing the body, please fasten the installation paper board onto the air conditioner with bolts (M6 16) to determine in advance the sizes and positions of the hole opening on ceiling.

Please first guarantee the flatness and horizontal of ceiling when installing it.

Refer to the A.a mentioned above for others.

c. Refer to the A.c mentioned above for installation.

d. Remove the installation paper board.

3. Install the Panel

(1) Remove the inlet grid.

Cat ion

Never put the panel face down on floor or against the wall, or on bulgy objects.

Never crash or strike it.

a. Slide two grid switches toward the middle at the same time, and then pull them up. (Refer to chart 9)

b. Draw the grid up to an angle of about 45o, and remove it. (Refer to chart 10)

(2)Remove the installation covers at the four corners.

Wrench off the bolts, loose the rope of the installation covers, and remove them. (Refer to chart 11)

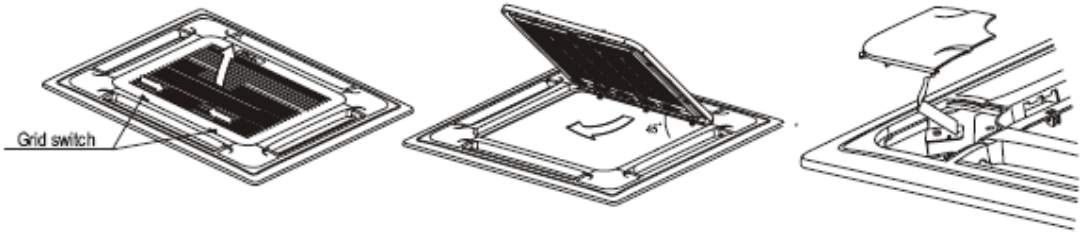


Chart 9 Chart 10 Chart 11

(3) Install the panel

a. Align the swing motor on the panel to the tubing joints of the body properly. (Refer to chart 12)

b. Fix hooks of the panel at swing motor and its opposite sides to the hooks of corresponding water receiver. (Refer to chart 12) Then hang the other two panel hooks onto corresponding hangers of the body. (Refer to chart 12)

Cautions

Do not coil the wiring of the swing motor into the seal sponge.

c. Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly. (Refer to chart 12)

d. Regulate the panel in the direction of the arrow in Chart12 slightly to fit the panel's center to the center of the ceiling's opening. Guarantee that hooks of four corners are fixed well.

e. Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. (Refer to chart 13)

Malfunction described in Chart14 can be caused by inappropriate tightness the screw.

If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. (Refer to chart 15-left)

You can modify the height of the indoor unit through the openings on the panel's four corners; if the lift of the indoor unit and the drainpipe is not influenced (refer to chart 15-right).

(4) Hang the air-in grid to the panel, and then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

(5) Relocate the air-in grid in the procedure of reversed order.

(6) Relocate the installation cover.

a. Fasten the rope of installation cover on the bolt of the installation cover. (Refer to chart 16-left)

b. Press the installation cover into the panel slightly. (Refer to chart 16-right)

