



## DX MODULAR AIR HANDLING UNIT

TICA CENTRAL AIR-CONDITIONING



[www.ticachina.com](http://www.ticachina.com)

TICA is a hi-tech enterprise specialized in R&D, manufacturing, sales and services of air-conditioning and refrigeration products. Established in 1991, it has developed into one of the top four Chinese air-conditioning brands, with factories in Nanjing, Tianjin and Guangzhou, and a network of over 70 sales and service filiales around the world.

TICA has invested up to RMB 600 million in the first phase to build the top notch central air-conditioning R&D and production base, credited as the state enterprise R&D center. Certified by CNAS, it serves as a national R&D public service platform.

TICA produces over 30 series of products, covering AHUs, VRFs, screw chillers and centrifugal chillers, diverse enough to meet various requirements with regards to comfort and manufacturing processing application.

TICA is a strong competitor in chillers and commercial air conditioning products. It is the largest producer of AHUs in China for five consecutive years and covers over 40% of the market share as the supplier to such industries as micro-electronics, surgery operation room equipment and biopharmaceuticals.

TICA has established a global strategic joint venture with United Technologies Corporation (UTC) whose businesses include the world's most advanced Pratt & Whitney Aircraft Engines, the largest air-conditioning company Carrier and the biggest elevator company Otis.

The giant UTC transfers such global cutting-edge core technologies as large centrifugal chillers, screw chillers, and ORC systems to TICA, thrusting TICA 20 years ahead of its Chinese counterparts in terms of centrifuge technology and 30 years ahead in cryogenic power generation technology. Meanwhile, TICA and UTC will integrate global resources to create a brand-new international market pattern.

Meanwhile, the company has also provided energy-saving air-conditioning system integration solutions to both domestic and foreign users like Zhongnanhai, the Great Hall of the People, Beijing Bird's Nest stadium, the Water Cube, the Wukesong Indoor Stadium, Petro China, Sinopec, State Grid, Nanjing Panda, Hangzhou Xiaoshan Airport, Hainan Airlines Group, Shangri-La Hotel, Manila Ocean Park, Abu Dhabi Al Muneera, SM City in Philippines and Unilever, etc.



Nanjing Headquarter



Tianjin Base



Guangzhou Base



Chengdu Base

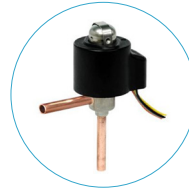
## DIRECTORY

Nomenclature	2
Product Application Fields	3
Application System Solution of TICA's DX Products	4
Air-cooled Purifying Type Air Conditioning Unit	6
Air-cooled DX All Fresh Air Unit	8
Control System Specification	9
Performance Change Table	11
Diagram of External Unit Dimensions	13
Precautions for Unit Installation and Use	15
Maintenance	17

## Features



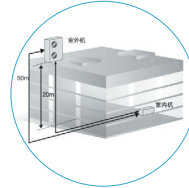
Compressors of famous brands undergo long-term running test under various harsh operating conditions exceeding national standards to ensure unit stability and reliability



Electronic expansion valve implements throttling to ensure optimal operation of the unit under various harsh operating conditions



The newly optimized control logic ensures stable and reliable operation and excellent performance of the unit



Long piping design adopted to meet the air conditioning design requirements of buildings with a longer distance between the IDU and ODU



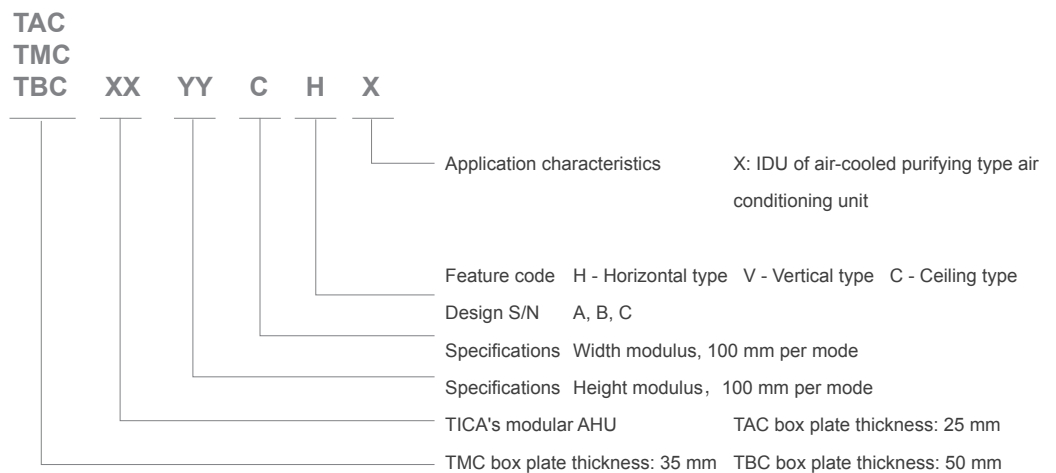
Implementing the heat pump function, economic and energy saving



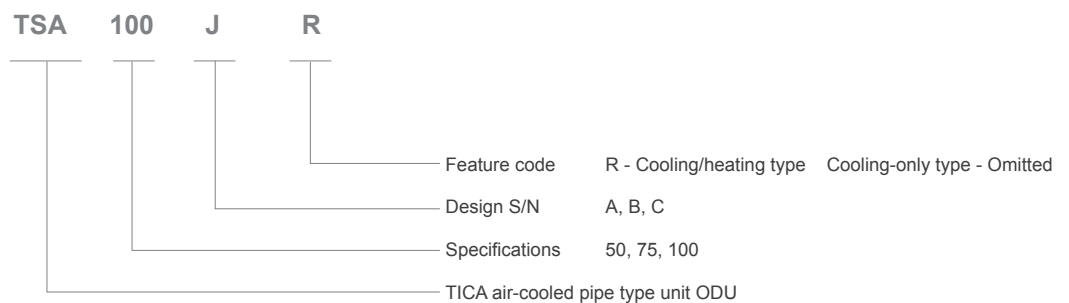
The newly designed electric control cabinet layout and interactive interface of touch screen simplify operations

