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www.arco-hvac.ir
www.kiatahvie.ir

KIA

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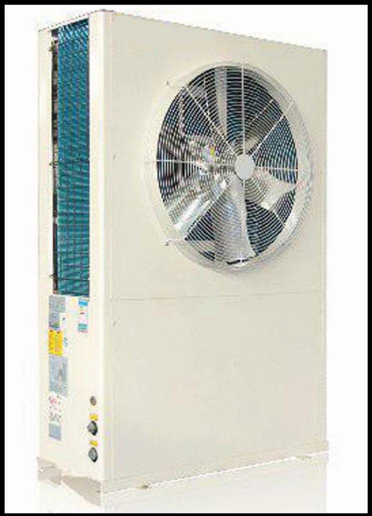


Mini Air-Cooled Chiller
(Heat Pump)

www.kiatahvie.ir

"TEL:02186086975-021886086899-02186086953
Fax:0218819 0754"

DIRECTORY

TASTE OF LIFE

KTA air conditioners fill your room with life.

INNOVATION

The Mini Air–Cooled Chiller is specially designed for residential applications. All of KTA' s mini chillers deliver outstanding performance with features including stylish design, quiet operation, high energy savings and top quality. KTA's mini chiller series offers you more choices to match your dream.

Slim appearance, simple operation, safe running and convenient installation and maintenance make the unit ideal for home, villas, apartments, office buildings etc.

※ The stylish design makes it easy to acdessorize with your buildings design.

※ Flexible installation and several types of units give you freedom to decorate accordingly.

※ The slim structure provides you good solutions on saving space.

NOBAL

ENERGY SAVING

※ Quality brazing ensures no leakage.

※ Double-systerm design，energy control automatically for the units over 8Hp

※ High efficiency heat exchanger greatly reduces power consumption.

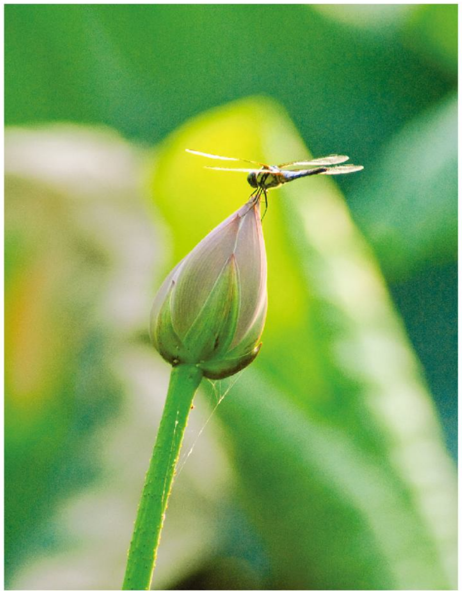
QUIET

※ Hermetic Scroll Compressor ensures stable running and low noise.

※ Large axial fan and low rotating speed reduces noise pollution.

※ Imported high efficiency water pump has small vibration and low noise.

※ Embedded insulation layer absorbs operation noise.



(Performance Data)

TVCA (Vertical Type) R22

Model TVCA		50C(R)	60B(R)	80C(R)	80B(R)	100B(R)	120B(R)	150B(R)	200B(R)
Cooling Capacity	kW	10.2	14	20	20	27	31.5	40	50
Heating Capacity (Heat Pump)	kW	12	15	23	23	30	34	43	54
Cooling Power Input	kW	3.4	4.6	6.7	6.7	8.8	10.4	13	18.1
Heatling Power Input	kW	4	5	7.2	7.2	9.2	11	13.5	18.5
Power Supply		220V~50Hz	380V 3N~50Hz	220V~50Hz	380V 3N~50Hz				
Water Flow Volume	m³/h	1.76	2.41	3.45	3.45	4.65	5.43	6.90	8.6
Available Head	mH₂O	21	19	20	20	16	15	18	15
Pipe Dimension	DN	32						40	
Unit Weight	kg	150	150	350	350	380	390	470	550
Dimension(L×W×H)	mm	850×480×1755		1180×480×1755				1880×480×1755	

(Note)：

1、Cooling capacity is based on water temperature 7℃ (outlet), Ambient temperature 35℃.
Heating capacity is based on water temperature 45℃ (outlet), Ambient temperature 7/6℃.

