

# INSTALLATION & OPERATION MANUAL

Installation & Operation Manual

Inverter Multi-Variable Air Conditioner System (Indoor Unit)

**«TICA PRO» LLC**  
Tel. +7(495)822-29-00  
E-mail: [info@tica.ru](mailto:info@tica.ru)  
[www.tica.ru](http://www.tica.ru)



The copyright of this manual belongs to Nanjing TICA Climate Solutions. Anyone without consent or authorization shall not copy, reproduce or extract this manual without permission. TICA reserves the right to sue.

# CONTENTS

I. Safety Precautions.....	3
II. IDU Dimensions.....	5
1.    TMVW wall-mounted unit - dimensional drawing.....	5
2.    TMCS one-way cassette IDU – dimensional drawing.....	6
3.    TMCD two-way cassette IDU – dimensional drawing.....	7
4.    TMCF four-way cassette IDU - dimensional drawing.....	8
5.    TMDN standard duct IDU - dimensional drawing.....	10
6.    TMDH high static pressure duct IDU - dimensional drawing.....	14
7.    TMVX ceiling exposed IDU - dimensional drawing.....	15
8.    TMDF fresh air processing unit – dimensional drawing.....	16
9.    TMDP duct IDU – dimensional drawing.....	16
10.   TP filter module – dimensional drawing.....	16
III. IDU Installation.....	21
1.    Installation of TMVW wall-mounted unit.....	21
2.    Installation of TMCS one-way/TMCD two-way cassette IDU - dimensional drawing.....	22
3.    Installation of TMCF four-way cassette IDU.....	23
4.    Installation of TMDN/TMDH/TMDP duct IDU.....	28
5.    Installation of TMVX ceiling exposed IDU.....	29
6.    Installation of TMDF fresh air processing unit.....	30
7.    Duct preparation and installation.....	31
8.    Selection and installation of IDU electronic expansion valve module.....	33
9.    Replace the filter module of TP.....	33
IV. Refrigerant Pipe Connection.....	36
1.    Principles of refrigerant pipe connection.....	36
2.    Connection to flared joint of refrigerant pipe.....	36
3.    Welding of refrigerant pipe.....	37
4.    Blowing of refrigerant pipe.....	37
5.    Leakage detecting and insulation of refrigerant pipe.....	38
V. Drain Pipe Installation.....	39
1.    Precautions.....	39
2.    Connection of drainage pipe.....	39
3.    Centralized drainage.....	40
4.    Drainage test.....	41
VI. Electric Control Installation.....	42
1.    Power supply wiring specifications and precautions.....	42
2.    Communication line specifications and precautions.....	42
VII. IDU Code Settings.....	44
1.    Code type I.....	42
2.    Code type II.....	42
VIII. Precautions When Using/Maintaining Air Conditioner.....	49
1.    Precautions for air conditioner usage.....	49
2.    Precautions for air conditioner maintenance.....	49
3.    Troubleshooting non-air conditioner faults.....	50

4.	Troubleshooting air conditioner faults .....	50
IX.	After-sales Service of Air Conditioning Unit.....	52
1.	After-sales service .....	52
2.	Repair record .....	52
X.	Names and Content of Hazardous Substances in Products .....	53

# I. Safety Precautions



**Caution:** Read this manual carefully before installation and use of the unit.

**This installation manual is applied to TICA TIMS series inverter VRF air conditioning units. The manual is subject to change based on improvement on air conditioners without further notice.**

## Preparations before installation

- Ask the professional technician who has obtained a qualification certificate for air conditioner installation to install the unit. Users are not allowed to install, repair or relocate the air conditioner independently.
- Ask the professional electrician who has obtained a qualification certificate to connect electric wires, check whether the line capacity is enough, and whether power cords are damaged, etc.
- Install the air conditioning unit following this document. Improper installation may result in water leakage, electric shock or fire.

## Precautions during installation

- Places unsuitable for installation:
  - ◆ The place where flammable gases or volatile combustibles (e.g., gasoline and combustible dust) may leak and lead to a fire.
  - ◆ The place where acid or alkaline substance or corrosive gas (e.g., sulfur dioxide and hydrogen sulfide) may be produced, easily corroding the unit and leading to refrigerant leakage.
  - ◆ The place where dust, steam, lampblack or special spraying agent is diffused, e.g., a kitchen.
- The product should be installed in a place with the same indoor living environment and the dew point temperature difference of the air around the product within 10 °C. For cold storage rooms or other places with sharp temperature changes, even if it meets the above temperature range, its use is prohibited.  
If the temperature and humidity in the ceiling interlayer may exceed 30°C and RH80%, please add heat insulation materials to the unit (please use glass wool or foamed polyethylene as the heat insulation material, with a thickness requirement of more than 10mm and capable of being accommodated within the ceiling opening).
- Set a dedicated circuit that complies with the "Electrical equipment engineering standards" and "Indoor electrical wiring specifications".
- The unit must be properly grounded. The grounding wire must be reliably connected to the earth. Do not connect the grounding wire to the water pipe, gas pipe, and telephone line.
- Use the power cords with enough current capacity and rated power. Do not make the power cords too tight.
- All the IDUs and ODUs of the same system must be supplied with power simultaneously.
- Securely fix the power cords so that external force is not imposed on the terminal board. If the power cords are not securely connected or fixed, heat is generated, which will cause electric shock or fire.
- Electric parts of the unit shall be moisture-proof and far away from the water source. Do not install the wired controller at the places where the flammable gas, sulfide gas, or engine oil is accessible.
- Install the drainage pipe according to this manual. Ensure that water will drain smoothly. Take thermal insulation measures well. Prevent generation of condensing water.
- When the unit is installed in a small room, take necessary measures to prevent refrigerant concentration from exceeding the limit in case refrigerant leaks.

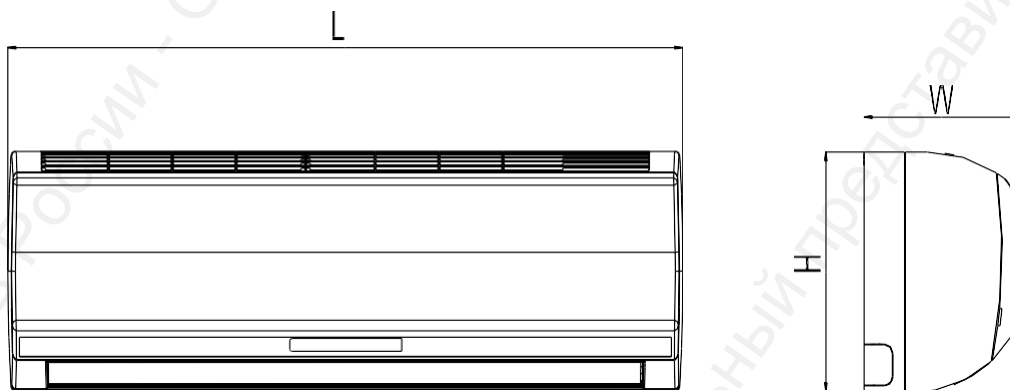
- During installation, if refrigerant leaks, ventilate the room because toxic gas may be generated when refrigerant encounters fire.
- After installation, make an air tightness test to check for leak.
- For air conditioning units adopting the R410A refrigerant, use the tools and accessories dedicated to R410A.

## **Precautions at trial operation**

- Do not operate the wired controller or remote controller with wet hand, or splash water into the wired controller or remote controller.
- Do not pull or bend wired controller and centralized wired controller cables forcibly, and do not press the button with sharp objects to avoid abnormal connection.
- During the operation of the unit, do not put fingers, sticks, etc., into the air inlet or outlet.
- Do not touch refrigerant pipeline during operation or just at the end of operation, as it can lead to scald or frostbite.
- Do not turn off power immediately after the unit stops. Wait at least five minutes; otherwise, water leakage may occur.