## Nomenclature

### IDU model



### ODU model





## Product Application Fields



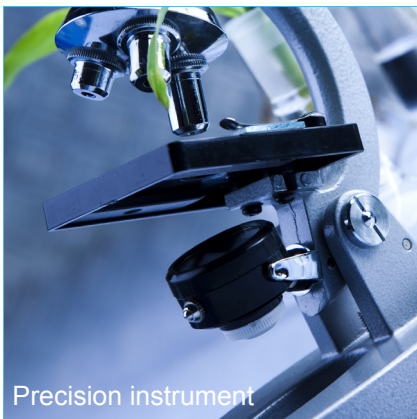
Clean operating room



Inspection and quarantine



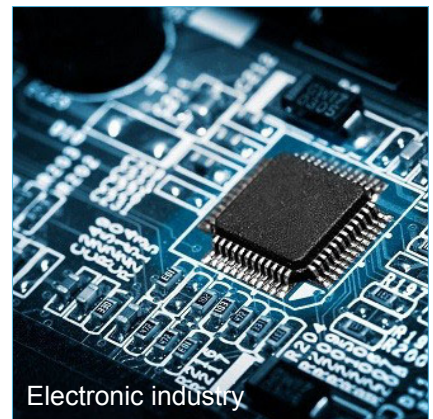
Medical laboratory



Precision instrument



DX modular AHU  
Widely applied



Electronic industry



Pharmaceuticals



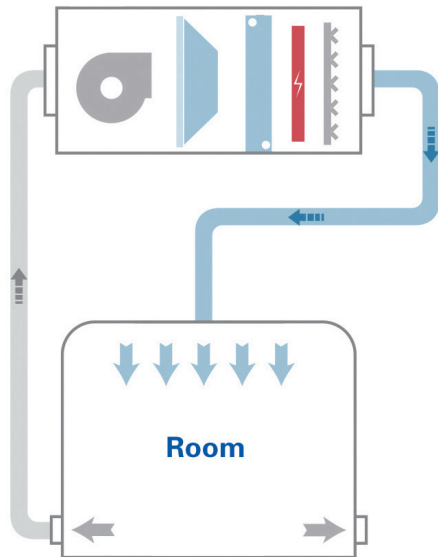
Food processing



Cosmetic industry

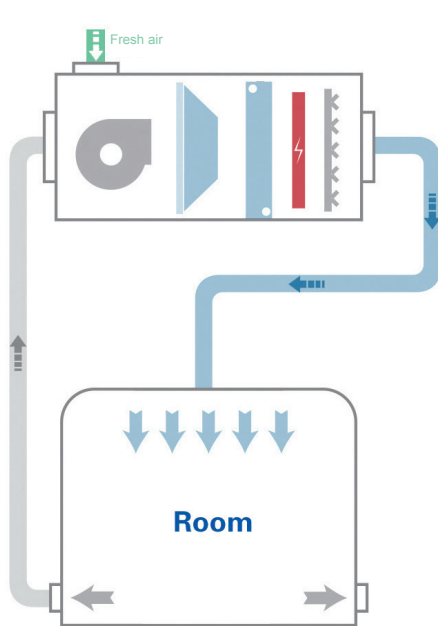
## Application System Solution of TICA's DX Products

### I. Full air return form

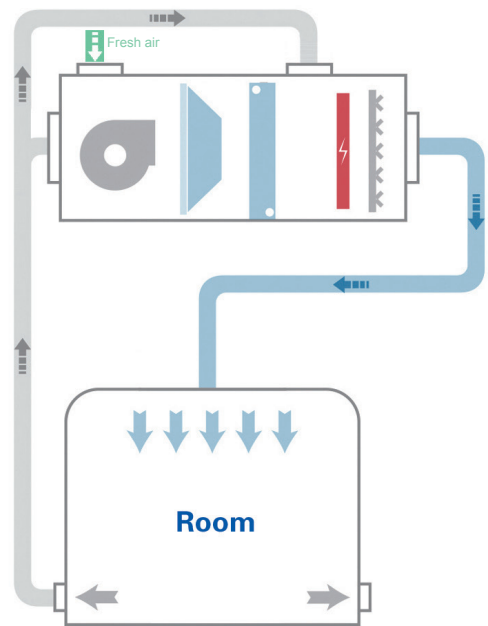


Model: Air-cooled purifying type air conditioning unit  
Applicable to: Application sites without fresh air

### II. Primary return air with fresh air DX solution/Secondary return air with fresh air DX solution



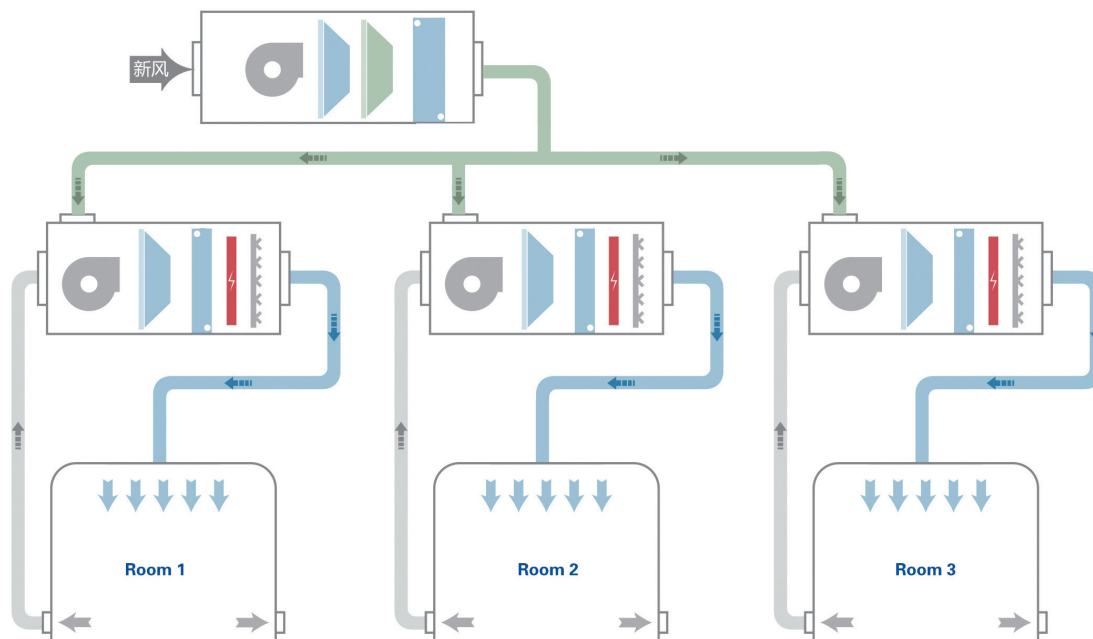
Primary air return



Secondary air return

Model: Air-cooled purifying type air conditioning unit  
Applicable to: Application sites with partial fresh air. The primary air return solution applies to the site with a low ventilation frequency; the secondary air return solution applies to the site with a high ventilation frequency or the air flow of selected model far surpassing the nominal air flow.