2、 KTA reserves the right to make changes to the above without notice.

(Concealed Ceiling Mounted Fan Coil Unit Selection Chart)

Model TCR		200F	300F	400F	500F	600F	800F	1000F	1200F	1400F
Air Volume m³/ h	High	340	510	680	850	1020	1360	1700	2040	2380
Cooling Capacity W	High	2210	3200	4250	5000	6200	8100	9800	11250	13000
Heating Capacity W	High	3900	5200	6665	7870	10200	13570	16025	19800	22100
Heat Exchanger	Pipe Dimension	Rc3/4								
	Water Flow Volume kg/h	380	550	730	860	1066	1393	1685	1900	2230
	Water Resistance kPa	25	26	30	30	40	35	40	40	50
Condensing Water Pipe		R3/4								

Note:

1.Cooling capacity is based on the following: Water temperature : 7℃ (inlet)/12℃ (outlet), air entering condition : 27℃ DB/19.5℃ WB.

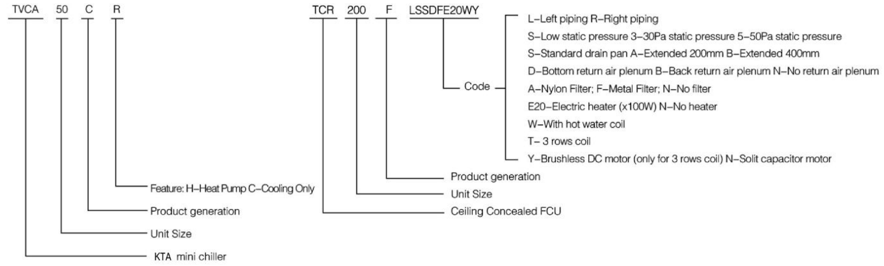
2.Heating capacity is based on the following (with same water flow rate as cooling cycle): Water temperature: 60℃ (inlet), air entering condition: 21℃ DB.

3.The manufacturer reserves the rights to make changes to the above specifications without prior notice.

(Nomenclature)

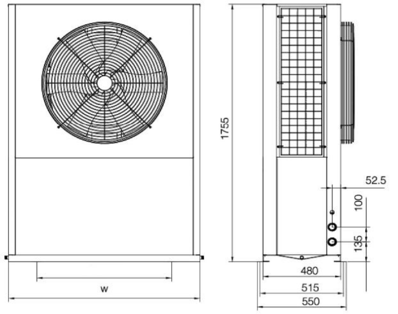
(Packaged Type Unit)

(Fan Coil Unit)



Dimension

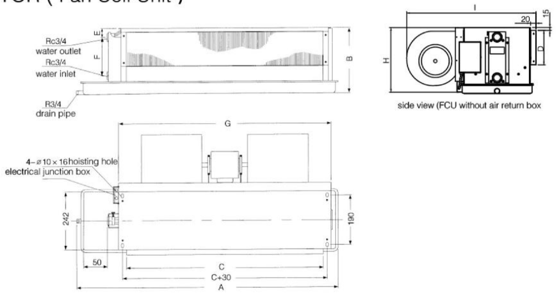
TVCA (Vertical Unit)



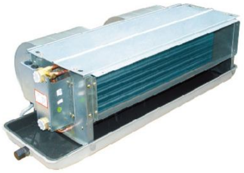
TVCA	50C(R)	60B(R)	80C(R)	80B(R)	100B(R)	120B(R)	150B(R)	200B(R)
W	850	850	1180	1180	1180	1180	1880	1880
A	600	600	830	830	830	830	765 x 2	765 x 2

TVCA
Vertical Unit

TCR (Fan Coil Unit)



Model TCR	A	B	C	D	E	F	G	H	I	Motor No.	Fan No.
200F	705	230	490	135	54	118	532	225	470	1	1
300F	785	230	570	135	54	118	610	225	470	1	2
400F	905	230	690	135	54	118	732	225	470	1	2
500F	985	230	770	135	54	118	812	225	470	1	2
600F	1185	230	970	135	54	118	1012	225	470	1	2
800F	1465	230	1215	135	54	118	1257	225	470	2	3
1000F	1585	230	1330	135	54	118	1372	225	470	2	4
1200F	1765	250	1510	135	54	118	1552	240	490	2	4
1400F	1765	305	1510	177	54	160	1630	300	490	2	4