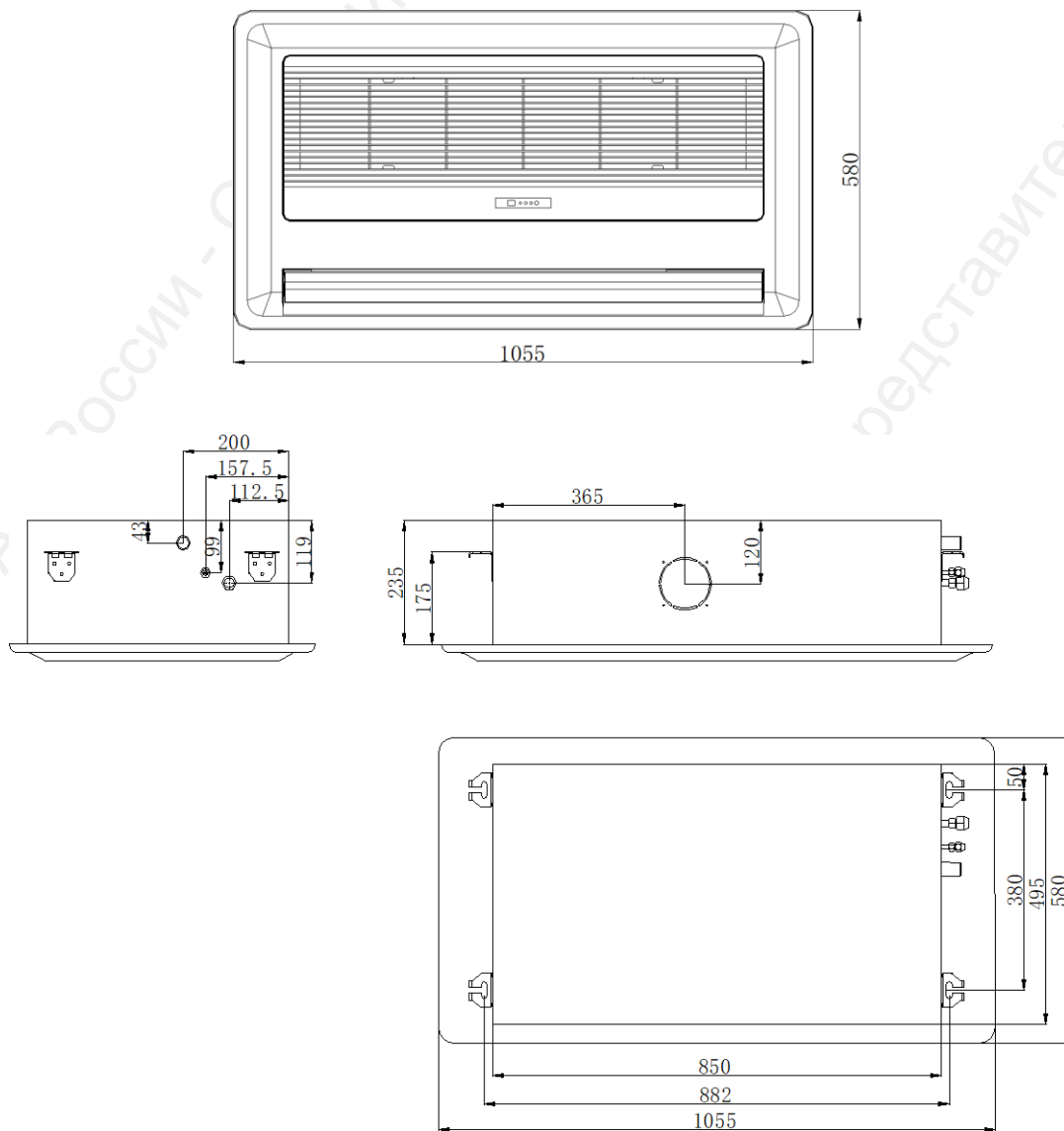
## II. IDU Dimensions

### 1. TMVW wall-mounted unit - dimensional drawing



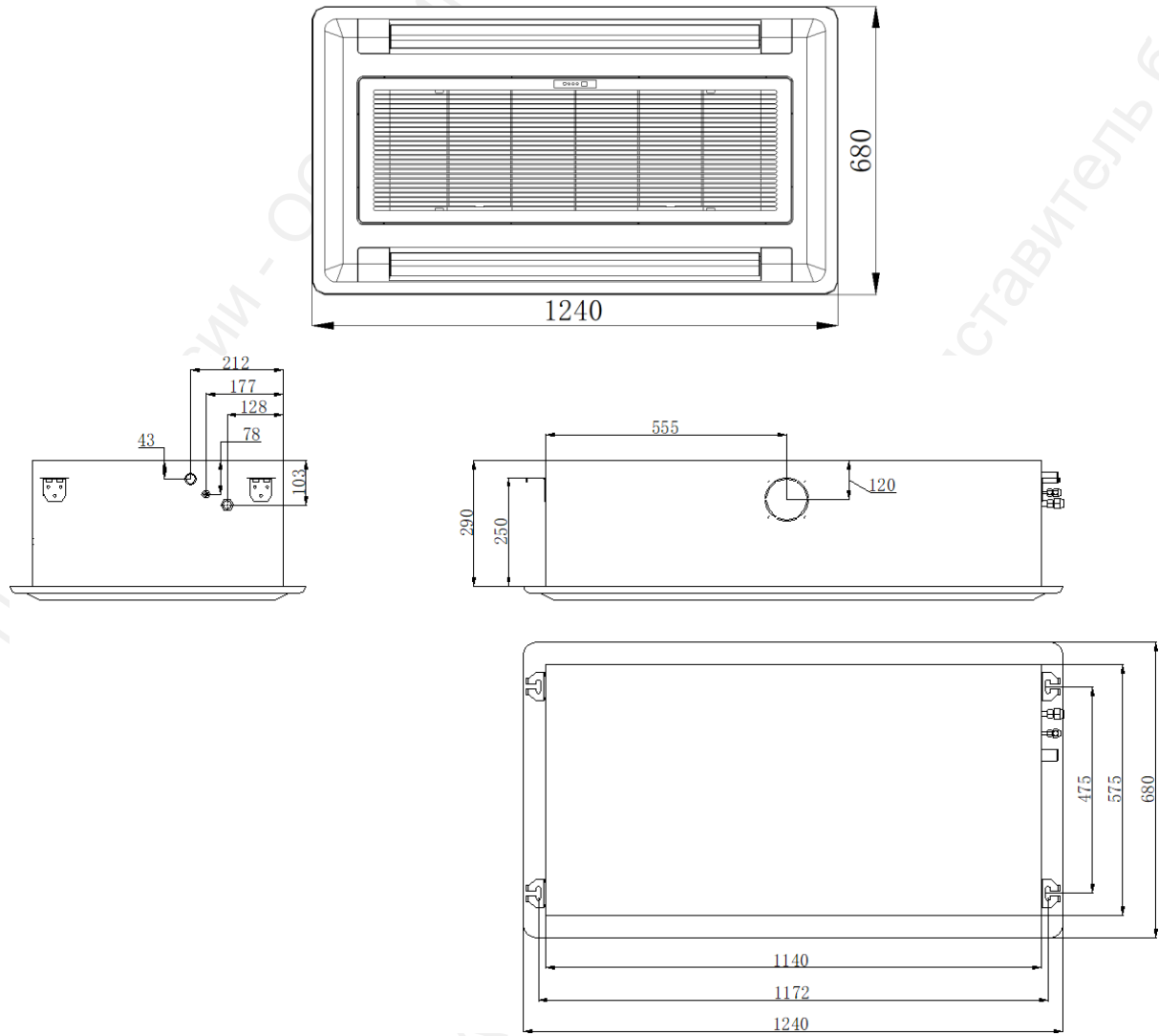
Model	L (mm)	W (mm)	H (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMVW022ADB	915	315	236	Φ18	Φ6.35	Φ12.7
TMVW028ADB						
TMVW036ADB						
TMVW045ADB						
TMVW050ADB						
TMVW056ADB	1085	315	236		Φ9.52	Φ15.88
TMVW063ADB						
TMVW071ADB						
TMVW080ADB						

## 2. TMCS one-way cassette IDU – dimensional drawing



Model	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMCS028AB	Φ26	Φ6.35	Φ9.52
TMCS036AB			Φ12.7
TMCS045AB			
TMCS050AB			
TMCS056AB			

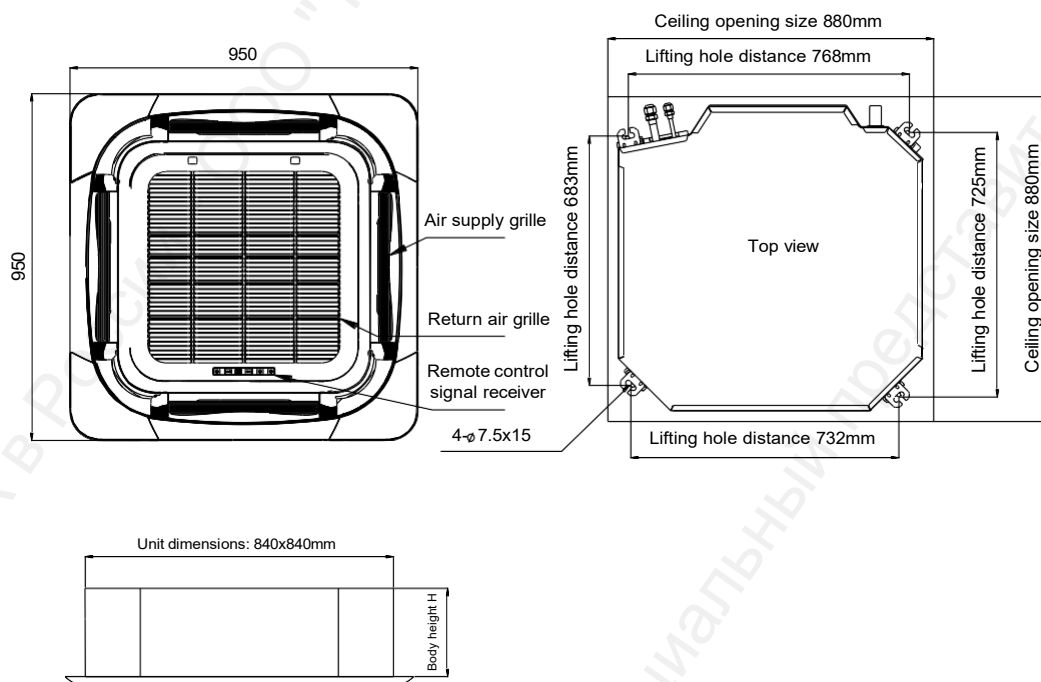
### 3. TMCD two-way cassette IDU – dimensional drawing



Model	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMCD028AB	Φ26	Φ6.35	Φ12.7
TMCD036AB			
TMCD045AB			
TMCD050AB			
TMCD056AB			

## 4. TMCF four-way cassette IDU - dimensional drawing

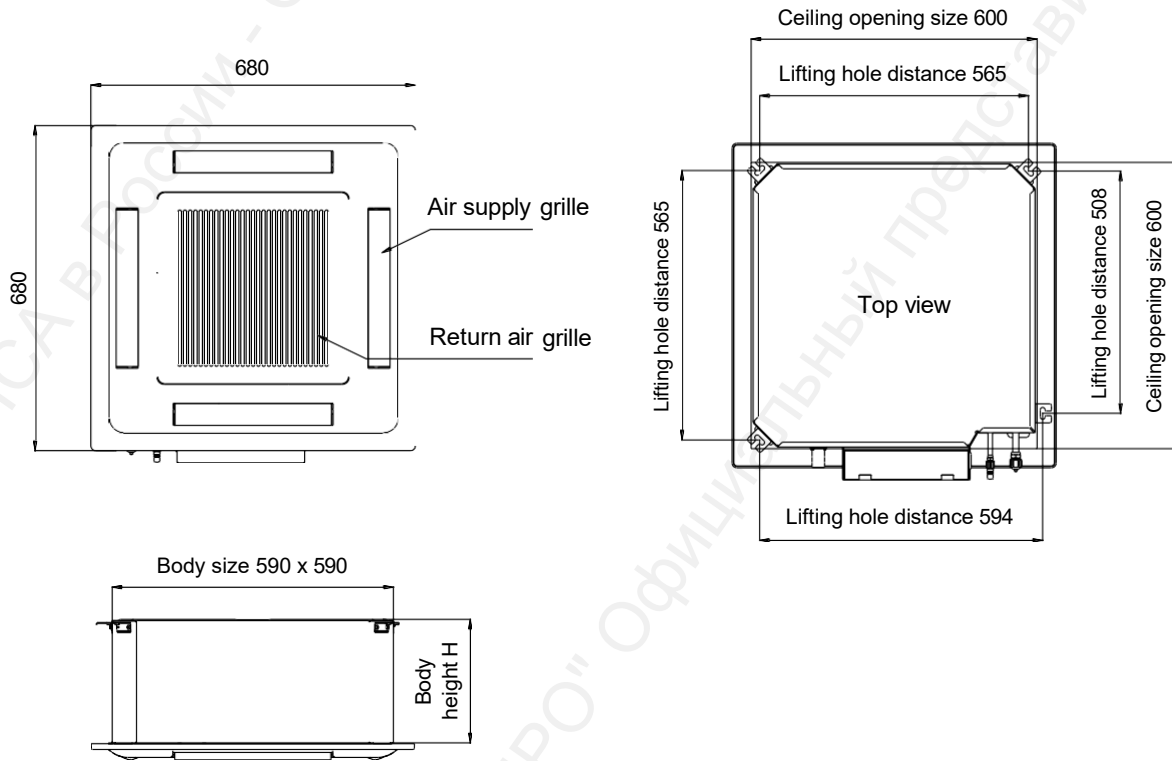
### B series



Note: The "Top view" in the figure is the actual top view of the unit. For the actual ceiling drilling, perform operations by referring to the "Bottom view" for the drilling installation cardboard in the unit accessories.

Model	Body height H (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMCF028AB/ABB	230	$\phi 32$ [Note]: The condensate drain pipe outer diameter of TMCF unit body is $\phi 32$ , the unit accessories contain one $\phi 32$ -to- $\phi 25$ drainage hose, and the drainage pipe of outer diameter $\phi 25$ needs to be configured for the project.	$\phi 6.35$	$\phi 12.7$
TMCF036AB/ABB				
TMCF045AB/ABB				
TMCF050AB/ABB				
TMCF056AB/ABB				
TMCF063AB/ABB				
TMCF071AB/ABB				
TMCF080AB/ABB				
TMCF090AB/ABB	300		$\phi 9.52$	$\phi 15.88$
TMCF100AB/ABB				
TMCF112AB/ABB				
TMCF125AB/ABB				
TMCF140AB/ABB				
TMCF160AB/ABB				

## C series

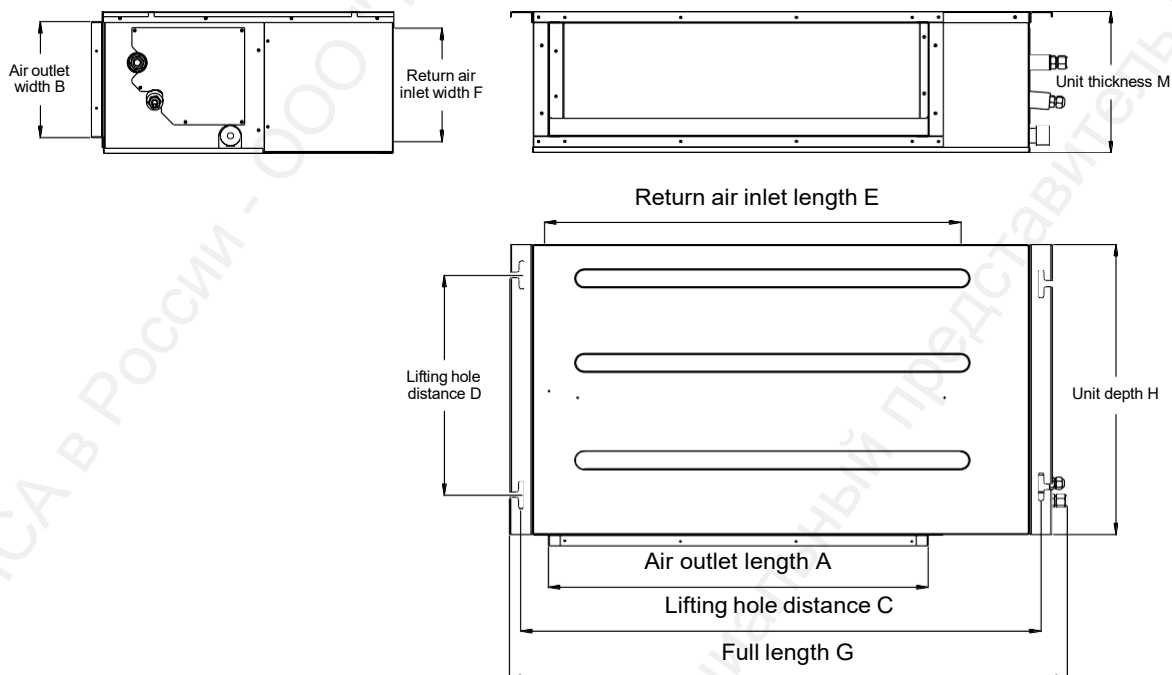


Note: The "Top view" in the figure is the actual top view of the unit. For the actual ceiling drilling, perform operations by referring to the "Bottom view" for the drilling installation cardboard in the unit accessories.