### III. Primary air return + fresh air pre-handling



Fresh air unit: Air-cooled DX all fresh air unit

Circulating air unit: Air-cooled purifying type air conditioning unit

Applicable to: Application sites with a greater fresh air ratio

# Specifications

## Specifications of Air-cooled Purifying Type Air Conditioning Unit

Model		IDU	TAC	0608	0610	0810	0813	1013	1115
			TMC						
			TBC						
		IDU fluorine coil			TSD50JM	TSD75JM	TSD100JM	TSD125JM	TSD150JM
ODU		TSA	50G(R)	75J(R)	100J(R)	125J(R)	150J(R)	200J(R)	
System parameters	Rated cooling capacity (cooling-only type/heat pump type)		kW	12.1	19.5	25.5	30	41	52
	Rated heating capacity (heat pump type)		kW	13.3	20.4	28.5	34.1	44	55
	Electric heating capacity		kW	8	12	16	20	24	32
IDU	Air flow		m³/h	2500	4000	5000	6250	7500	10000
	Cooling coil section length for reference		mm	500	500	500	500	500	600
	Temperature control range		—	Cooling: 22 to 26°C; Heating: 18 to 22°C					
	Temperature control range		—	45 ~ 65%±10%RH					
	Power supply		—	380V 3N~50Hz					
	Electric heating	Power	kW	8	12	16	20	24	32
	Humidifier	Type	—	Electrode humidifier					
		Power	kW	3.8	3.8	6	11.3	11.3	11.3
		Humidifying capacity	kg/h	5	5	8	15	15	15
Water inlet pipe diameter		—	DN15 G1/2						
ODU	Compressor type		Hermetic scroll compressor						
	Outer dimension (single set)	Length	mm	910	1403	1403	1403	1403	1808
		Width	mm	340	821	821	821	821	1090
		Height	mm	1330	966	966	1200	1200	1214
	Weight (single set)		kg	122	220	260	290	380	400
	Power supply		380V 3N~50Hz						
	Input power	Cooling	kW	4.00	6.25	8.71	10.04	13.85	16.98
		Heating	kW	3.96	5.25	8.25	9.96	13.00	16.13
	Rated current	Cooling	A	7.36	13.73	19.03	22.01	25.45	31.93
Heating		A	7.29	12.46	18.03	21.81	23.95	29.63	
Refrigerant	Model		R22						
	Charge quantity (cooling-only type/heat pump type)		kg	3.5	4.0*2	5.0*2	5.5*2	6.3*2	8.0*2
Connection pipe	Connection mode		Welding connection for IDU/pipe socket for ODU				Welding connection		
	Dimensions	Liquid pipe	Φmm	12.7	12.7*2	12.7*2	12.7*2	15.88*2	15.88*2
		Steam pipe	Φmm	19.05	19.05*2	19.05*2	19.05*2	25.4*2	28.6*2
Connected water diameter of condensed water tray			DN32						

### ★ Remarks:

1. The rated cooling capacity is tested under the nominal air flow, when the indoor dry/wet bulb temperature is 24/17°C and the outdoor dry/wet bulb temperature is 35/24°C.
2. The rated heating capacity is tested under the nominal air flow, when the indoor dry/wet bulb temperature is 20/15°C and the outdoor dry/wet bulb temperature is 7/6°C.
3. The rated cooling capacity does not take into account the heating loss of fan and motor. The nominal air flow refers to the operating air flow under the standard condition.
4. The optional refrigerant can be R410A. The ODU has been charged with refrigerant. For the charge quantity, refer to the nameplate.
5. Piping condition of unit performance test: Equivalent refrigerant length 7.5 m (horizontal).
6. None of the models can be used for winter cooling. The outdoor ambient temperature of cooling mode is limited to 0°C ≤ T ≤ 43°C, and that of heat pump heating is limited to -15°C ≤ T ≤ 25°C.
7. The unit can be equipped with electric heating and electrode humidifier control to provide the simple temperature control function, but it cannot be used for the site with strict temperature and humidity requirements.
8. The unit applies to the operating condition where the fresh air ratio is ≤ 15%. If the fresh air flow is not in this range, the parameters will change. For the specific parameters, please contact TICA.
9. The standard electric heater in the sample is an auxiliary electric heater. If it is used for fresh air pre-handling, it should be accounted for separately.
10. The specification parameters may be changed due to product improvement without a prior notice. The parameters indicated on the unit nameplate should prevail.

### ★ Note: ODUs include:

One set of TSD50JM, TSD75JM, TSD100JM, TSD125JM, TSD150JM, TSD200JM, or TSD250JM ODU;  
 The TSD300JM ODU consists of two TSA150J(R) ODUs;      The TSD400JM ODU consists of two TSA200J(R) ODUs;  
 The TSD500JM consists of two TSA250J(R) ODUs;      The TSD600JM ODU consists of three TSA200J(R) ODUs;  
 The TSD750JM ODU consists of three TSA250J(R) ODUs.



## Specifications of Air-cooled Purifying Type Air Conditioning Unit

Model		IDU	TAC	1217	1218	1521	1622	1923	2026
			TMC						
			TBC						
		IDU fluorine coil			TSD250JM	TSD300JM	TSD400JM	TSD500JM	TSD600JM
ODU		TSA	250J(R)	150J(R)*2	200J(R)*2	250J(R)*2	200J(R)*3	250J(R)*3	
System parameters	Rated cooling capacity (cooling-only type/heat pump type)		kW	62	79	104	124	156	186
	Rated heating capacity (heat pump type)		kW	68	83	110	136	165	204
	Electric heating capacity		kW	38	48	60	80	90	120
IDU	Air flow		m³/h	12000	15000	20000	24000	30000	37500
	Cooling coil section length for reference		mm	600	600	600	600	800	800
	Temperature control range		—	Cooling: 22 to 26°C; Heating: 18 to 22°C					
	Temperature control range		—	45 ~ 65%±10%RH					
	Power supply		—	380V 3N~50Hz					
	Electric heating	Power	kW	38	48	60	80	90	120
	Humidifier	Type	—	Electrode humidifier					
		Power	kW	18.8	18.8	26.3	33.8	49	49
		Humidifying capacity	kg/h	25	25	35	45	65	65
		Water inlet pipe diameter	—	DN15 G1/2					
ODU	Compressor type			Hermetic scroll compressor					
	Outer dimension (single set)	Length	mm	1808	1403	1808	1808	1808	1808
		Width	mm	1090	821	1090	1090	1090	1090
		Height	mm	1214	1200	1214	1214	1214	1214
	Weight (single set)		kg	400	380	400	400	380	400
	Power supply			380V 3N~50Hz					
	Input power	Cooling	kW	19.65	25.89	33.96	39.30	51.78	58.95
		Heating	kW	19.00	23.60	32.26	38.00	47.20	57.00
	Rated current	Cooling	A	36.80	49.10	63.86	73.60	98.20	110.40
		Heating	A	34.90	43.40	59.26	69.80	86.80	104.70
Refrigerant	Model			R22					
	Charge quantity (cooling-only type/heat pump type)		kg	9.5*2	6.3*4	8.0*4	9.5*4	8.0*6	9.5*6
Connection pipe	Connection mode			Welding connection					
	Dimensions	Liquid pipe	Φmm	15.88*2	15.88*4	15.88*4	15.88*4	15.88*6	15.88*6
		Steam pipe	Φmm	28.6*2	25.4*4	28.6*4	28.6*4	28.6*6	28.6*6
Connected water diameter of condensed water tray				DN32					