TCR
Fan Coil Unit

Cooling Correction factor

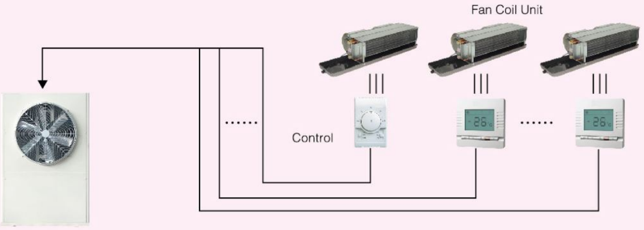
Water Temp℃	Ambient Temp℃											
	25		28		30		35		40		43	
	Correction Rate											
	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power
4	1.00	0.85	0.98	0.88	0.96	0.91	0.91	0.96	0.87	1.00	0.85	1.06
5	1.03	0.87	1.01	0.90	0.99	0.92	0.94	0.97	0.89	1.02	0.87	1.07
6	1.07	0.88	1.04	0.91	1.02	0.93	0.97	0.99	0.92	1.04	0.90	1.09
7	1.10	0.89	1.07	0.93	1.05	0.95	1.00	1.00	0.95	1.05	0.93	1.10
8	1.13	0.91	1.10	0.94	1.08	0.96	1.03	1.01	0.98	1.07	0.95	1.12
9	1.16	0.92	1.13	0.95	1.11	0.98	1.06	1.03	1.00	1.08	0.98	1.14

Heating Correction factor

Water Temp℃	Ambient Temp℃											
	−10		−5		0		5		7		10	
	Correction Rate											
	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power
35	0.64	0.69	0.75	0.75	0.87	0.83	1.00	0.90	1.06	0.92	1.14	0.96
40	0.62	0.72	0.73	0.78	0.85	0.86	0.98	0.93	1.03	0.96	1.11	1.00
45	0.60	0.74	0.71	0.82	0.83	0.89	0.95	0.97	1.00	1.00	1.08	1.04
50	0.58	0.77	0.68	0.85	0.80	0.93	0.92	1.01	0.97	1.04	1.04	1.08

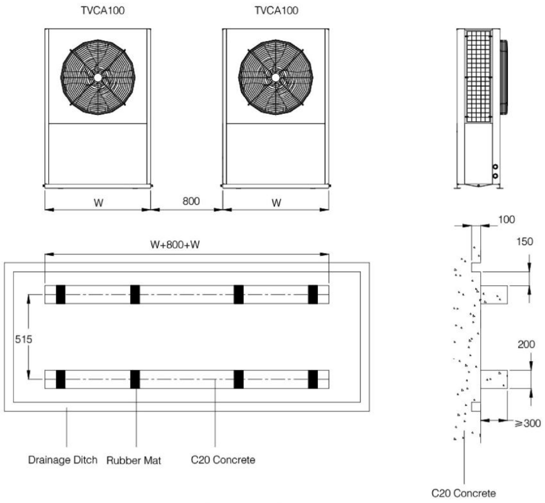
Intelligent Control

Control of standard unit can be connected to fan coil units. Thus the outdoor unit can be controlled in each room. (Namely start one fan coil unit,the outdoor unit will be started. Turning off all the fan coil units,the outdoor unit is stopped.)



LCD screen is elegant Microcomputer control is easy start and operate the unit.

Foundation



Concrete Foundation

Note:

1、The above foundation is for two TVCA100 unitsP;
2、W for width of TVCA100;
3、Foundation must be made by concrete or metal braket, be sure that the foundation can bear more 500Kg/m²
4、Isolator is needed between foundation and base frame of the unit. The thickness of the isolator must be over 20mm.
5、M10 bolts should be used for reinforcing the unit.
6、The units must be placed on rigid and solid surface.
7、The units can be fixed on the expansion bolts, fixing holes can be seen on dimension diagram.