Model	Body height H (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMCF015AC	260	φ25	Φ6.35	Φ12.7
TMCF022AC				
TMCF028AC				
TMCF036AC				
TMCF045AC				
TMCF050AC				

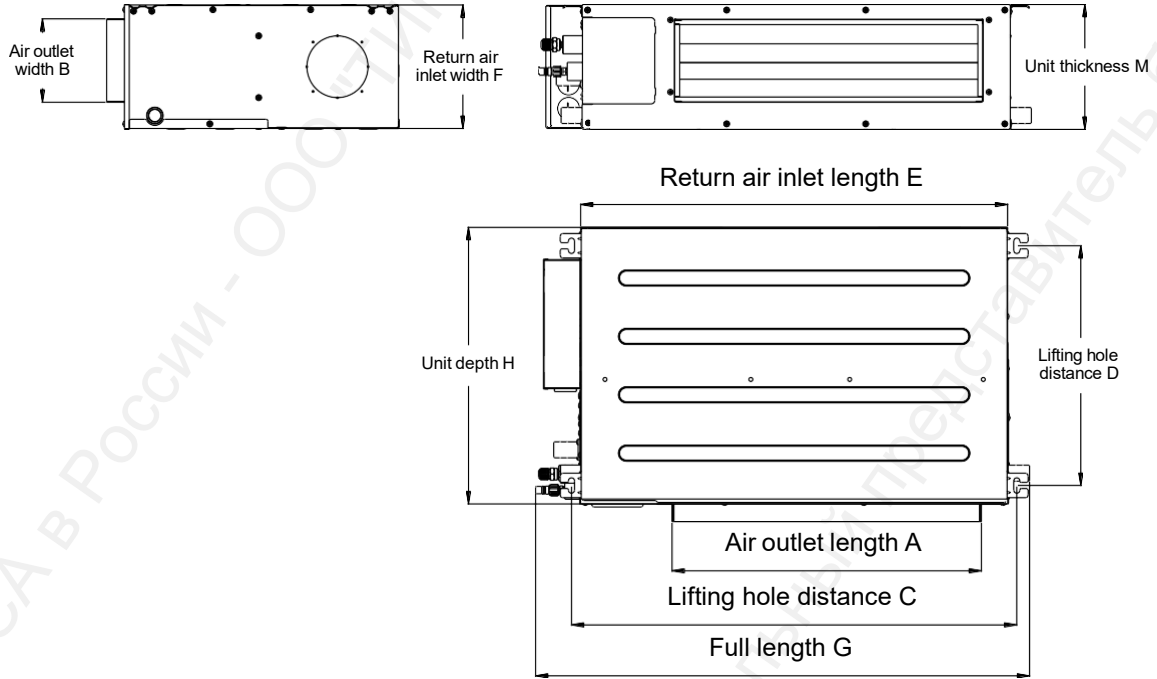
## 5. TMDN standard duct IDU - dimensional drawing

### B series



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)		
TMDN022AB	673	200	920	290	738	199	988	515	250	$\phi 32$ [Note]: The condensate drain pipe outer diameter of TMDN-AB unit body is $\phi 32$ , the unit accessories contain one $\phi 32$ -to- $\phi 25$ drainage hose, and the drainage pipe of outer diameter $\phi 25$ needs to be configured for the project.	$\Phi 6.35$	$\Phi 12.7$		
TMDN025AB														
TMDN028AB														
TMDN032AB														
TMDN036AB														
TMDN040AB														
TMDN045AB	843	200	1090	290	908	199	1158	515	250		$\phi 32$ [Note]: The condensate drain pipe outer diameter of TMDN-AB unit body is $\phi 32$ , the unit accessories contain one $\phi 32$ -to- $\phi 25$ drainage hose, and the drainage pipe of outer diameter $\phi 25$ needs to be configured for the project.	$\Phi 6.35$	$\Phi 12.7$	
TMDN050AB														
TMDN056AB														
TMDN063AB														
TMDN071AB	1143	200	1390	290	1208	199	1458	515	250	$\phi 32$ [Note]: The condensate drain pipe outer diameter of TMDN-AB unit body is $\phi 32$ , the unit accessories contain one $\phi 32$ -to- $\phi 25$ drainage hose, and the drainage pipe of outer diameter $\phi 25$ needs to be configured for the project.		$\Phi 6.35$	$\Phi 12.7$	
TMDN080AB														
TMDN090AB														
TMDN100AB	1143	242	1390	329	1208	241	1458	557	292			$\phi 32$ [Note]: The condensate drain pipe outer diameter of TMDN-AB unit body is $\phi 32$ , the unit accessories contain one $\phi 32$ -to- $\phi 25$ drainage hose, and the drainage pipe of outer diameter $\phi 25$ needs to be configured for the project.	$\Phi 9.52$	$\Phi 15.88$
TMDN112AB														
TMDN125AB														
TMDN140AB														

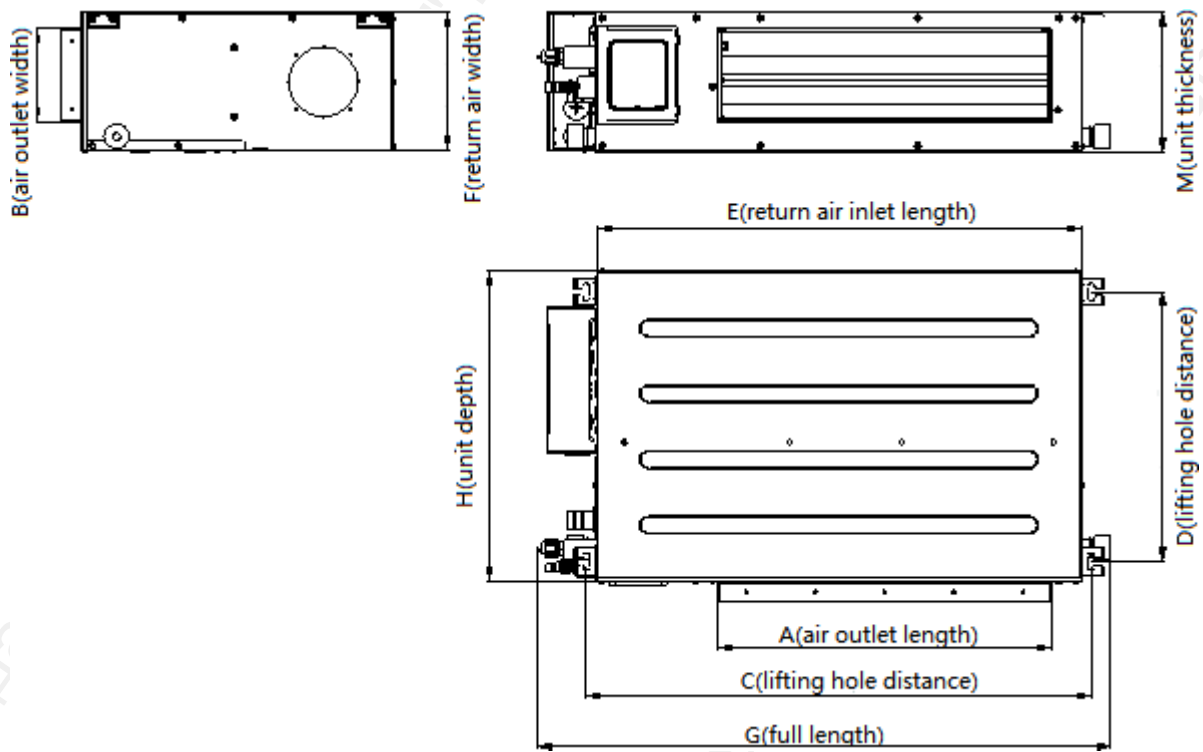
## C series



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDN022AC/ACB	510	135	730	390	700	200	810	450	200	φ25	φ6.35	φ9.52
TMDN025AC/ACB												φ12.7
TMDN028AC/ACB												
TMDN032AC/ACB												
TMDN036AC/ACB												
TMDN040AC	730	135	950	390	920	200	1030	450	200	φ25	φ6.35	φ12.7
TMDN040ACB												
TMDN045AC/ACB												
TMDN050AC/ACB												
TMDN056AC/ACB												
TMDN063AC/ACB	950	135	1170	390	1140	200	1250	450	200	φ25	φ6.35	φ15.88
TMDN071AC/ACB												