### ★ Remarks:

1. The rated cooling capacity is tested under the nominal air flow, when the indoor dry/wet bulb temperature is 24/17°C and the outdoor dry/wet bulb temperature is 35/24°C.
2. The rated heating capacity is tested under the nominal air flow, when the indoor dry/wet bulb temperature is 20/15°C and the outdoor dry/wet bulb temperature is 7/6°C.
3. The rated cooling capacity does not take into account the heating loss of fan and motor. The nominal air flow refers to the operating air flow under the standard condition.
4. The optional refrigerant can be R410A. The ODU has been charged with refrigerant. For the charge quantity, refer to the nameplate.
5. Piping condition of unit performance test: Equivalent refrigerant length 7.5 m (horizontal).
6. None of the models can be used for winter cooling. The outdoor ambient temperature of cooling mode is limited to 0°C ≤ T ≤ 43°C, and that of heat pump heating is limited to -15°C ≤ T ≤ 25°C.
7. The unit can be equipped with electric heating and electrode humidifier control to provide the simple temperature control function, but it cannot be used for the site with strict temperature and humidity requirements.
8. The unit applies to the operating condition where the fresh air ratio is ≤ 15%. If the fresh air flow is not in this range, the parameters will change. For the specific parameters, please contact TICA.
9. The standard electric heater in the sample is an auxiliary electric heater. If it is used for fresh air pre-handling, it should be accounted for separately.
10. The specification parameters may be changed due to product improvement without a prior notice. The parameters indicated on the unit nameplate should prevail.

### ★ Note: ODUs include:

One set of TSD50JM, TSD75JM, TSD100JM, TSD125JM, TSD150JM, TSD200JM, or TSD250JM ODU;  
 The TSD300JM ODU consists of two TSA150J(R) ODUs;      The TSD400JM ODU consists of two TSA200J(R) ODUs;  
 The TSD500JM consists of two TSA250J(R) ODUs;      The TSD600JM ODU consists of three TSA200J(R) ODUs;  
 The TSD750JM ODU consists of three TSA250J(R) ODUs.

## Specifications of Air-cooled DX All Fresh Air Unit

Model	IDU		TAC	0608	0610	0610	0711	0813	0814	1015	1117	1319	1419
			TMC										
			TBC										
	ODU - cooling-only		TSA	50G	75J	100J	125J	150J	200J	250J	150J*2	200J*2	250J*2
ODU – heat pump		50GR		75JR	100JR	125JR	150JR	200JR	250JR	150JR*2	200JR*2	250JR*2	
System parameters	Air flow		m³/h	1500	1850	2450	3000	4000	5000	7000	8000	10000	14000
	Air flow range		m³/h	Standard air flow ±5%									
	Cooling capacity		kW	12.10	19.50	25.50	30.00	41.00	51.00	61.00	82.00	105.00	121.00
	Heating capacity		kW	13.30	20.40	28.50	34.10	41.50	55.00	68.00	83.00	110.00	135.00
IDU	Power supply		–	380V 3N~50Hz									
	IDU coil		–	50JRNIFM	75JRNIFM	100JRNIFM	125JRNIFM	150JRNIFM	200JRNIFM	250JRNIFM	300JRNIFM	400JRNIFM	500JRNIFM
	Cooling coil section length for reference		mm	600	600	600	700	700	800	800	800	800	800
	Fan form		–	Belt-driven low noise centrifugal type									
ODU	Dimensions	Power supply	–	380V 3N~50Hz									
		Length	mm	910	1403	1403	1403	1403	1808	1808	1403	1808	1808
		Width	mm	340	821	821	821	821	1090	1090	821	1090	1090
		Height	mm	1330	966	966	1200	1200	1214	1214	1200	1214	1214
	Weight (single set)		kg	122	220	260	290	380	400	400	380	400	400
	Compressor type		–	Hermetic scroll compressor									
	Throttle mode		–	Electronic expansion									
	Input power	Cooling	kW	4.00	6.87	9.05	9.77	13.39	15.70	18.93	27.00	31.40	37.86
		Heating	kW	3.96	5.87	6.79	9.29	10.91	15.10	15.03	17.45	30.20	30.06
	Rated current	Cooling	A	7.36	14.90	16.50	15.63	23.45	27.95	32.23	47.07	55.90	64.46
Heating		A	7.29	13.63	13.46	15.02	19.79	27.25	26.93	33.00	54.50	53.86	
Refrigerant	Model		–	R22									
	optional quantity		kg	3.5	4.0*2	5.0*2	5.5*2	6.3*2	8.0*2	9.5*2	6.3*4	8.0*4	9.5*4
Connection pipe	Connection mode		–	Welding connection for IDU/pipe socket for ODU				Welding connection					
	Dimensions	Liquid pipe	Φmm	12.7	12.7*2	12.7*2	12.7*2	15.88*2	15.88*2	15.88*2	15.88*4	15.88*4	15.88*4
		Air pipe	Φmm	19.05	19.05*2	19.05*2	19.05*2	25.4*2	28.6*2	28.6*2	25.4*4	28.6*4	28.6*4
Connected water diameter of condensed water tray			DN32										

### ★ Remarks:

- 1.The rated cooling capacity is tested under the nominal air flow, when the outdoor dry/wet bulb temperature is 35/28°C.
- 2.The rated heating capacity is tested under the nominal air flow, when the outdoor dry/wet bulb temperature is 7/6°C (without frost).
- 3.Piping condition of unit performance test: Equivalent refrigerant length 7.5 m (horizontal).
- 4.When the electric heater is used to pre-heat fresh air, the IDU length should be added by 300 mm.
- 5.The optional refrigerant can be R410A. The ODU has been charged with refrigerant. For the charge quantity, refer to the nameplate.
- 6.The fresh air unit is used for handling fresh air only. It is not recommended to use it for room temperature control independently.
7. The specification parameters may be changed due to product improvement without a prior notice. The parameters indicated on the unit nameplate should prevail.
8. When the heat pump type is used for heating at a temperature below 0°C, a preheating section needs to be configured to implement preheating to a temperature above 0°C.
- 9.Ambient temperature range for operation of ODU: 20°C to 43°C for the cooling mode; -15°C to 15°C for the heating mode of heat pump.