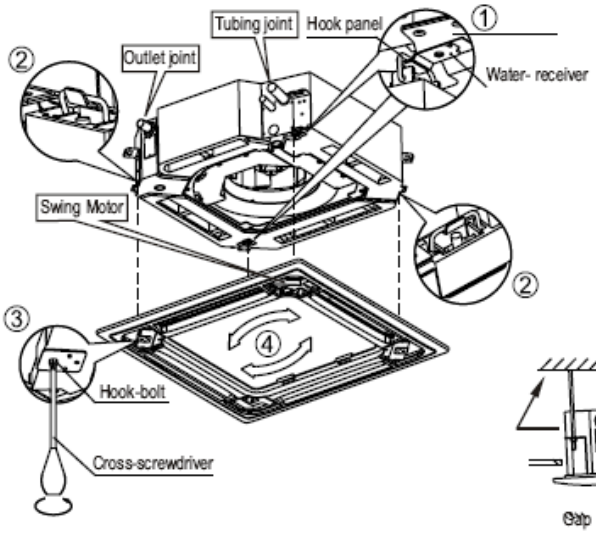


Chart 12

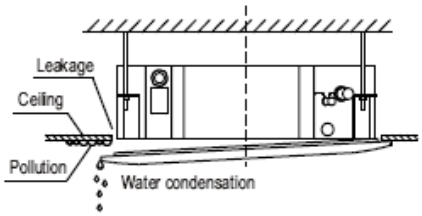


Chart 14

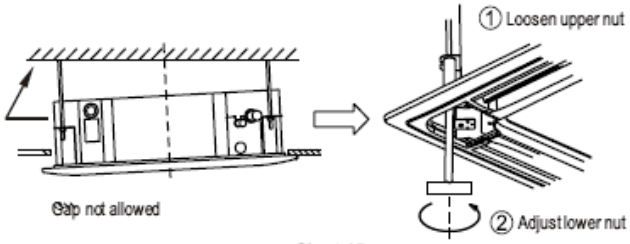


Chart 15

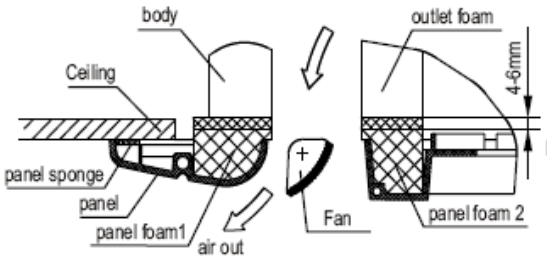


Chart 13

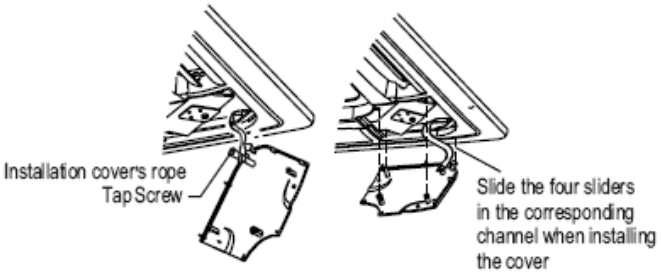


Chart 16

4. Connect the Drain Pipe

Install the drainpipe of the indoor unit

You can use a polyethylene tube as the drainpipe (out-dia. 37~39mm, in-dia. 32mm). It could be bought at local market or from your dealer.

Set the mouth of the drainpipe onto the root of the body's pump-pipe, and clip the drainpipe and the out-let pipe sheath (fittings) together firmly with the out-let pipe clasp (fitting).

Cautions: Use your strength carefully to prevent the pump-pipe from breaking. The body's pump pipe and the drainpipe (especially the indoor part) should be covered evenly with the out-let pipe sheath (fittings) and be bound tightly with the constrictor to prevent condensation caused by entered air.

To prevent water from flowing backwards into the air conditioner while the air conditioner stops, please lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/50. And please avoid any bulge or water deposit. (Refer to Chart 17.a)

Do not drag the drainpipe violently when connecting to prevent the body from being pulled. Meanwhile, one support-point should be set every 1~1.5m to prevent the drainpipe from yielding (Refer to Chart 17.b). Or you can tie the drainpipe with the connecting pipe to fix it. (Refer to Chart 17.c) In the case of prolonged drainpipe, you had better tighten its indoor part with a protection tube to prevent it from loosing.

If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 200mm, otherwise the water will overflow when the air conditioner stops. (Refer to Chart 18) The end of the drainpipe should be over 50mm higher than the ground or the bottom of the drainage chute, and do not immerse it in water. If you discharge the water directly into sewage is sure to make a U-form aqua seal by bending the pipe up to prevent the smelly gas entering the house through the drain pipe.

Cautions: All the joints of the drain system must be sealed to prevent water leakage.

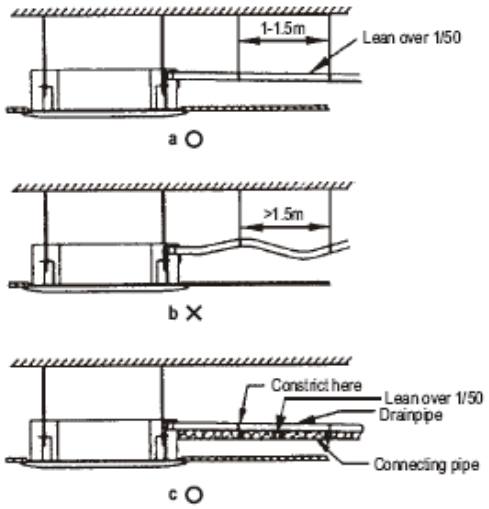


Chart 17

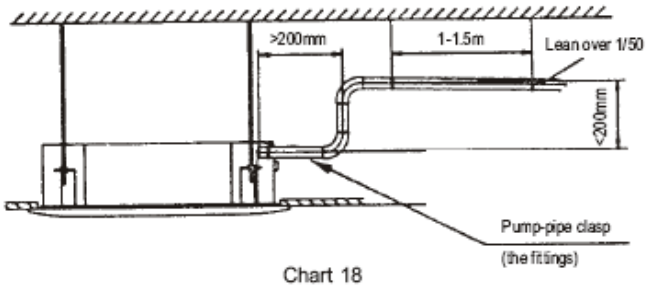


Chart 18

2. Drainage test

Check whether the drainpipe is unhindered

New built house should have this test done before paving the ceiling.