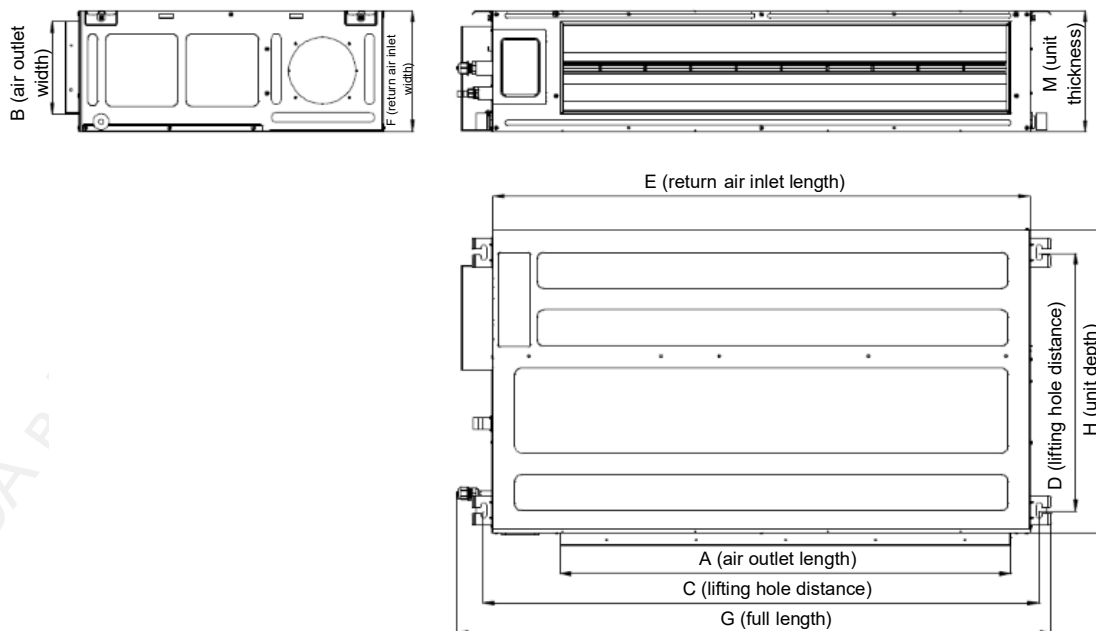
## E series

TMDN022~063AEB



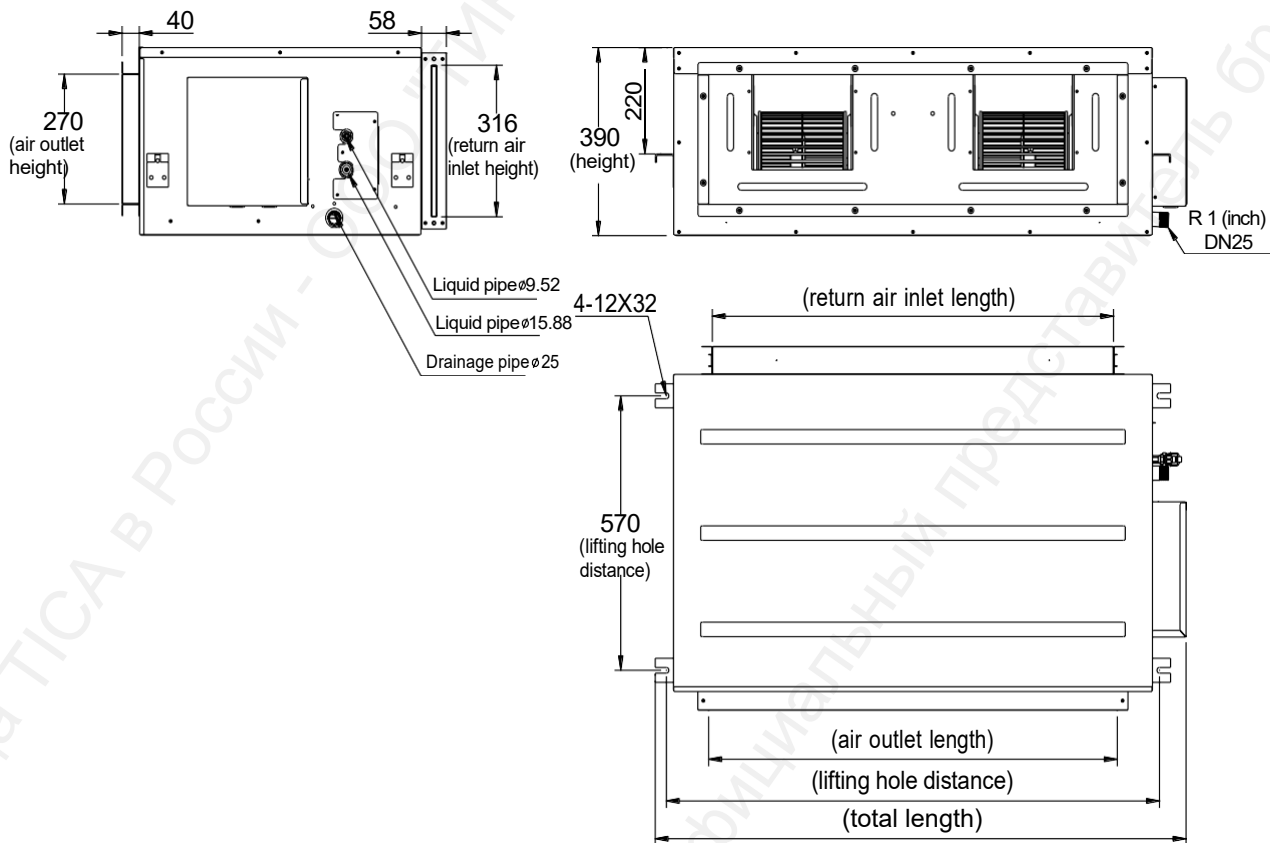
Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDN022AEB	730	135	950	390	920	200	1030	450	200	Φ 25	Φ 6.35	Φ 12.7
TMDN025AEB												
TMDN028AEB												
TMDN032AEB												
TMDN036AEB												
TMDN040AEB	950	1170	1140	1250								
TMDN045AEB												
TMDN050AEB												
TMDN056AEB												
TMDN063AEB												

# TMDN071~160AE

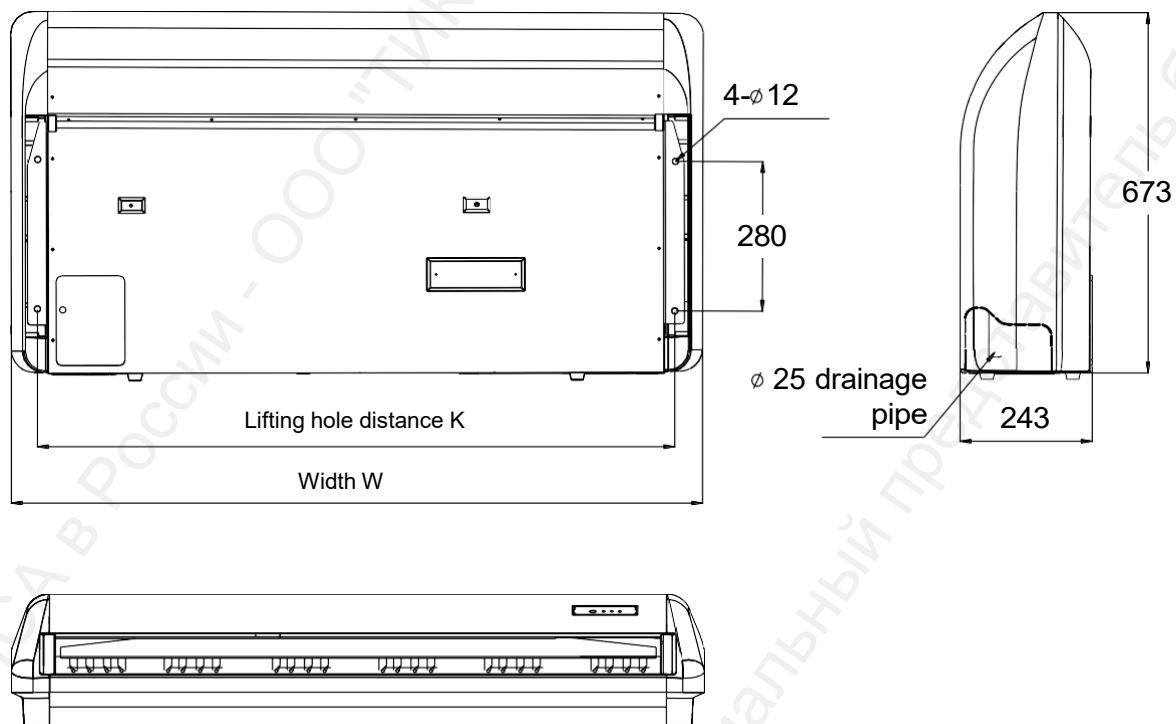


Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDN071AE	1007	209	1240	580	1200	270	1328	680	270	φ25	Φ9.52	Φ15.88
TMDN080AE												
TMDN090AE												
TMDN100AE												
TMDN112AE												
TMDN125AE												
TMDN140AE												
TMDN160AE												

## 6. TMDH high static pressure duct IDU - dimensional drawing



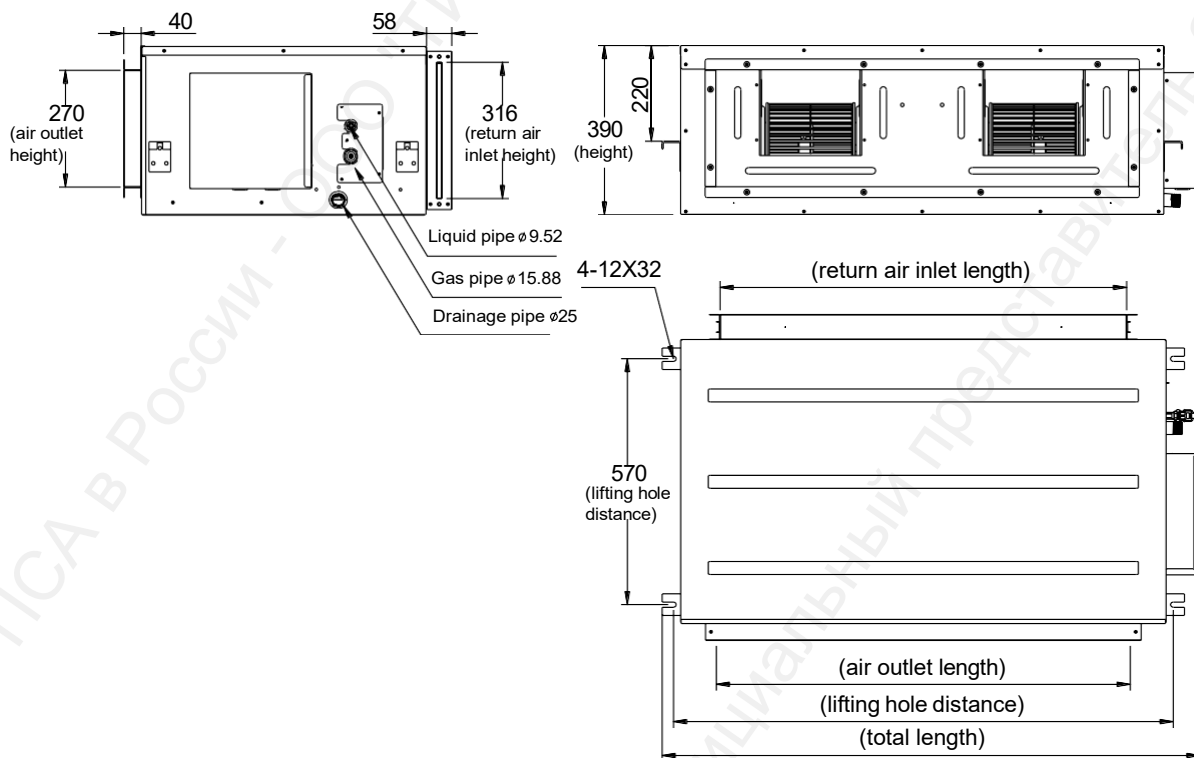
## 7. TMVX ceiling exposed IDU - dimensional drawing



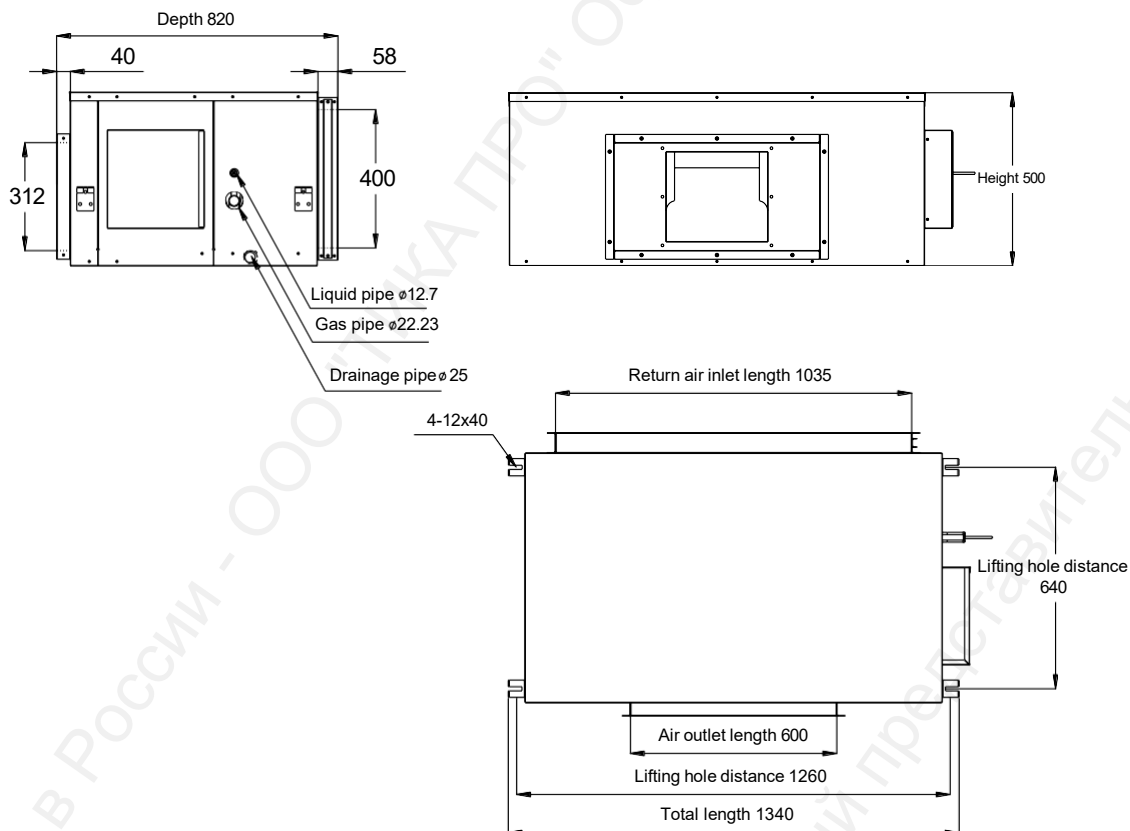
Model	W (mm)	K (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)	
TMVX028A	905	800	$\phi$ 25	$\phi$ 6.35	$\phi$ 12.7	
TMVX036A						
TMVX056A						
TMVX071A	1288	1185		$\phi$ 9.52	$\phi$ 15.88	
TMVX090A						
TMVX112A	1672	1568				$\phi$ 9.52
TMVX125A						
TMVX140A						