## Control System Specification (Parameters and Configuration)

Product name			Air-cooled purifying type air conditioning unit	Air-cooled DX all fresh air unit
Product model			CHX/CVX/CCX	CHX/CVX/CCX
Cooling/heating type			Cooling-only/heat pump	Cooling-only/heat pump
Unit configuration	Refrigerant		R22	R22
	Electric heating		Standard	Optional
	Electric humidifier		Standard	No
	Humidification signal		Switching value	No
Control accuracy	Temperature	Range	Cooling: 22 to 26°C; Heating: 18 to 22°C	No
		Precision	±2°C	No
	Humidity	Range	45 ~ 65%	No
		Precision	±10%	No
Control cabinet	Main controller type		Single-chip microcomputer	Single-chip microcomputer
	Operating mode		Auto/Cooling/Heating/Ventilation	Auto/Cooling/Heating/Ventilation
	Timed on/off		Yes	Yes
	RS485 monitoring		Yes	Yes
	ODU power air switch		Yes	No
	Sterilizing device		No	No
	Man-machine interface	Type	LCD wired controller with mechanical buttons	LCD wired controller with mechanical buttons
		Local touch screen	No	No
		External touch screen	No	No
	Monitoring dry contact	Remote start/stop	Yes	Yes (7.5HP and above)
		Operating status	No	No
		Fault state	No	No
		Optional items	No	No
	Interlock passive dry contact	Exhaust fan interlock	Yes	No
		Exhaust valve interlock	No	No
		Fresh air valve interlock	No	No
		Fire valve interlock	Yes	Yes
		Fire interlock	Yes	No
		Fan interlock	Yes	Yes
	Protection functions	Wind break protection (including the differential pressure switch)	Yes	Configured when an electric heater is available
		Over-temperature power-off protection of electric heater	Yes	Optional
		Primary/medium/high efficiency filter alarm (excluding the differential pressure switch)	Yes	No
		Emergency stop button	One air conditioning cabinet and one electric control cabinet	No

### ★ Remarks:

1. The above configuration is the standard configuration for product control. For other requirements of non-standard control items, the customer can consult TICA;
2. R410A refrigerant is optional;

Control System Specification (Control Cabinet and Man-machine Interface)

<p>Air-cooled purifying type air conditioning unit CHX/CVX/CCX (cooling-only/heat pump)</p>	 <p>Control cabinet</p>	 <p>LCD wired controller with mechanical buttons</p>
<p>Air-cooled DX all fresh air unit CHX/CVX/CCX (cooling-only/heat pump)</p>	 <p>Control cabinet</p>	 <p>LCD wired controller with mechanical buttons</p>

## Performance Table

### 1. Impact on cooling operation by indoor and outdoor conditions

Air-cooled purifying type air conditioning unit

Correction coefficient Indoor wet bulb temperature °C Outdoor wet bulb temperature °C	15	16	17	18	19	20	21	22
25	1.041	1.095	1.121	1.137	1.153	1.165	1.179	1.181
30	1.000	1.039	1.071	1.095	1.119	1.165	1.163	1.171
35	0.925	0.961	1.000	1.039	1.076	1.086	1.092	1.102
40	0.831	0.875	0.911	0.954	1.000	1.056	1.076	1.095
45	0.782	0.823	0.887	0.916	0.971	0.998	1.028	1.034

#### ★ Remarks:

1. During cooling operation, the main factors affecting the cooling capacity are the indoor wet bulb temperature and outdoor dry bulb temperature. The outdoor wet bulb temperature and indoor dry bulb temperature affect the cooling capacity slightly. Therefore, the indoor dry bulb temperature and outdoor wet bulb temperature are ignored in the above table.
2. The above table reflects the approximate change trend of air conditioning unit with the indoor and outdoor conditions. It can be used as a reference only during model selection by the customer.

### 2. Impact on the cooling capacity by the IDU air flow changes

IDU rated air flow%	80	90	100	110	120
Cooling capacity correction coefficient	0.91	0.96	1	1.06	1.11

### 3. When the IDU and ODU connecting pipe is too long or the height difference of IDU and ODU is too large, the cooling capacity will be affected (for the maximum pipe length, refer to the attached table).

The cooling capacity correction coefficient is provided below:

Influence factor		Cooling capacity correction coefficient									
Equivalent total length of connecting pipe		5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
ODU higher than IDU	0m	1	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	5m	1	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.81
	10m	—	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82	0.80
	15m	—	—	0.93	0.91	0.89	0.87	0.85	0.83	0.81	0.79
	20m	—	—	—	0.90	0.88	0.86	0.84	0.82	0.80	0.78
	25m	—	—	—	—	0.87	0.85	0.83	0.81	0.79	0.77
IDU higher than ODU	0m	1	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	5m	1	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	10m	—	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	15m	—	—	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	20m	—	—	—	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	25m	—	—	—	—	0.92	0.90	0.88	0.86	0.84	0.82



#### 4. Equivalent lengths of elbow and oil trap

Outer diameter of gas connection pipe	Φ19.05 (3/4")	Φ28.6 (1 – 1/8")	Φ38.09 (1 – 1/2")
Elbow	0.35	0.5	0.55
Oil trap	2.4	3.7	4.1

#### 5. Allowed maximum pipeline length and maximum number of elbows

ODU model	Refrigerant pipeline size		Limit length/height difference (m) of connecting pipe	Maximum number of elbows	Additional refrigerant charge quantity (kg/m)
	Air pipe (mm)	Liquid pipe (mm)			
TSA50	Φ19.05	Φ12.7	35/20	10	0.05
TSA75	Φ19.05*2	Φ12.7*2	35/20	10	0.05*2
TSA100	Φ19.05*2	Φ12.7*2	35/20	10	0.05*2
TSA125	Φ19.05*2	Φ12.7*2	35/20	10	0.05*2
TSA150	Φ25.4*2	Φ15.88*2	35/20	10	0.075*2
TSA200	Φ28.6*2	Φ15.88*2	50/25	15	0.075*2
TSA250	Φ28.6*2	Φ15.88*2	50/25	15	0.075*2
TSA150*2	Φ25.4*4	Φ15.88*4	35/20	10	0.075*4
TSA200*2	Φ28.6*4	Φ15.88*4	50/25	15	0.075*4
TSA250*2	Φ28.6*4	Φ15.88*4	50/25	15	0.075*4
TSA200*3	Φ28.6*6	Φ15.88*6	50/25	15	0.075*6
TSA250*3	Φ28.6*6	Φ15.88*6	50/25	15	0.075*6

#### 6. Electrical Parameter Table of Air-cooled Air Conditioning Unit ODU — Heat Pump Type

Model	ODU TSA	50GR	75JR	100JR	125JR	150JR	200JR	250JR	150JR*2
Power supply	380V 3N~50Hz								
Power cord	Type	ODU	ODU	ODU	ODU	ODU	ODU	ODU	ODU
	Sectional area mm <sup>2</sup>	4	6	6	6	10	10	10	10
	Pieces	5	5	5	5	5	5	5	5*2
Unit connecting wire	Sectional area mm <sup>2</sup>	2.5*3+1.5*5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Pieces	8	2	2	2	2	2	2	2*2

#### 7. Electrical Parameter Table of Air-cooled Air Conditioning Unit ODU — Cooling-only Type

Model	ODU TSA	50G	75J	100J	125J	150J	200J	250J	150J*2
Power supply	380V 3N~50Hz								
Power cord	Type	ODU	ODU	ODU	ODU	ODU	ODU	ODU	ODU
	Sectional area mm <sup>2</sup>	4	6	6	10	10	10	16	10
	Pieces	5	5	5	5	5	5	5	5*2
Unit connecting wire	Sectional area mm <sup>2</sup>	2.5*3+1.5*3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Pieces	6	2	2	2	2	2	2	2*2