Remove the test cover, and stow water of about 2000ml to the water receiver through the stow tube. (Refer to Chart 19)

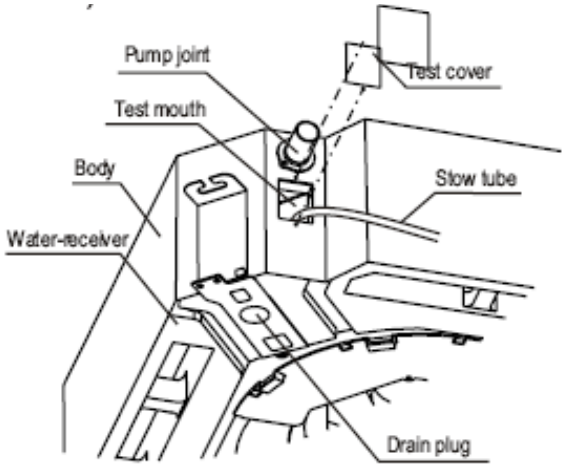


Chart 19

Turn on the power, and operate the air conditioner under the "COOLING" mode. Listen to the sound of the drain pump. Check whether the water is discharged well (a lag of 1min is allowed before discharging, according to the length of the drain pipe), and check whether water leaks from the joints.

Cautions:

1. If there is any malfunction, please resolve it immediately.
2. Stop the air conditioner for there minutes, check if everything is ok. If the drain hose is located unreasonable, water overflow will cause the Alarm indicator lamp flashing (For both cooling and heating type or cooling only type), even the water leak out from the water receiver.
3. Check the drain pump whether drain water immediately when alarm sound for the high water lever. If the water lever can't come down below to the limited water lever, the air conditioner will stop. Restart it until turn off the power and drain off all the water.

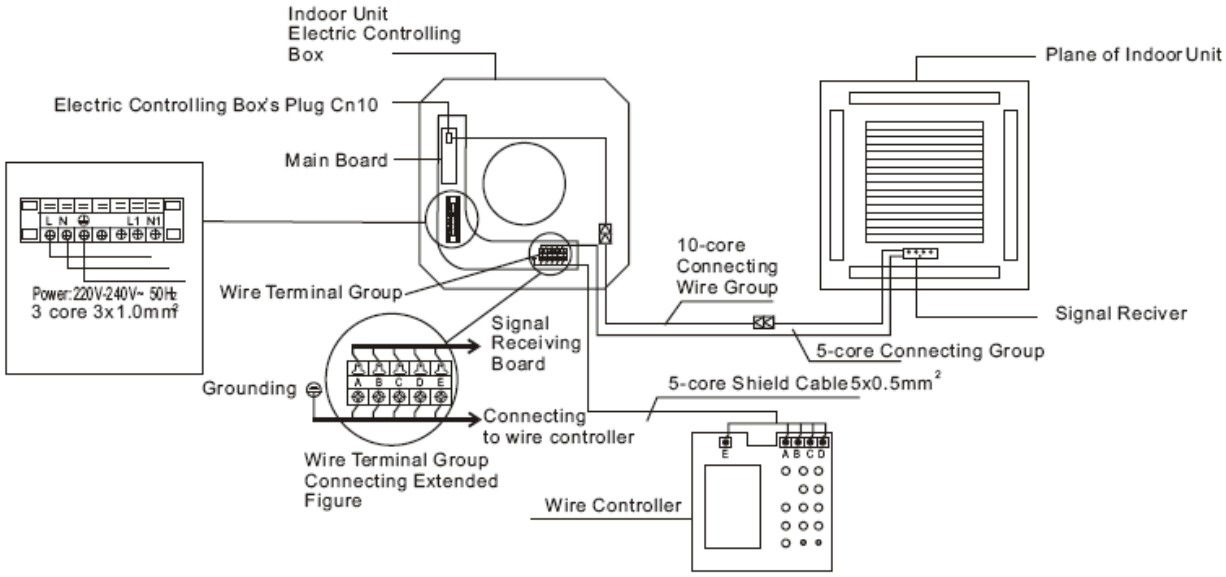
Turn off the power, drain the water away.

The drain plug is used to empty the water-receiver for maintenance of the air conditioner. Please stuff it imposition at all times during operation to avoid leakage.