## 8. TMDF fresh air processing unit – dimensional drawing

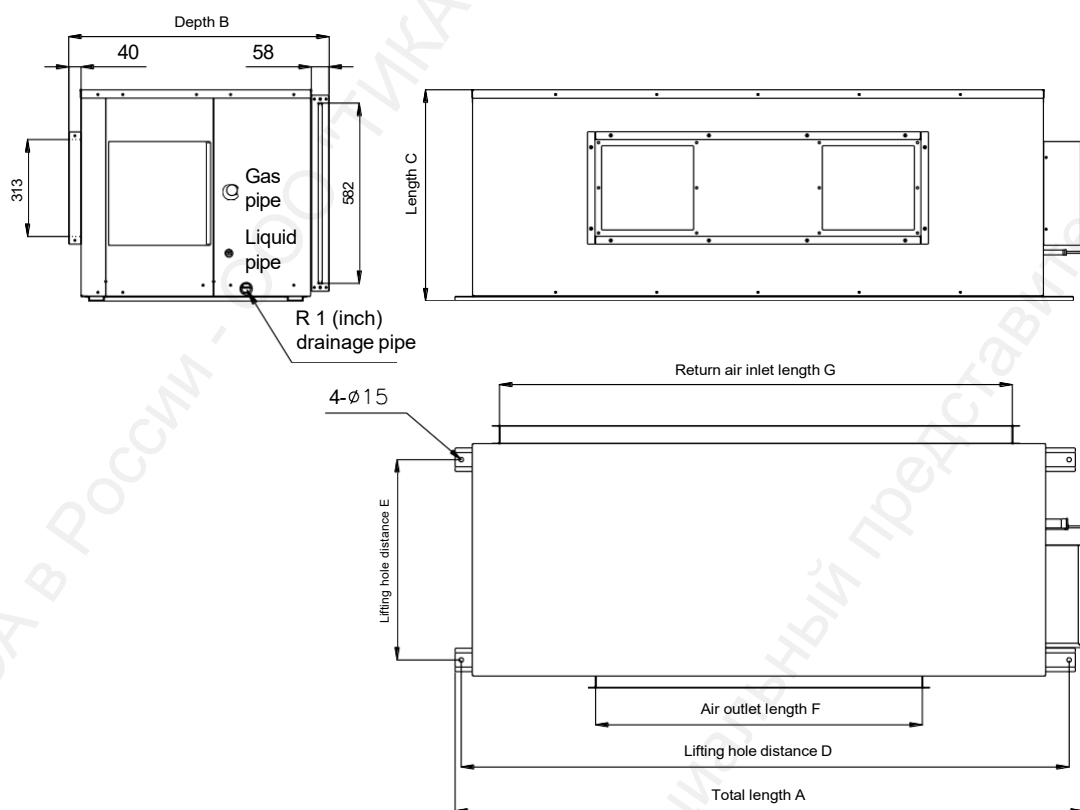
### TMDF120, TMDF140



### TMDF175, TMDF210, TMDF250, TMDF300, TMDF350



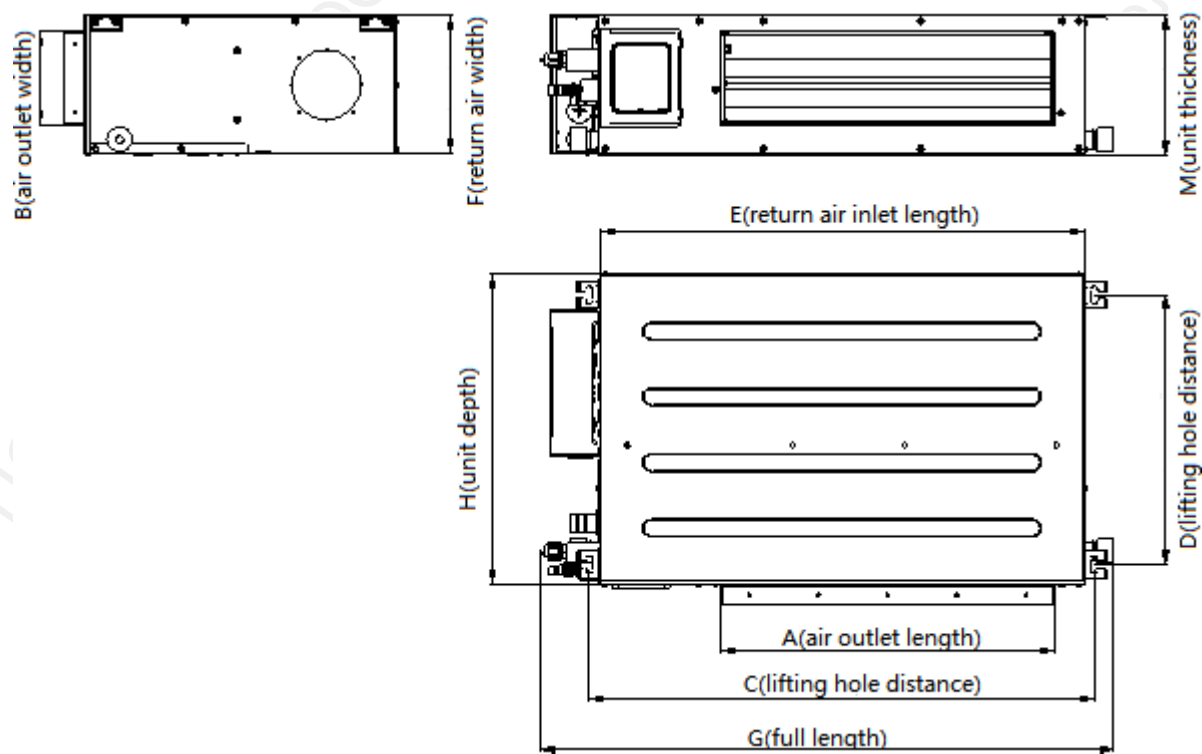
### TMDF400, TMDF500, TMDF600



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDF400	1690	848	680	1625	648	940	1315	Φ25	Φ12.70	Φ28.58
TMDF500	2043			1976					1062	
TMDF600										

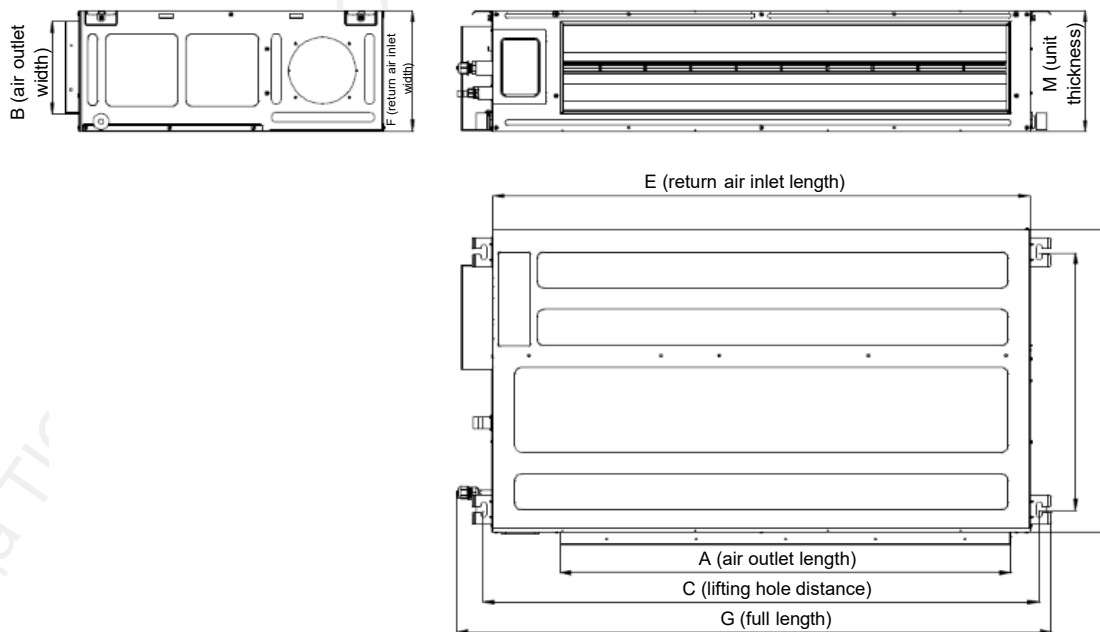
## 9、TMDP duct IDU – dimensional drawing

TMDP022~063AEBNNN



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDP022AEBNNN	730	135	950	390	920	200	1030	450	200	Φ25	Φ6.35	Φ12.7
TMDP025AEBNNN												
TMDP028AEBNNN												
TMDP032AEBNNN												
TMDP036AEBNNN												
TMDP040AEBNNN	950	135	1170	390	1140	200	1250	450	200	Φ25	Φ6.35	Φ12.7
TMDP045AEBNNN												
TMDP050AEBNNN												
TMDP056AEBNNN												
TMDP063AEBNNN												

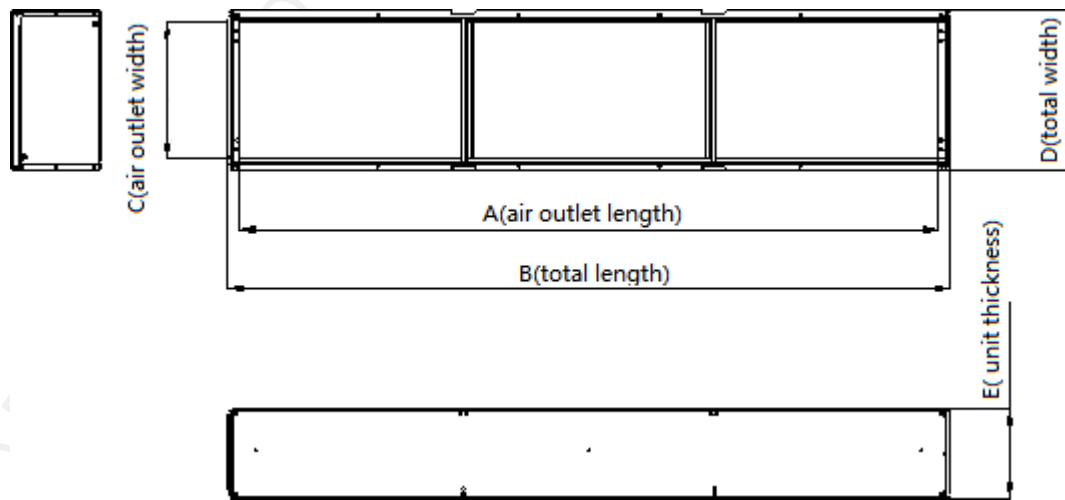
# TMDP071~160AEBNNN



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	M (mm)	Condensate drain pipe outer diameter (mm)	Liquid pipe (mm)	Gas pipe (mm)
TMDN071AE	1007	209	1240	580	1200	270	1328	680	270	Φ 25	Φ 9.52	Φ 15.88
TMDN080AE												
TMDN090AE												
TMDN100AE												
TMDN112AE												
TMDN125AE												
TMDN140AE												
TMDN160AE												

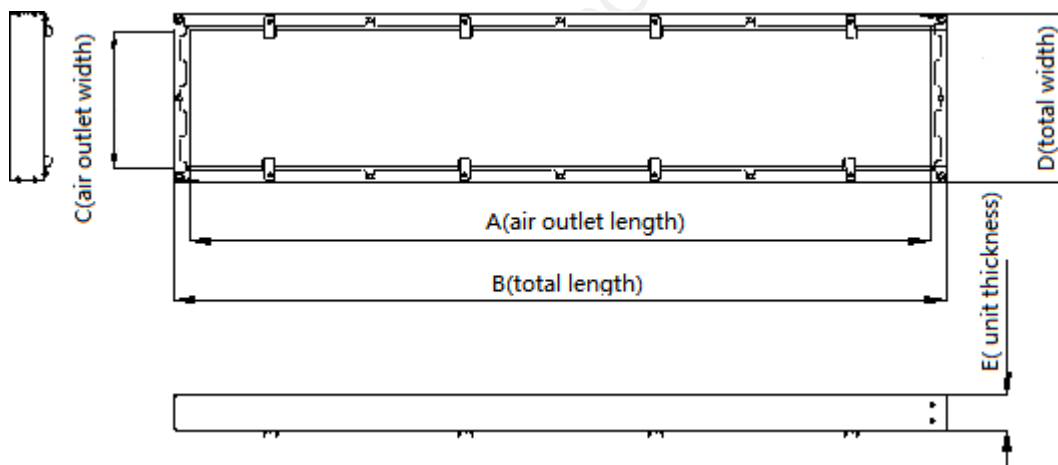
## 10、TP filter module – dimensional drawing

Filter module (TP04BC/ TP06BC)



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
TP04BC	1176	1200	230	270	150
TP06BC					

Filter module (TP04AA/ TP06AA/TP04AB/TP06AB)



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
TP04AA	880	920	160	200	42
TP06AA					
TP04AB	1100	1140	160	200	42
TP06AB					