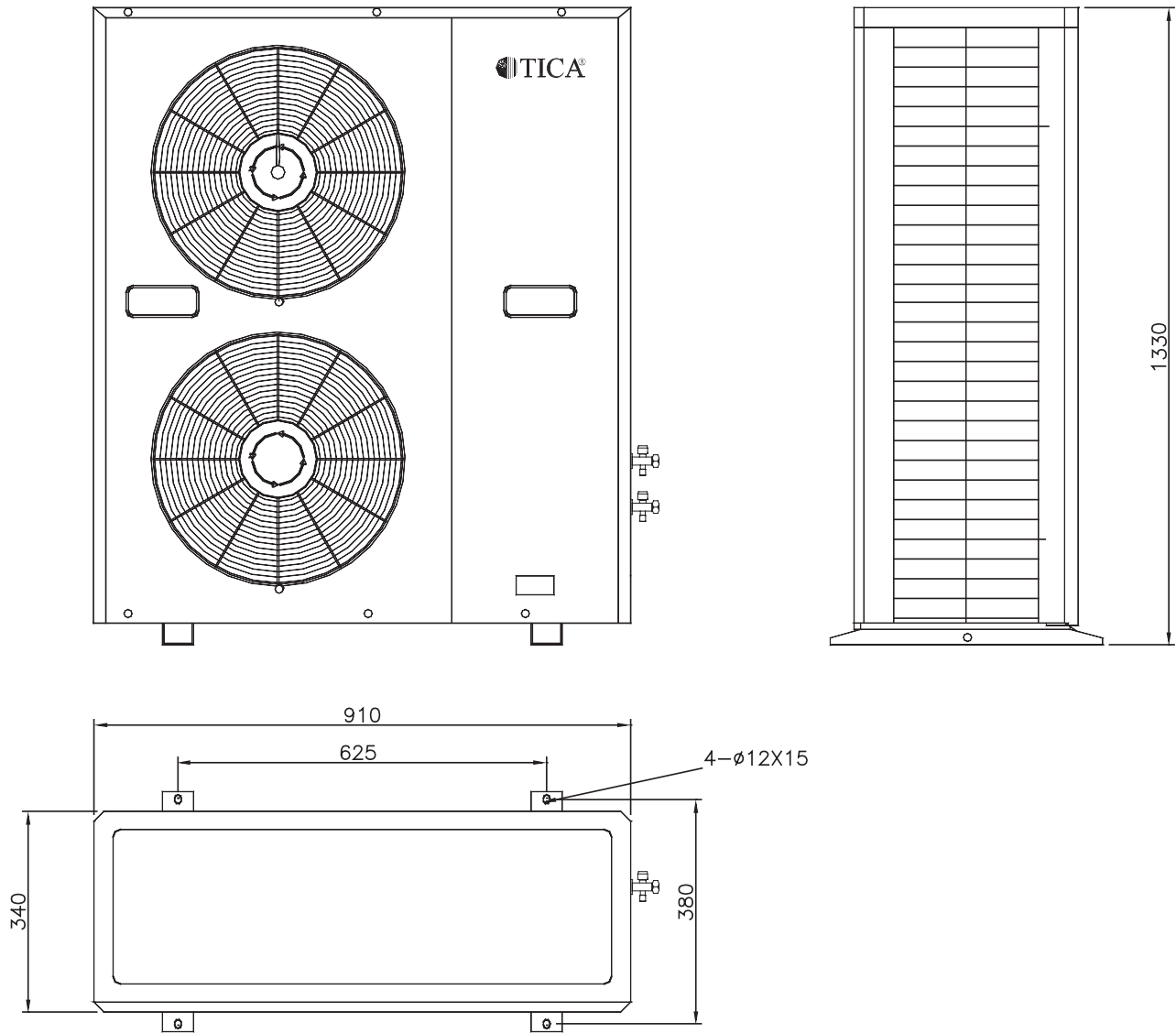
#### ★ Remarks:

1. The unit power cord must be a copper core cable, the operating temperature cannot exceed the defined value, and the recommended diameter is the specification selected when the ambient temperature of application is 40°C.
2. If the power cord is longer than 15 m, increase the cross section of power cord properly to prevent accidents caused by overloading.
3. The auxiliary electric heater is not considered for the recommended power cord diameter. If an auxiliary electric heater is selected for the unit, the copper core cable with the diameter meeting the national standard should be selected according to the power of auxiliary electric heater, lest an accident would take place. Meanwhile, when the actual installation conditions have been changed on the field, consider reducing the capacity according to the power cord and circuit breaker specifications provided by the manufacturer.

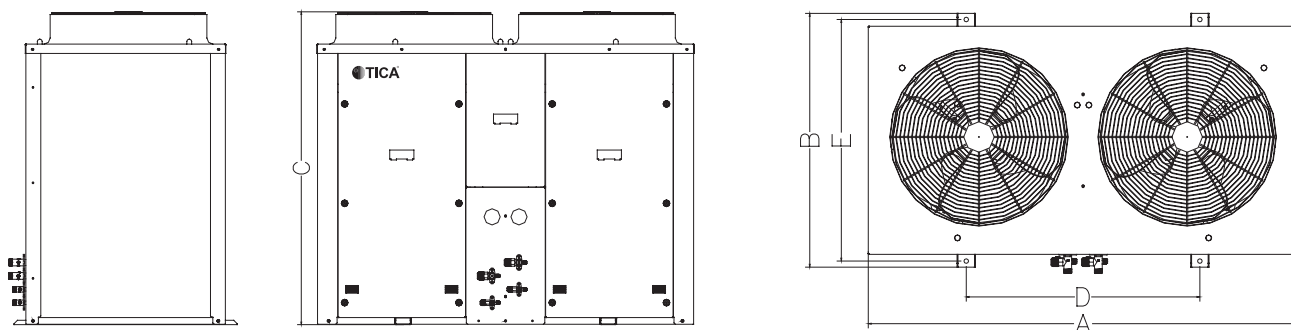


Dimensions

TSA50G(R)