5. Wiring

Caution:

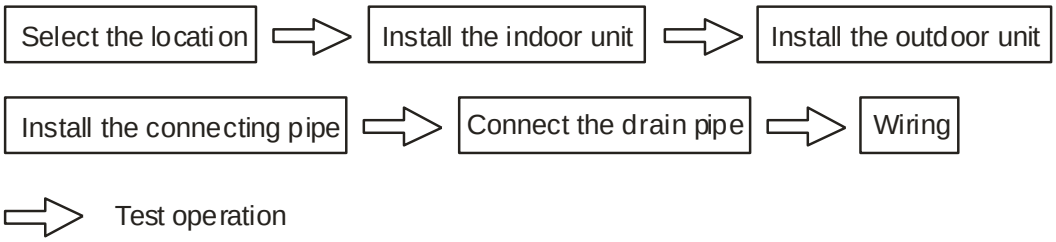
1. The air conditioner should use separate power supply with rated voltage; the voltage of power supply must be within90%~110% of rated value.
2. The wiring work should be done by qualified persons according to circuit drawing.
3. A disconnection device having an air gap contact separation in all active conductors should incorporated in the fixed wiring according to the National wiring regulation.
4. Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance and their contact with connecting pipe or stop valve body.
5. The wiring (5-core shield cable) attached between the signal receiving board and the wire controller is not more than 2m. Be sure to prolong it with wiring of the same type and proper length if necessary. Generally, do not twist two wiring together unless the joint is soldered well and covered with insulator tape.
6. Do not turn on the power until you have checked carefully after wiring.
7. The yellow and green wire can only be used to link to the ground wiring.



The Installation of MKB

1. Before Installation

Please check whether the accessories are of full scope. If there are some fittings free from use, please restore them carefully.



2. Install the Main Body

A. The existing ceiling (to be horizontal)

a. Please cut a quadrangular hole of 600×600mm in the ceiling according to the shape of the installation paper board. (Refer to Chart3, 4)

The center of the hole should be at the same position of that of the air conditioner body.

Determine the lengths and outlets of the connecting pipe, drain pipe and cables.

To balance the ceiling and to avoid vibration, please enforce the ceiling when necessary.

b. Please select the position of installation hooks according to the hook holes on the installation board.

Drill four holes of Ø12mm, 50~55mm deep at the selected positions on the ceiling. Then embed the expansible hooks (fittings).

Face the concave side of the installation hooks toward the expansible hooks. Determine the length of the installation hooks from the height of ceiling, and then cut off the unnecessary part.

If the ceiling is extremely high, please determine the length of the installation hook according to facts.

Cut the installation hook open in the middle position, and then use appropriate length of reinforcing rod.(Ø12) to weld together.

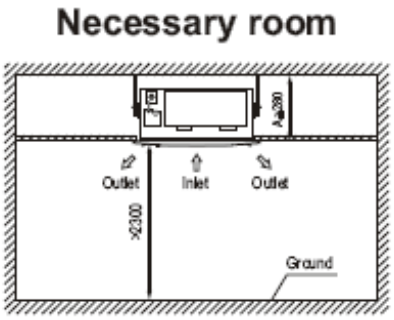


Chart 1

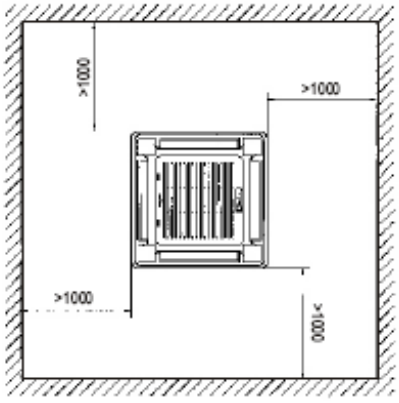


Chart 2

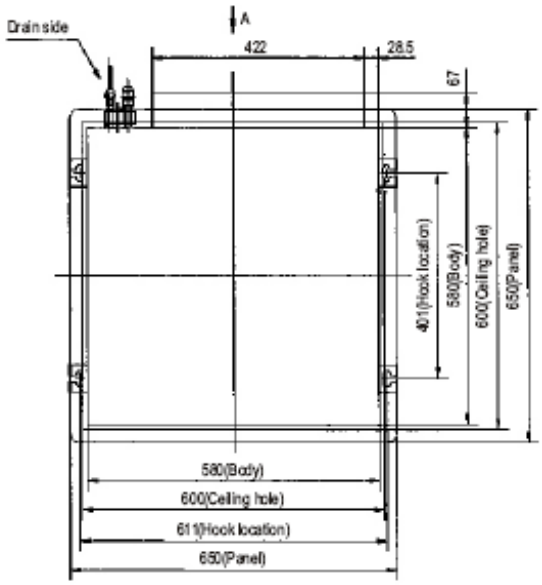


Chart 3

The length could be calculated from Chart5:

Length=210+L (in general, L is half of the whole length of the installation hook)

c. Please adjust the hexangular nuts on the four installation hooks evenly, to ensure the balance of the body. Use the transparent hose filled with water to check the lever of the main body from the four sides or diagonal line direction, the lever indicator also can check the lever from four sides of the main body (Refer to chart 6)
If the drainpipe is awry, leakage will be caused by the malfunction of the water-level switch.
Adjust the position to ensure the gaps between the body and the four sides of ceiling are even.
The body's lower part should sink into the ceiling for 10~12mm (Refer to chart5).
Locate the air conditioner firmly by wrenching the nuts after having adjusted the body's position well.