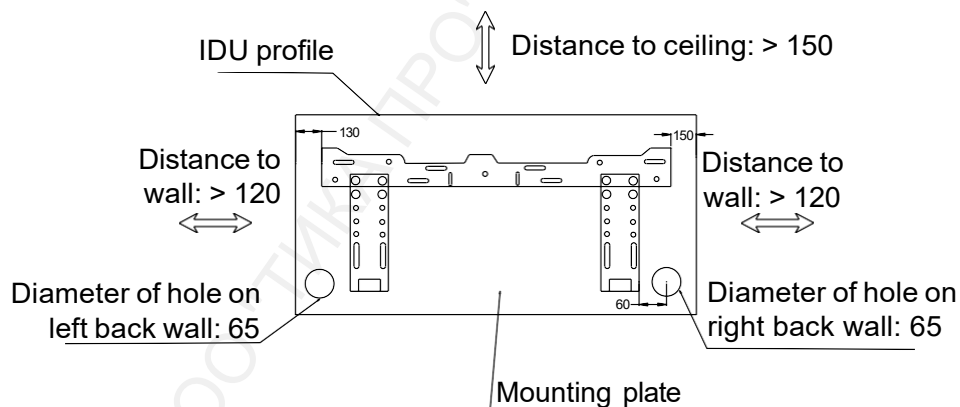
### III. IDU Installation

#### Precautions

- Carefully hold the lifting point or other force bearing parts when taking the IDU out from the package. Do not apply force to the gas pipe, liquid pipe or drainage pipe.
- Install the IDU in a position where the air duct is shorter and the workload is less to facilitate wiring and pipe connection.
- Ensure that the installation position is strong enough to bear the IDU weight. Otherwise, it may cause personal injury and machine damage.
- Ensure that the lifting screw has enough strength to bear the unit weight. Use at least 4 lifting screws to suspend the IDU.
- Ensure good ventilation and airflow to every corner of the room.
- To ensure proper airflow, there should not be any obstructions at the air inlet and outlet.
- Reserve sufficient space for maintenance and repair. The manhole should be placed at the electric control box side for convenience.
- Keep the IDU away from lighting facilities that use ballasts, because the ballasts will trigger reception failure of remote controller.
- Avoid direct sunlight.
- The indoor unit shall not be installed in the area not used by air conditioning (that is, shall not be installed outdoors), otherwise there will be leakage or electric shock accidents.

#### 1. Installation of TMVW wall-mounted unit

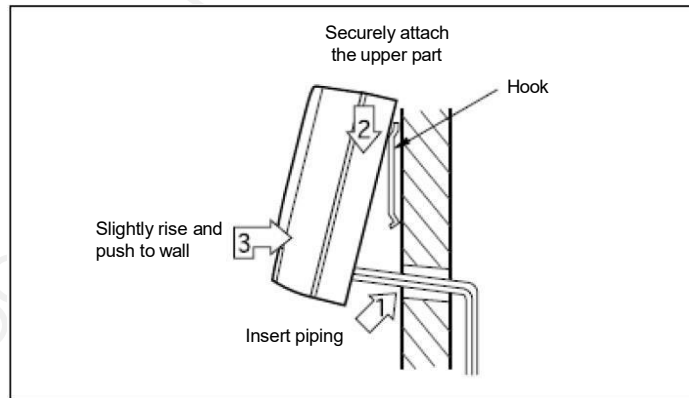
##### 1) Installation position



Install the unit according to parameters listed in the above figure. The unit performance may be somewhat affected if the actual installation is not in full compliance with the requirements.

##### 2) Unit installation

- Measure and mark the position for hanging the IDU.
- Remove the under plate on the rear side of the IDU. As indicated by the mark made in step one, use 4 to 6 masonry nails (or steel nails, expansion bolts) to fix the under plate onto the wall.
- Drill a  $\phi 65$ mm hole on the wall. Install the unit pipe through the hole.
- Hang the IDU on the upper hook of the mounting plate. Slightly push the unit leftward and rightward to verify that the unit is securely placed.
- Slightly raise the bottom of the unit, push the unit towards the wall and pull it downward at the same time. Then, try to move the unit in all directions to check if it is securely fixed, as shown in the following figure.



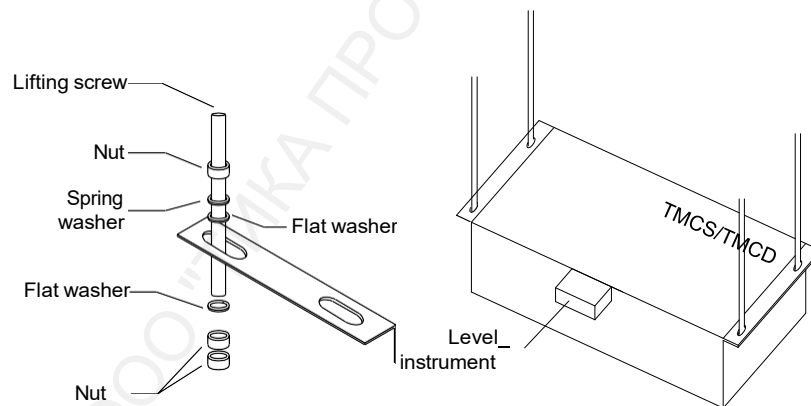
- Use a level instrument to check if the unit is placed horizontally.
- Connect the refrigerant pipe and drainage pipe.

### 3) Precautions

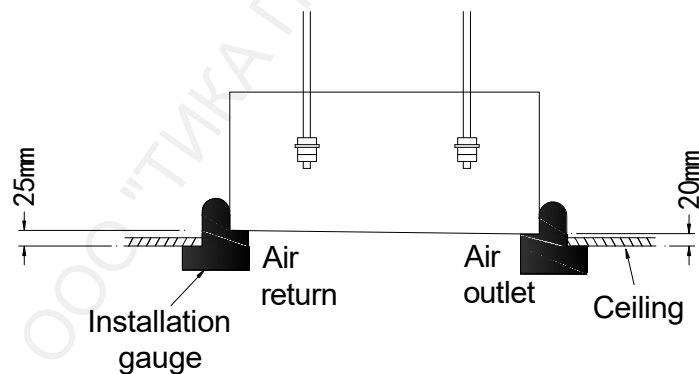
- The filter screen shall be easily removed and cleaned.
- Ensure that sufficient space for maintenance is reserved around the unit.
- If the pipe outlet is at the left or rear left of the unit, place a support between the rear right of the IDU and the wall. After piping connection is finished, remove the support.
- Do not place any electrical apparatus, power strip or other object under the unit. Otherwise, drip caused by poor drainage of the unit may contaminate the furniture.
- Decide the location of drainage pipe on site. Be aware of the unit's degree of inclination.

## 2. Installation of TMCS one-way/TMCD two-way cassette IDU - dimensional drawing

### 1) Unit lifting



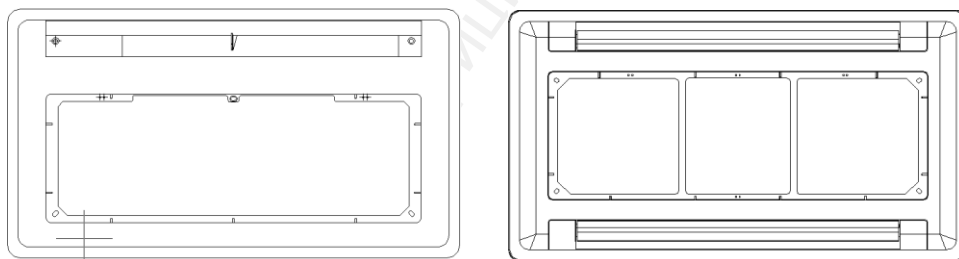
- Measure and mark the place where the unit is located. Drill holes on the ceiling. Install the booms and make sure that the booms are securely fixed.
- Use nuts, flat washers and spring washers to install the IDU onto the booms.
- Use a level instrument to check if the unit is placed horizontally.
- Use an installation gauge to adjust the height of the IDU. The air inlet side should be about 5mm higher than the air outlet side (air inlet: 25mm; air outlet: 20mm). The installation gauge must align to the opening on the ceiling during measuring.
- After the IDU is confirmed to be horizontal, fasten the nuts on the booms to prevent the IDU from falling or vibration.



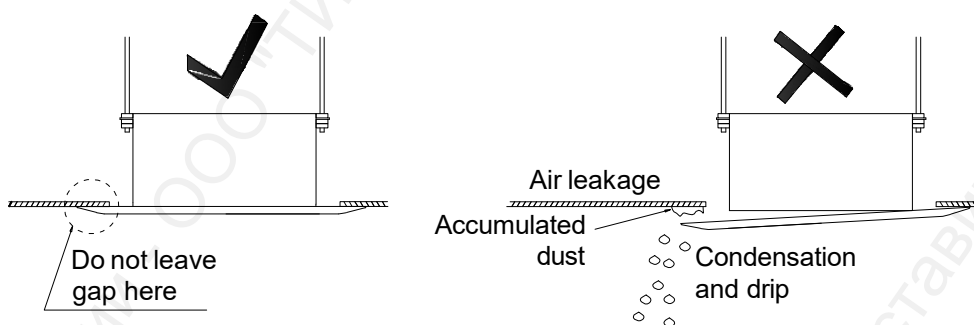
## 2) Panel installation

(1) Remove the return air grille from the panel. Fix the panel onto the unit body.

- Align the screw holes of the panel with the corresponding threaded positions on the indoor unit, cover the panel, and screw any two diagonal screws M5×10 into the main unit (screw in but do not tighten);
- Plug the stepping motor lead on the panel, the display connection board wire and the corresponding wire led out from the electrical box properly, and tidy up the plugged leads;
- Screw the other 3 screws M5×10 through the holes on the panel into the indoor main unit;
- Adjust the position and direction of the panel to make the air outlet frame of the panel match the air duct of the water receiving tray of the indoor unit, tighten the screws to make the panel closely fit the indoor unit;
- Install the air inlet grille back in the reverse steps of removing the panel installation cover and the air inlet grille.

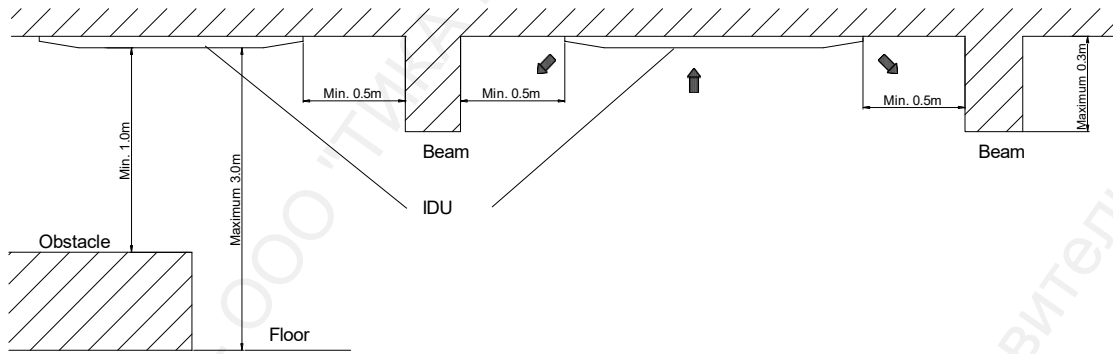


- Check if the panel is correctly connected to the IDU. If there is a gap between the panel and the ceiling, adjust the height of the IDU body. Incorrect installation of panel on the IDU will lead to air leakage, condensation, drip and other problems.



## 3. Installation of TMC4 four-way cassette IDU

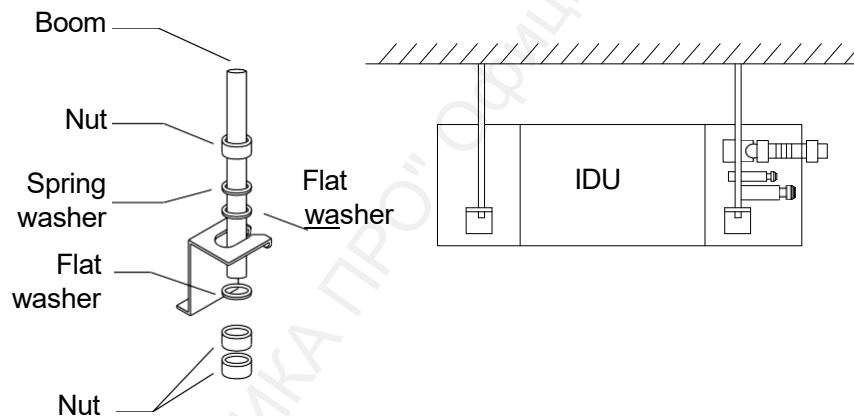
1) Installation position



Install the unit according to parameters listed in the above figure. The unit performance may be somewhat affected if the actual installation is not in full compliance with the requirements.