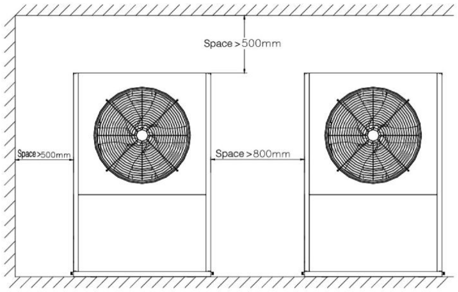
Electrical Installation

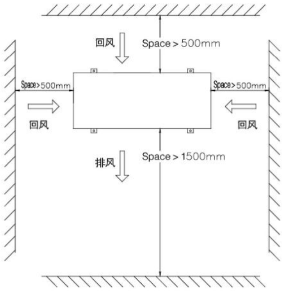
Model	Power	Max Current A	Mini Cable Size mm²	Cable Quantity	Note
TVCA50C(R)	220V~50Hz	25	6	3	Factory will provide 15m four core telephone line for remote controller, while FCU interlock control and host connection wirings will be provided and connected by users.
TVCA60B(R)	380V 3N~50Hz	14	4	5	
TVCA80C(R)	220V~50Hz	45	15	3	
TVCA80B(R)	380V 3N~50Hz	23	6	5	
TVCA100B(R)	380V 3N~50Hz	24	6	5	
TVCA120B(R)	380V 3N~50Hz	31	10	5	
TVCA150B(R)	380V 3N~50Hz	35	10	5	
TVCA200B(R)	380V 3N~50Hz	42	16	5	

Wiring Notice:

1、Connecting power supply wiring to main power supply terminal in the box;
2、Connecting wirings on the control panel to the socket of main control module panel;
3、Setting units earthed.

Unit Installation

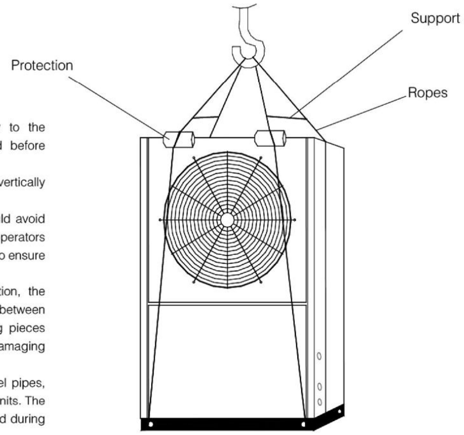




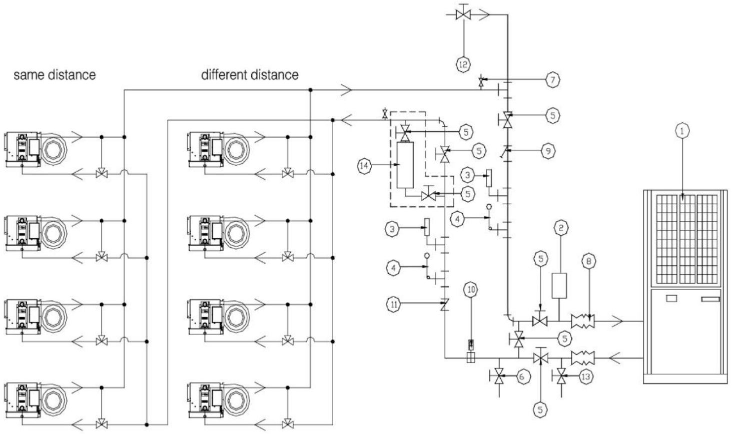
1.The air discharge by outdoor unit will not return, and enough maintenance space should be left around the unit.
2.No obstacles in the inlet/outlet of the indoor unit.
3.Installation must be well ventilated, to guarantee the effective intake and dicharge of the air.
4.Installation site must be able to bear the weight of outdoor unit,and avoid the noise and vibration
5.Avoid direct sunlight
6.Nice drain function.
7.Ensure the unit won't be buried in snow.
8.Ensure the air outlet won't face against strong wind.
9.Ensure the noise won't disturb neighbours
10.No rubbish and dirt around the installation site.