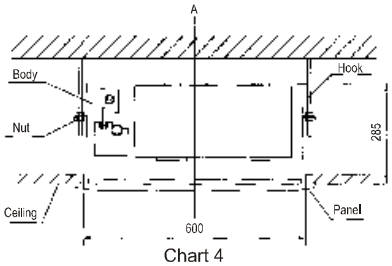


Chart 4

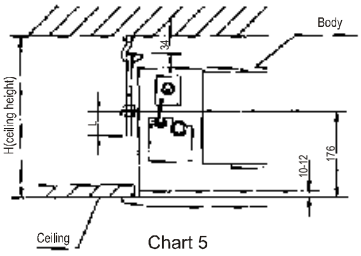


Chart 5

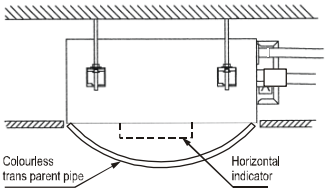


Chart 6

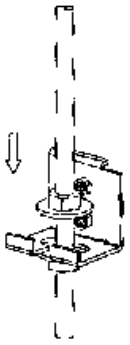


Chart 7

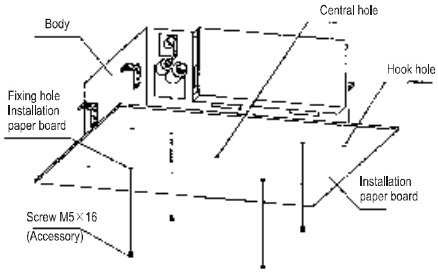


Chart 8

B. New built houses and ceilings
a. In the case of new built house, the hook can be embedded in advance (refer to the A.b mentioned above). But it should be strong enough to bear the indoor unit and will not become loose because of concrete shrinking.
b. After installing the body, please fasten the installation paper board onto the air conditioner with bolts (M5×16) to determine in advance the sizes and positions of the hole opening on ceiling. Please first guarantee the flatness and horizontal of ceiling when installing it. Refer to the A. a mentioned above for others.
c. Refer to the A.c mentioned above for installation.
d. Remove the installation paper board.

3. Install the Panel

Caution:

Never put the panel face down on floor or against the wall, or on bulgy objects.

Never crash or strike it.

a. Slide two grid switches toward the middle at the same time, and then pull them up. (Refer to chart 9)

b. Draw the grid up to an angle of about 30o, and remove it. (Refer to chart 10)

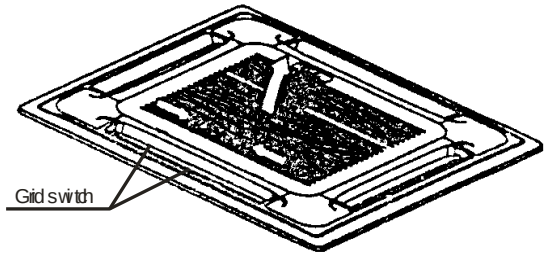


Chart9

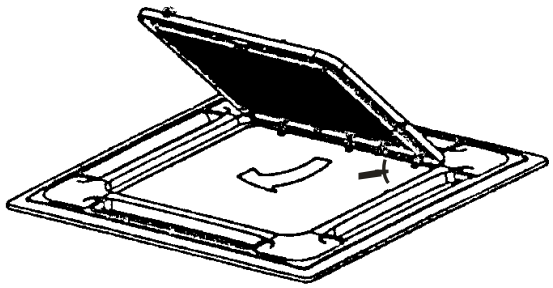


Chart 10

(2) Install the panel

a. Align the swing motor on the panel to the water receiver of the body properly. (Refer to chart 11)

b. Hang the four fixed rope of the main body to the installation cover and the other three covers of the swing motor: (Refer to chart 11① and11②)

Caution:

The installation cover of the swing motor must sink into the corresponding water receiver.

c. Install the panel on the main body with bolt (M5×16) and washer. (Refer to chart 11④)

d. Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly.

e. Regulate the panel in the direction of the arrow in Chart 11③ slightly to fit the panel's center to the center of the ceiling's opening. Guarantee that hooks of four corners are fixed well.

f. Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. (Refer to chart 12) Malfunction described in Chart 13 can be caused by inappropriate tightness the screw.

If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. You can modify the height of the indoor unit through the openings on the panel's four corners; if the lift of the indoor unit and the drainpipe is not influenced (refer to chart 14-right).

(3) Hang the air-in grid to the panel, and then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

(4) Relocate the air-in grid in the procedure of reversed order; install the air-in grid.