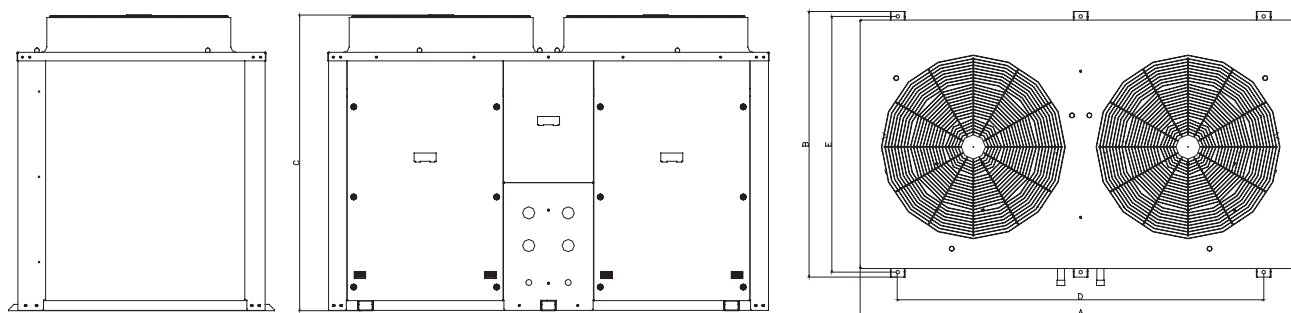


TSA75J(R)、TSA100J(R)、TSA125J(R)、TSA150J(R)、



Model	A	B	C	D	E	Connection mode
TSA75J(R)	1403	821	966	763	790	Welding connection for IDU/pipe socket for ODU
TSA100J(R)			1200			
TSA125J(R)			1200			
TSA150J(R)	1403	821	1200	763	790	Welding connection

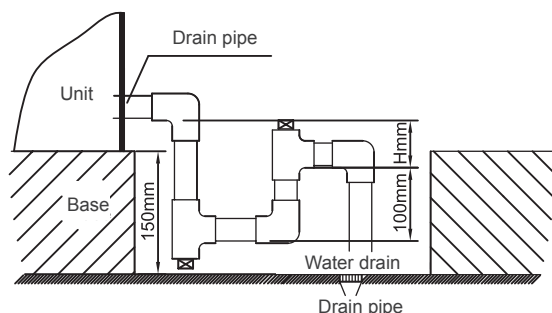
TSA200J(R)、TSA250J(R)



Model	A	B	C	D	E	Connection mode
TSA200J(R)	1808	1090	1214	1500	1050	Welding connection
TSA250J(R)						

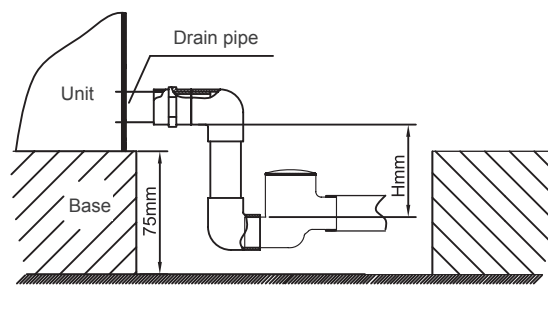
## Precautions for Unit Installation and Use

### Unit Installation



$H = \text{Unit inside static pressure}(\text{mmH}_2\text{O}) + 20$   
When the inside static pressure exceeds 750 Pa, increase the base height.

U-shaped water seal installation diagram



$H = \text{Unit inside static pressure}(\text{mmH}_2\text{O}) + 20$   
When the inside static pressure exceeds 750 Pa, increase the base height.

Floating ball-type water seal installation diagram

- The air conditioning units of all structure types should be installed on a horizontal base.
- A sufficient space should be reserved around the unit, especially at the access door side of unit pipes, fan and motor, so as to facilitate routine unit inspection and regular maintenance.
- A U-shaped drain pipe must be first connected at the condensate water outlet or a ball-type water seal must be installed before connecting to the external pipe.
- Exert balanced force when connecting the water inlet and outlet pipes of coil. Overexerting may damage the coil.
- The motor of air conditioning unit should be connected to a power supply with overload protection, and provide with grounding protection.
- Flexible connection should be adopted between the air conditioning unit and the external air duct to avoid vibration transmission;

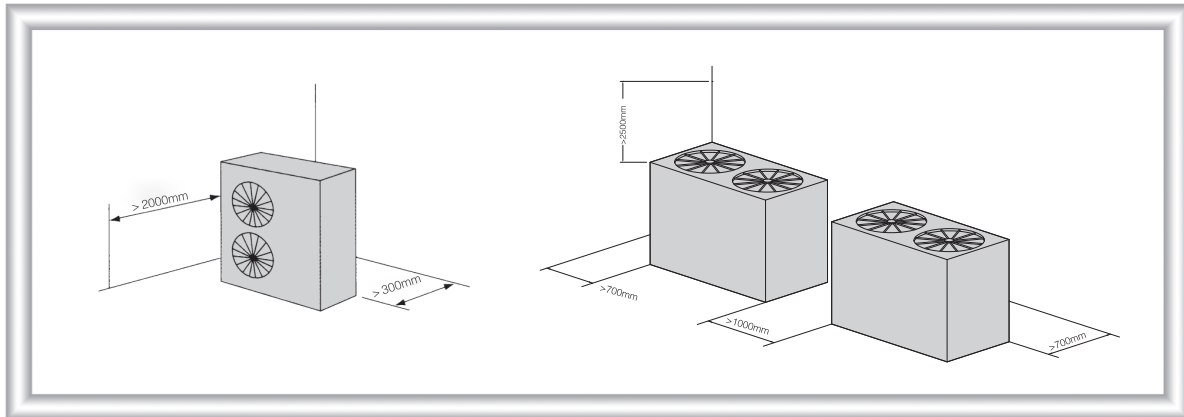
### Precautions on IDU Use

- Before starting the unit each time, check all the valves of its water line and air duct, and make them in the normal operation state.
- Check connection, operating and transmission conditions of moving parts such as the fan and motor regularly, and adjust them in time.
- Clean the primary efficiency filter with clean water or cleaning agent according to the fouling degree. The cleaning frequency depends on the environment of application.
- Clean or replace the medium efficiency filter when its resistance rises to two times of the initial resistance.
- Make sure that the steam coil closes the steam valve before the fan stops.
- Make sure that the steam humidifier closes the steam valve before the fan stops.
- When the customer configures an electric control cabinet independently, the electric heater can be started only after the fan starts. It is advised to turn off the electric heater and close the steam valve 5 minutes before the fan stops. The overheat protection switch of electric heater needs to be connected to the electric heating control circuit.
- The three-phase five-wire system is adopted for the unit power cord. When the phase line diameter of electric heater is not greater than  $35 \text{ mm}^2$ , the null line diameter is the same as the phase line diameter; when the phase line diameter is greater than  $35 \text{ mm}^2$ , the null line diameter is  $1/2$  of the phase line diameter and cannot be smaller than  $35 \text{ mm}^2$ .