Cautions for Hoisting

1.The unit body is transported from the factory to the construction site and should be properly packed before hoisting;
2.Take cares to handle to keep the unit body stand vertically during carrying.
3.When the unit body is hoisted upwards, you should avoid slides caused by colliding with other articles. The operators should prevent standing under or near the unit body to ensure his/hers safety.
4.In order to avoid the surface scrape or distortion, the protective cushion should be placed in the contracts between steel ropes and the unit body. Meanwhile, bracing pieces should be installed between ropes to avoid the rope damaging the unit body.
5.For the optional reference weights of hoisting steel pipes, steel ropes and cranes; see the parameter table for units. The inlet and outlet manifolds of units should be protected during hoisting to avoid collision.



Piping System



No.	Details
①	Mini chiller
②	Expansion tank
③	Thermometer
④	Pressure gauge
⑤	Gate valve
⑥	Relief valve
⑦	Air vent valve
⑧	Flexible hose
⑨	Filter
⑩	Flow switch
⑪	Check valve
⑫	Make up valve
⑬	Drain valve
⑭	Electrical heater

Installation Notice

◆ Make sure the chilled water supply and return pipe connection to heat exchanger are correct;

◆ Install gate valve, pressure gauge and thermometer at both chilled water supply and return pipes for ease of service and maintenance work.Pressure gauge and thermometer should be installed at visible and accessible location;

◆ Install manual or automatic air vent at the highest points of water system, to release the air trapped in the water system;

◆ Expansion tank should be corrosion proof, and must be installed at the highest point of the pipe system;

◆ Water tank should be installed at chilled water supply pipe, to prevent short cycling when unit is running at relatively small load;

◆ Flexible hose and vibration isolator should be used to reduce the piping vibration and noise;

◆ Water pipes should be insulated to conserve energy for optimum cooling/heating unit capacity;

◆ Leak test should be carried out and water pipes should be cleaned, before piping is insulated and water is supplied to chilled unit;

◆ Flow switch must be installed on horizontal piping. Valve body should be kept straight and vertical. It should keep a minimal 10distance of at least 5 times the piping diameter from the adjacent bends, modulating valve and other components.

Cautions for utilizing unit

Water supply requirement for unit

◆ The circulating water adopts the demineralized water

◆ The water system must be equipped with the safety valve and the automatic replenishing valve.

◆ The water volume can be not less than the nominal value printed on the nameplate.

◆ The automatic air valve must be installed on the top of the water system.

◆ Set the appropriate drain valve at the bottom of the water system.

◆ The expansion tank must be installed on the pipeline of the water system to adapt the water capacity change at the time of the water temperature change.

◆ The water system must be equipped with the bypass. Only after inspect the water system clean can the water system pipeline connect with the water pipeline of the host.

◆ The water system should be cleaned frequently. Avoid foreign matters in evaporator to cause the unit damages.

◆ The total water capacity in the water system should satisfy the designed 10L/kw. In case of the insufficient capacity, the water storage tank of appropriate sizes must be installed to prevent the frequent start or stop of the unit.

Repair and Maintenance

◆ The unit should be equipped with the special power supply. The supply voltage fluctuates +10%. The automatic air switch should be used. The setting current is 1.5 times of running current of the unit. The inverse phase protection devices are installed. Never apply the knife switch unit.

◆ All the time of first application every season, the unit must be electrified and preheated for 12 hours and start later. If the cooling unit will stay for a long time, the water in the unit and the pipeline must be drain completely. After the heating pump type units stop, the master controller should correspond with the host and the power supply can never be disconnected to avoid the water pipelines or the unit frozen (the controller in accordance with the environment temperature and the temperatures of the incoming water and the outgoing water automatically implement the anti–freezing functions. As for details, see the user manual)

◆ The host switch cannot be operated quite often. It can be operate 4 times per hour at most. The electric control cabinet should avoid humidity.

◆ Keep the unit neighborhood under good ventilation environment constantly. The air side heat exchanger should be cleaned regularly.

◆ The water system should be equipped with the expansion tank. The recycling water should be clean and tidy. At the time of operation, a sufficient water flow should be maintained (as for details, see the nameplate), or the water side heat exchanger would be frozen. And the filter should be cleaned regularly.

◆ Appoint the specific person to maintain and record.

◆ The standard machine can not conduct the refrigeration operation when the environment temperature is lower than +16℃ in case that it is necessary to conduct the cryogenic refrigeration, please indicate it on the purchase order.