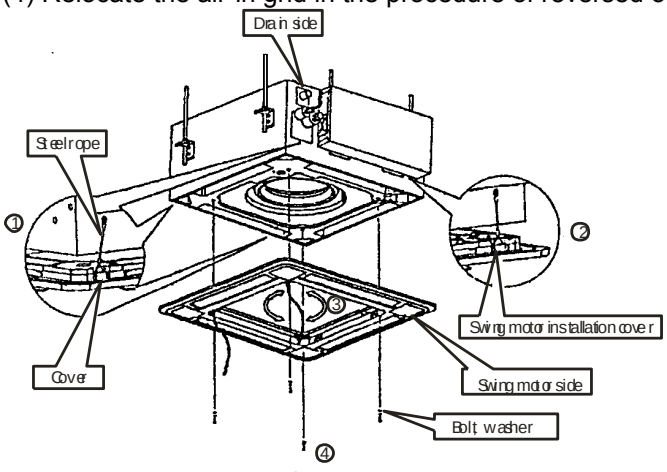


Chart 11

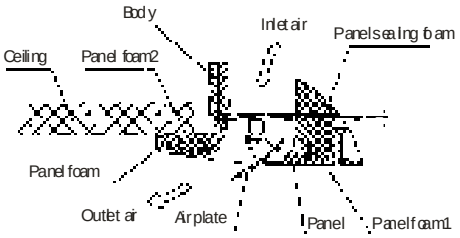


Chart 12

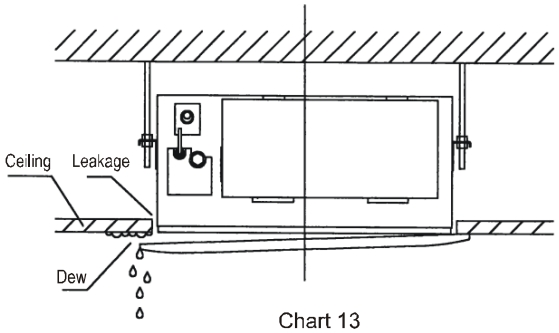


Chart 13

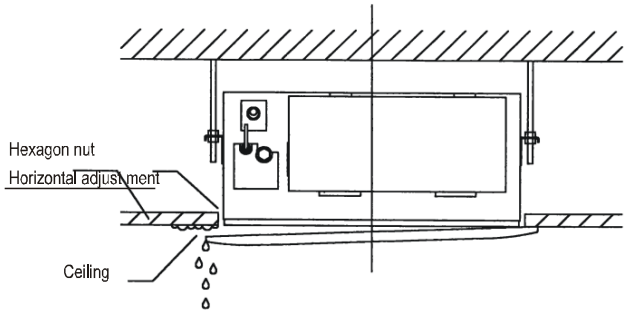


Chart 14

3. Install the drainage pipe

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:
The max height drop 20m
(If the height drop is more than 10m, you had better put the outdoor unit over above the indoor unit.)
The length of refrigerant pipe ..... less than 30m
The number of bends ..... less than 15
The standard length of connecting pipe is no more than 8m; choose appropriate position for both indoor and outdoor unit to make the connecting pipe as short as possible.
Do not let air, dust, or other impurities fall in the pipe system during the time of installation.
The connecting pipe should not be installed until the indoor and outdoor units have been fixed already.
Keep the connecting pipe dry, and do not let moisture in during installation.

The procedure of connecting pipe

1. Locate the Pipe
a) Measure the necessary length of the connecting pipe.
b) Drill a hole in the wall (suitable just for the size of the wall conduit, 90mm in general), then set on the fittings such as the wall conduit and its cover.
c) Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.
d) Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.
2. Connect the pipes.
a) Connect the indoor unit at first, then the outdoor unit.
Bend the tubing in proper way. Do not harm them.
Cautions:
Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds with hands before fasten the flare nuts. (Refer to chart 15).Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

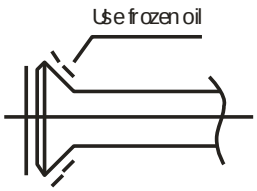


Chart 15

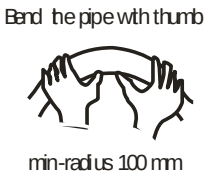


Chart 16

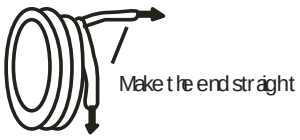


Chart 17

b) The stop valve of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop valve, and then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant (R407C) before connection.
Expel the air (refer to the "Expel the Air") after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

Notices for bendable notices

The bending angle should not exceed 90°.
Bending position is preferably in the bendable pipe. The larger the better it is.
Do not bend the pipe more than three times.