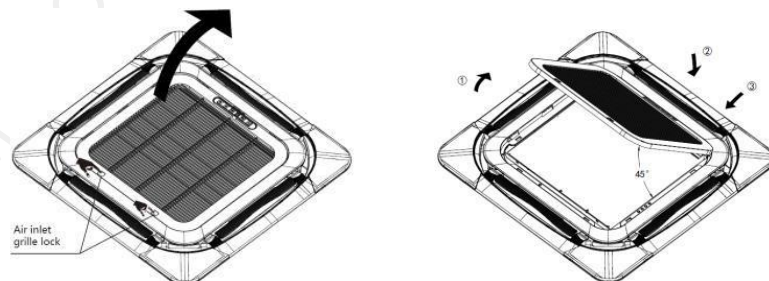
## 2) Unit lifting

- Measure and mark the place where the unit is located. Drill holes on the ceiling. Install the booms (M8 or M10) and make sure that the booms are securely fixed.
- Determine the distance between booms, as indicated in the following figure.
- Use nuts, flat washers and spring washers to install the IDU onto the booms.
- Check to make sure that the installed unit is placed horizontally. Tighten the nut on the boom to prevent the IDU from falling and vibrating.
- Check and ensure that the unit body is at the center of the ceiling opening.

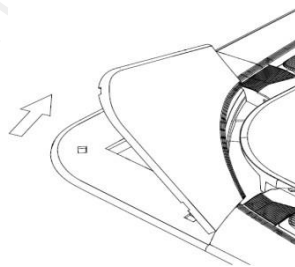


## 3) B series Panel installation

- (1) Remove the air inlet grille: Hold and push inward the air inlet grille lock, and open the grille in the direction of the arrow ①. Then, remove the grille from the panel in the sequence as indicated by the arrows ② and ③.

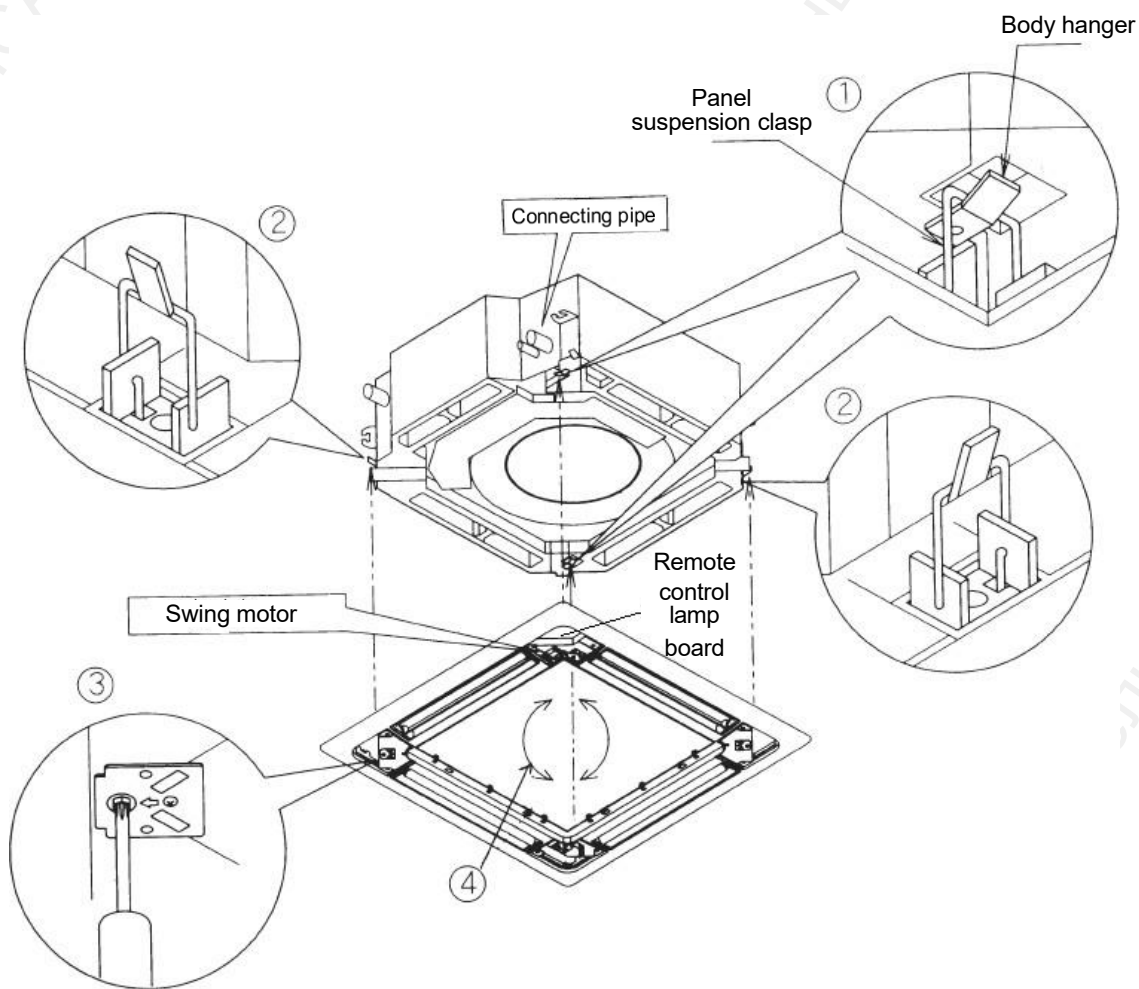


- (2) Remove the covers at the four corners of the panel.

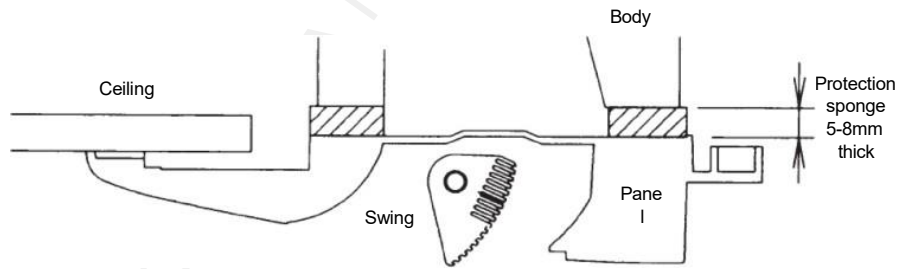


(3) Install the panel:

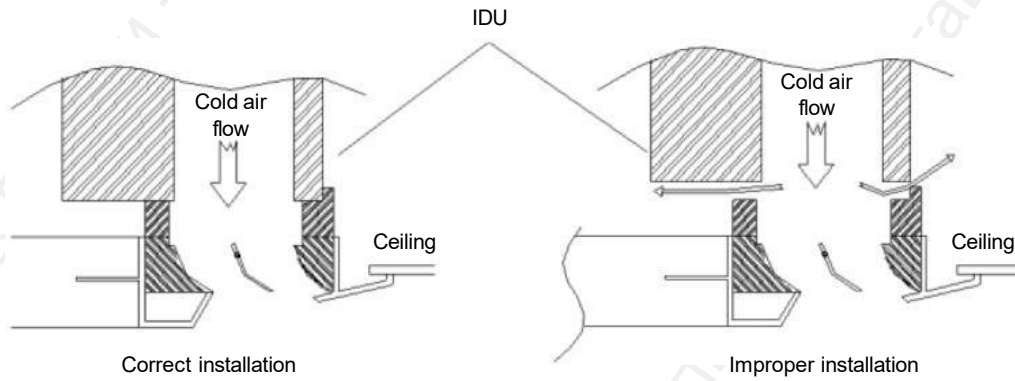
- Align the directions of the fan motor on the panel and the unit body pipe. Attach the shackles (2 in total) on the fan motor side and the diagonal side to the hooks on the unit body, as shown in Figure ①.
- Attach the two shackles on the sides adjacent to the fan motor side to the hooks on the unit body, as shown in Figure ②.
- Since the covers at the four corners are removed, the hex screws inside are visible. Screw these four hex screws. The panel rises, as shown in Figure ③.
- Slightly adjust the panel in the arrow direction as shown in Figure ④, to ensure that the panel properly fits the opening on the ceiling.



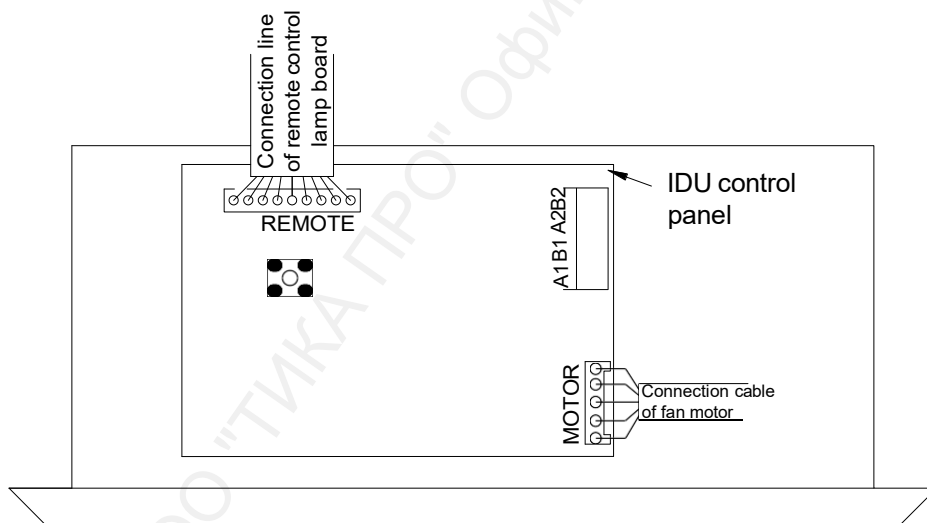
- Tighten the four hex screws to keep a 5 to 8mm thick insulation between the panel and the unit body.



Note: Hex screws must be fastened. Otherwise, cold air flow leakage, water condensation, water leakage or even electric control box short circuit may occur.

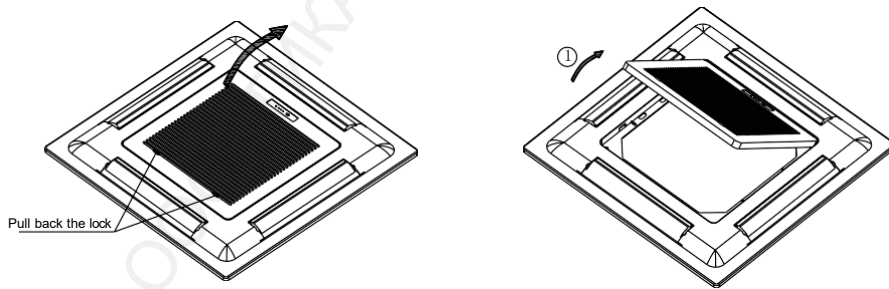


- (4) Connect the connection cable of remote control light board and that of fan motor to the IDU control panel, as shown in the following figure.