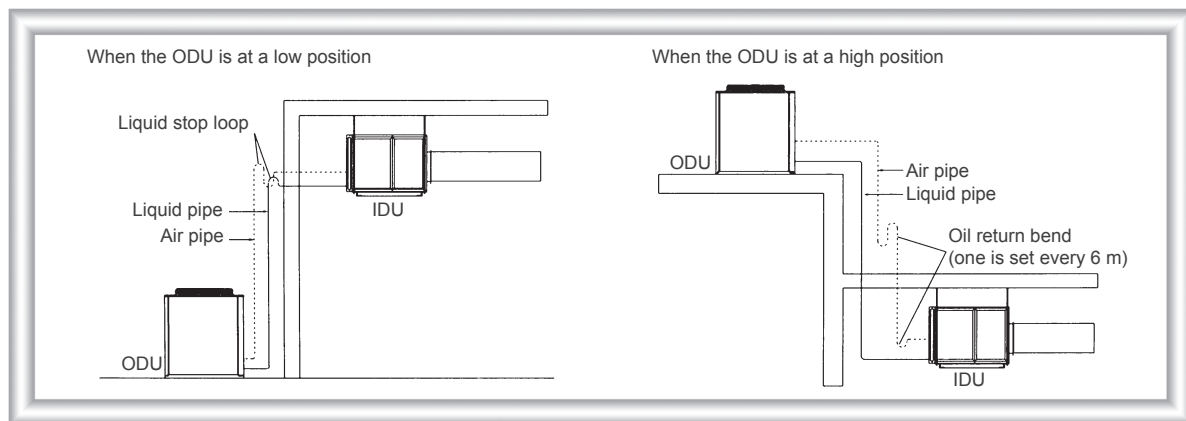
## Precautions for ODU Installation

- Make sure that the ODU installation location is far away from the site with flammable and explosive substances, heavy dust, concave, or high temperature.
- Make sure that there is a sufficient space around the unit to facilitate air inlet, air outlet and repair.
- Any obstacle will affect the cooling/heating capacity of the unit and will lead to inconvenience in the future repair and maintenance of the unit.
- For the maintenance space, refer to the figure below.

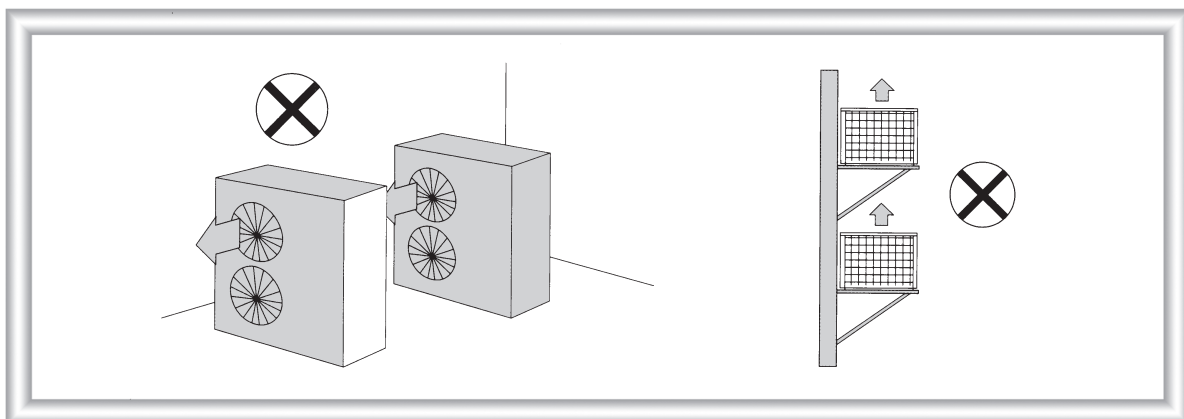
Sufficient space for heat dissipation required for the ODU



Oil return bends must be set on the gas pipe according to different IDU and ODU installation positions.



Short circuit should be avoided in IDU layout





## Maintenance

### Routine Maintenance:

The air conditioning unit is a kind of equipment. The user is recommended to record the routine operating date of equipment and carryout regular maintenance.

#### 1\Check the following items before putting the equipment into use:

- (1) Check whether all the power supply connections of indoor terminal equipment are correct and whether the fan operates normally.
- (2) Check whether all the air valves at the indoor terminal equipment inlets and outlets are opened.
- (3) Check whether the thermal insulation and condensate discharge measures of the pipeline system are proper.
- (4) Check whether all the power supply and control lines are connected in positions, whether the wires are connected correctly according to the wiring diagram, whether grounding is reliable, and whether all the connection terminals are fastened.
- (5) Check whether the ODU fan blades interfere with the fan guard net.
- (6) If the unit will be used again after stop for a long term, first connect the power supply for the unit for preheating for 12 h so that the outdoor compressor crankcase can be preheated.

#### 2/ Routine maintenance during equipment use:

Unit maintenance items	Standard maintenance cycle			Remarks
	Monthly	Quarterly	Semiannually	
1. Check whether the power cord (from the power distribution cabinet to the unit entrance) is damaged or gets loose.			★	
2. Check whether the condensate drainage is normal.		★	●	Whether the pipes are installed according to the pipe connection diagram, whether they are blocked by dirt, whether drainage is smooth, whether overflow is caused, etc.
3. Check whether abnormal noises are sent out during operation of the unit.	★		●	Abnormal noises such as sharp metal friction sound, howling, significant thumping sound or resonance, significant electromagnetic noise and low-frequency edged sound (which may make people feel uncomfortable)
4. Check whether the air side of heat exchanger needs to be cleaned (surface dust, sundries, etc.).		★	●	Whether dust is accumulated between fins, whether sundries adhere to the air inlet side of coil, etc.
5. Check whether the air filter is blocked by dirt and whether it needs to be cleaned or replaced.	★	●		Whether the differential pressure alarm and differential pressure meter scale value reach the limit resistance value, etc.
6. Check whether the humidifying barrel of humidifier operates normally. Replace it in time in case of serious fouling.	★	●		

Special reminder: Routine maintenance cannot replace the specific requirements in the installation and use precautions in this repair and maintenance manual. In addition to routine maintenance, the installation and use precautions must be followed strictly to ensure normal operation and use of the product.

#### 3\ The following maintenance methods are recommended when the equipment will not be used for a long term

- 1) When the unit will not be used for a long term or will stop in winter, turn off the power supply, and drain water from the water system and steam coil of the unit.
- 2) When the unit needs to be used again after shutdown for a long term, carry out comprehensive inspection to make sure that the unit is normal, connect the power supply to preheat the unit for more than 12 hours, and confirm that all aspects are normal before starting the unit.
- 3) If necessary, the maintenance methods before the equipment is put into use can be carried out.

Notes:

- (1) Maintenance by the user: Mandatory inspection item --- ●; Recommended inspection item --- ★
- (2) The user needs to buy wearing parts required during maintenance from TICA.
- (3) The maintenance methods are prepared for the cycle of normal use. For use under a malicious situation, make reasonable arrangement according to actual conditions.



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NANJING TICA CLIMATE SOLUTIONS CO., LTD.

Address: No. 6, Hengye Road, Nanjing Economic and Technological  
Development Zone, Nanjing, Jiangsu, China

Tel: 4008-601-601

Postal Code: 210046

E-Mail: [global@ticachina.com](mailto:global@ticachina.com)

Website: [www.ticachina.com](http://www.ticachina.com)

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Note: Due to the continuous improvement and innovation of TICA products, the product model, specifications, and parameters in this document are subject to change without notice.