Bend the connecting pipe of small wall thickness

Cut out a desired concave at the bending part of the insulating pipe. Then expose the pipe (cover it with tapes after bending).
To prevent collapsing or deforming, please bend the pipe at its biggest radius.
Use bender to get a small radius pipes.

Use the market brass pipe

Be sure use the same insulating materials when you buy the brass pipe. (Thickness over 9mm in general)
3. Then, open the stem of stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.
4. be sure of no leakage by checking it with leak detector or soap water.
5. Necessary refrigerant capacity:
When the piping is less than 8m, is no need to add refrigerant;
When the piping is longer than 8m, then add 0.03kg/m refrigerant.
Please record and reserve well the refrigerant stow capacity of your air conditioner for later maintenance.
6. Cover the joint of the connecting pipe to the indoor unit with the soundproof insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

Pipe connecting

Fasten the nut

Put the connecting tubing at the proper position, wrench the nuts with hands then fasten it with a wrench. (Refer to chart 18)
The selection of the torque sees Table 2.

Tubing Size	Torque
6.35mm	1420~1720N·cm (144~176kgf·cm)
12.7mm	4950~6030N·cm (504~616kgf·cm)

Table 2

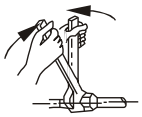


Chart 18

4. Install The Drain Pipe

Install the drainpipe of the indoor unit

You can use a polyethylene tube as the drainpipe (out-dia. 31~32mm, in-dia. 25mm). It could be bought at local market or from your dealer.

Set the mouth of the drainpipe onto the root of the body's pump-pipe, and clip the drainpipe and the out-let pipe sheath (fittings) together firmly with the out-let pipe clasp (fitting).
The body's pump pipe and the drainpipe (especially the indoor part) should be covered evenly with the out-let pipe sheath (fittings) and be bound tightly with the constrictor to prevent condensation caused by entered air.

To prevent water from flowing backwards into the air conditioner while the air conditioner stops, please lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/50. And please avoid any bulge or water deposit. (Refer to Chart 24.a)
Do not drag the drainpipe violently when connecting to prevent the body from being pulled.
Meanwhile, one support-point should be set every 1~1.5m to prevent the drainpipe from yielding (Refer to Chart 24.b). Or you can tie the drainpipe with the connecting pipe to fix it. (Refer to Chart 24.c)

In the case of prolonged drainpipe, you had better tighten its indoor part with a protection tube to prevent it from loosing.

If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 200mm, otherwise the water will overflow when the air conditioner stops. (Refer to Chart 25)
The end of the drainpipe should be over 50mm higher than the ground or the bottom of the drainage chute, and do not immerse it in water. If you discharge the water directly into sewage be sure to make a U-form aqua seal by bending the pipe up to prevent the smelly gas entering the house through the drain pipe.
Cautions:
All the joints of the drain system must be sealed to prevent water leakage.

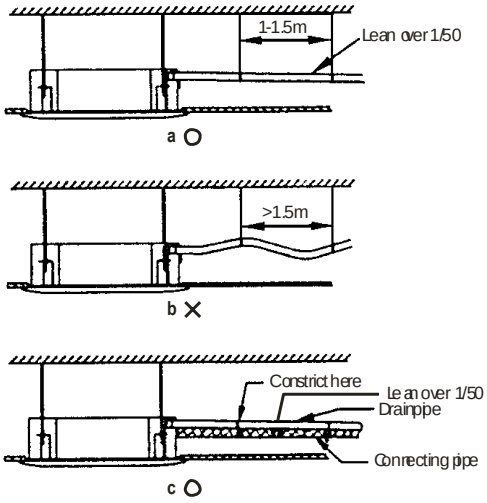


Chart 24

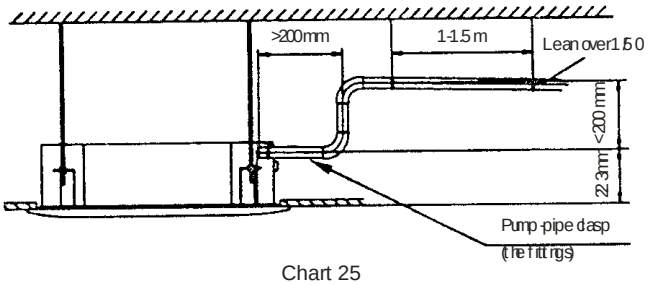


Chart 25

Drainage test
Check whether the drainpipe is unhindered

New built house should have this test done before paving the ceiling.

Remove the test cover, and stow water of about 1500ml to the water receiver through the stow tube. (Refer to Chart 26)

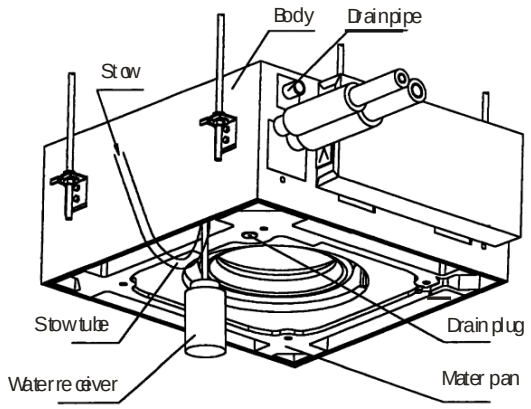


Chart 26

Turn on the power, and operate the air conditioner under the "COOLING" mode. Listen to the sound of the drain pump. Check whether the water is discharged well (a lag of 1min is allowed before discharging, according to the length of the drain pipe), and check whether water leaks from the joints.

Cautions: If there is any malfunction, please resolve it immediately.

Stop the air conditioner for there minutes, check if everything is ok. If the drain hose is located unreasonable, water overflow will cause the Alarm indicator lamp flashing (For both cooling and heating type or cooling only type), even the water leak out from the water receiver.
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Turn off the power, drain the water away.
The drain plug is used to empty the water-receiver for maintenance of the air conditioner. Please stuff it imposition at all times during operation to avoid leakage.

5. Wring

1. The air conditioner should use separate power supply with rated voltage; the voltage of power supply must be within90%~110% of rated value.
2. The wiring work should be done by qualified persons according to circuit drawing.
3. A disconnection device having an air gap contact separation in all active conductors should incorporated in the fixed wiring according to the National wiring regulation.
4. be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance and their contact with connecting pipe or stop valve body.
5. The wiring (5-core shield cable) attached between the signal receiving board and the wire controller is not more than 2m. Be sure to prolong it with wiring of the same type and proper length if necessary. Generally, do not twist two wiring together unless the joint is soldered well and covered with insulator tape.
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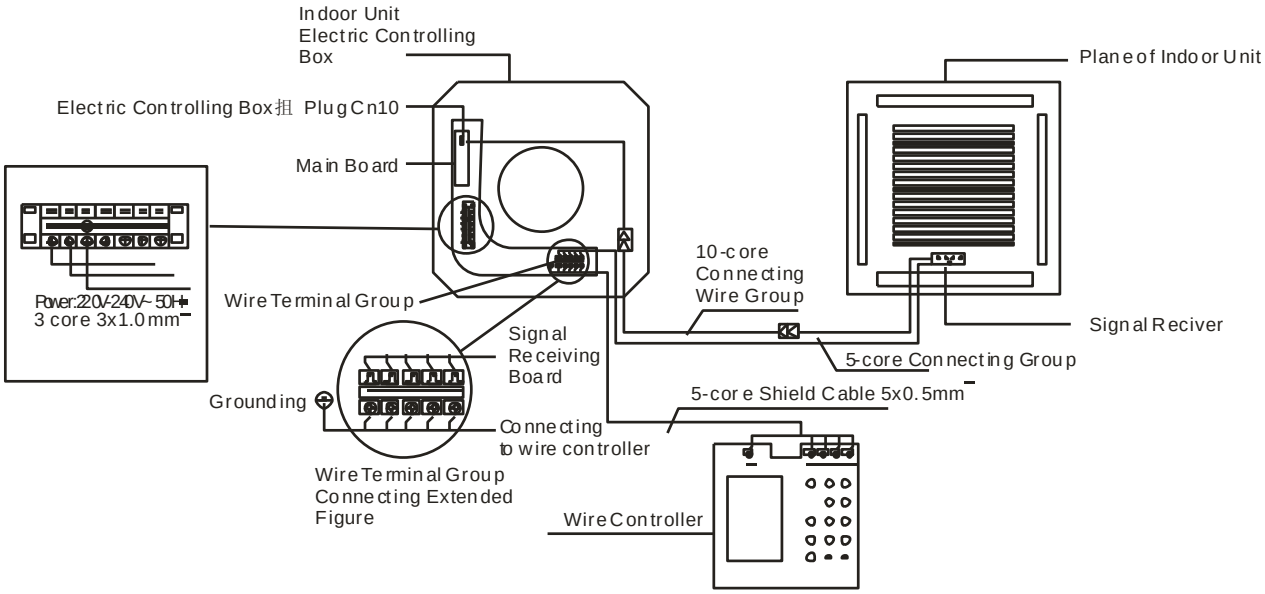

GD Midea Refrigeration Equipment Co., Ltd.

Have received ISO 9001 certification for quality assurance.

Certificate Numer. CC 454

GD Midea Refrigeration Equipment Co., Ltd.

Have received environmental management system Standard ISO 14001 certification

Certificate Numer. CC 1417

Dealer

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