#### 4) C series Panel installation

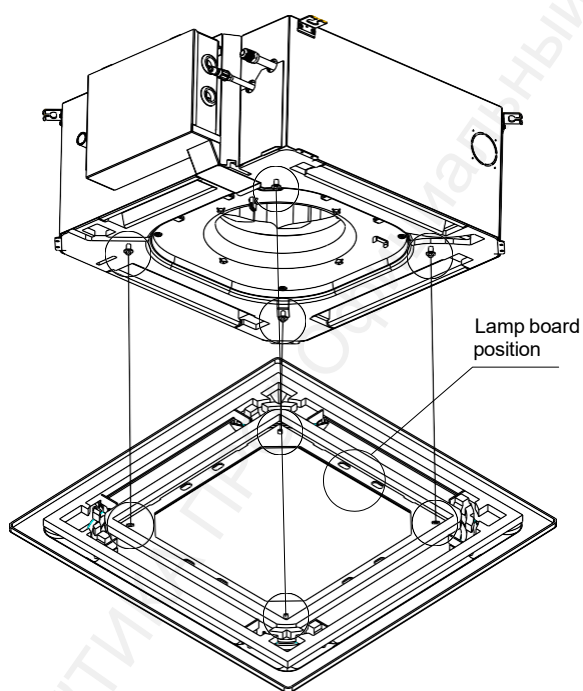
- (1) Open the air inlet grille: pull the lock of the air inlet grille backward and open the grille in the direction of the arrow ①;



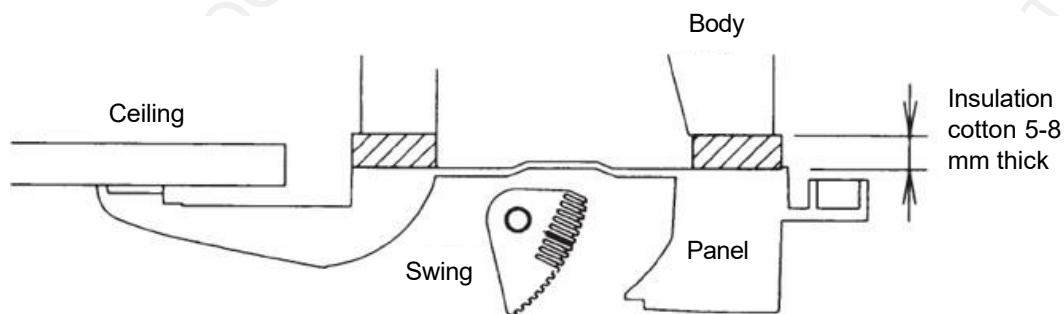
(2) Install the Panel:

Adjust the panel light board and the fuselage tube to the opposite direction, and install the panel on the drain tray as shown in the figure with the four bolts included in the panel package;

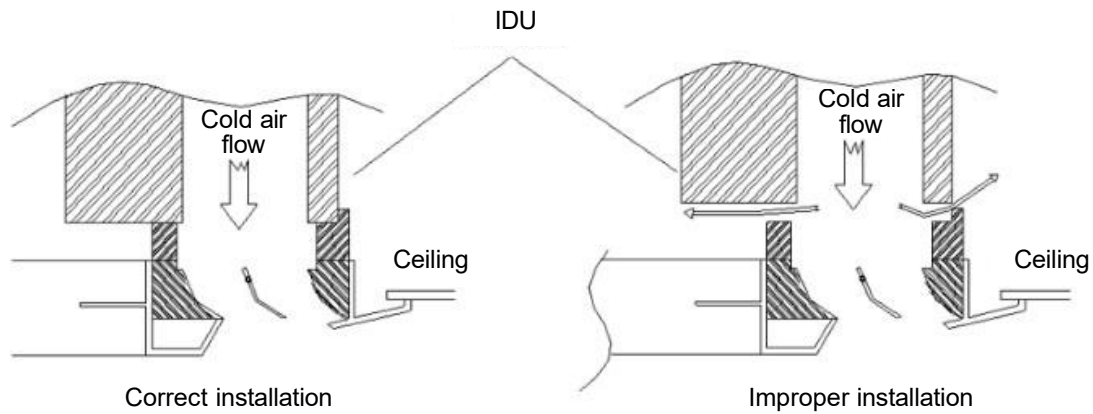
Note: Be sure to make the wiring, and the cable should not be stuck between the body and the panel, otherwise it may cause air leakage and cause condensation and water droplets;



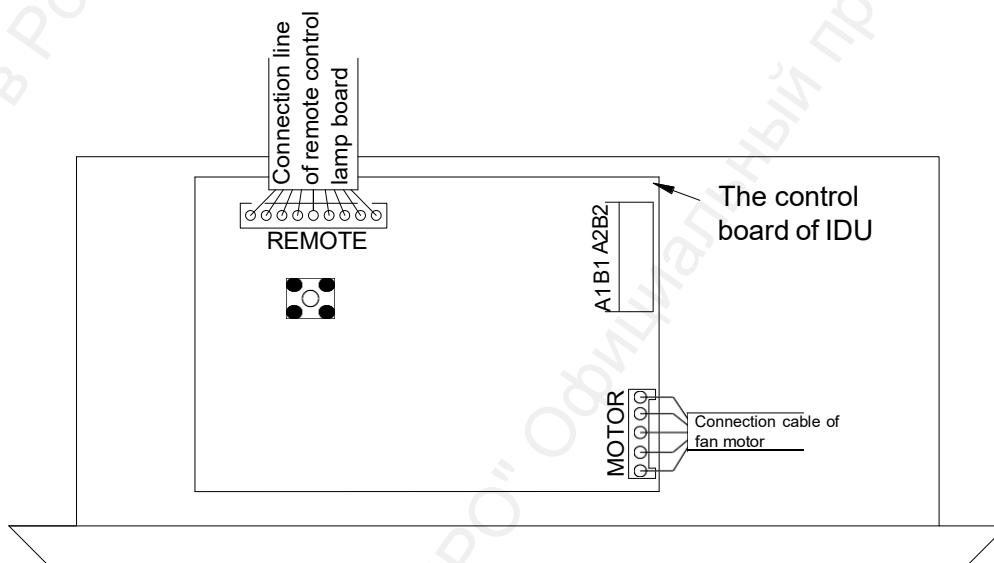
- Tighten the four hex head screws respectively to make the panel firmly fixed on the fuselage, and the thickness of the insulation cotton between the rear panel and the fuselage should be 5-8mm;



- Note: Be sure to tighten the hexagon head screws to avoid air-conditioning leakage, water condensation, water leakage, and even short circuit of the electric control box.



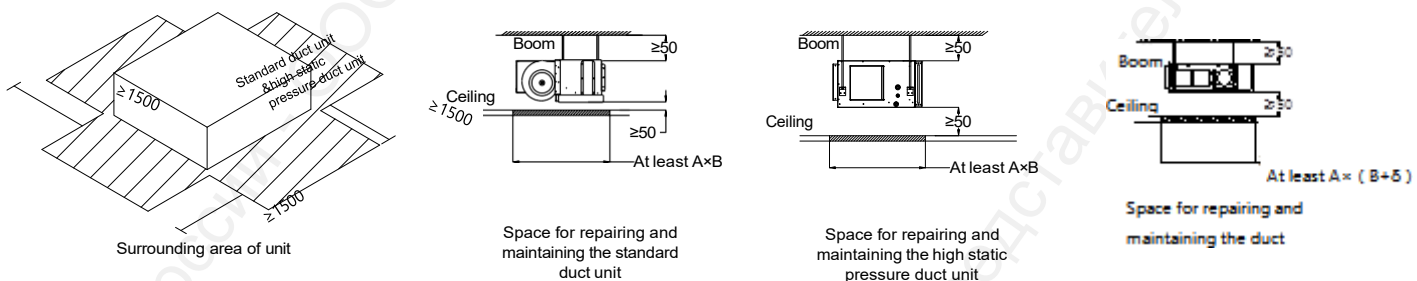
(3) Connect the connecting wire of the remote control light board and the connecting wire of the wind pendulum motor to the indoor unit control board. As shown below:



#### (5) Return air grille installation

- Verify that the filter is correctly and securely installed in the return air grille.
- Considering the ceiling design and the convenience of opening the grille, install back the return air grille to the panel.

### 4. Installation of TMDN/TMDH/TMDP duct IDU



#### 1) Installation of TMDN standard duct IDU

- Ensure a sufficient maintenance space around the unit, as shown above (in the figure:  $A \times B$  = Unit length  $\times$  Width).
- Determine the place where the unit is located. Install the booms and make sure that the booms are securely

fixed.

- Check whether the booms are properly aligned with the unit. Install the unit on the booms.
- Make sure that the IDU has a tilt to the drainage direction, and tighten the nuts on the booms.

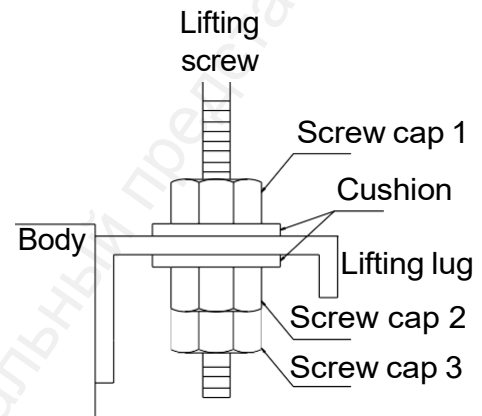
## 2) Installation of TMDH high static pressure duct unit

### (1) Precautions

- The filter screen shall be easily removed and cleaned.
- If the lifting screw is over 1.5 m long, anti-vibration measures must be taken.
- Ensure that sufficient space for maintenance is reserved around the unit.

### (2) Unit lifting

- Determine the place where the unit is located. Install the booms and make sure that the booms are securely fixed.
- Check whether the lifting lug is reliable.
- Lift the unit:
  - a) Mount the lifting lugs of the unit between screw caps 1 and 2 on the lifting screw.
  - b) Use screw cap 2 to adjust height of the device.
  - c) Guarantee that the unit is installed horizontally.
  - d) Tighten screw caps 1 and 3 to prevent the unit from falling off and vibrating.

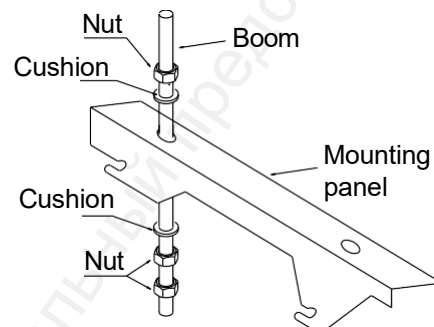
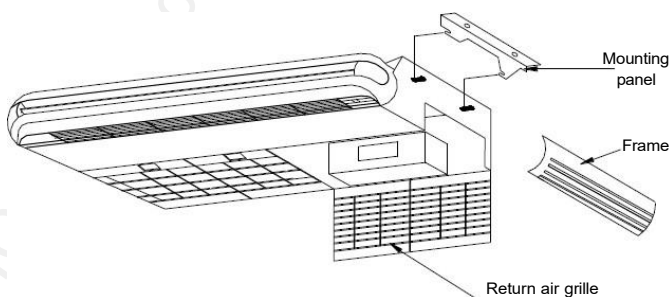
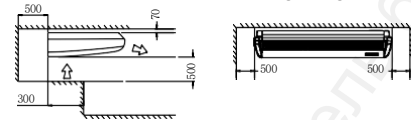


### 3) Installation of TMDP duct unit

- Ensure a sufficient maintenance space around the unit, as shown above (in the figure:  $A \times (B + \delta) = \text{Unit length} \times (\text{Width} + \text{filter frame thickness})$ ,  $\delta$  is selected according to the type of screen frame.)
- Determine the place where the unit is located. Install the booms and make sure that the booms are securely fixed.
- Check whether the booms are properly aligned with the unit. Install the unit on the booms.
- Make sure that the IDU has a tilt to the drainage direction, and tighten the nuts on the booms.
- For a better experience, it is recommended that the filter frame adopts back return air type to install and replace it once a year.

## 5. Installation of TMVX ceiling exposed IDU

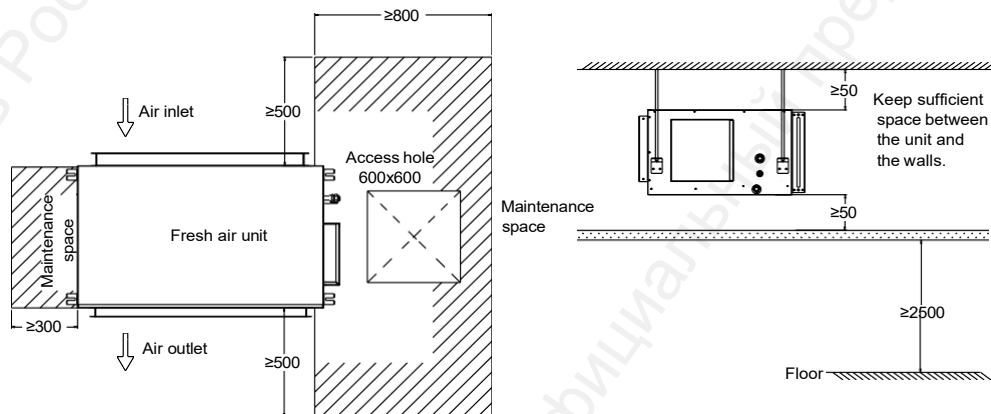
- Ensure that sufficient space for maintenance is reserved around the unit, as shown in the right figure.
- Determine the place where the unit is located. Install the booms and make sure that the booms are securely fixed.
- Remove the return air grille, frame and mounting panel.
- Install the mounting panel onto booms.
- Attach the unit to the mounting panel and fasten the nuts. Install the refrigerant pipe and drainage pipe. Then, install back the return air grille and frame.



## 6. Installation of TMDF fresh air processing unit

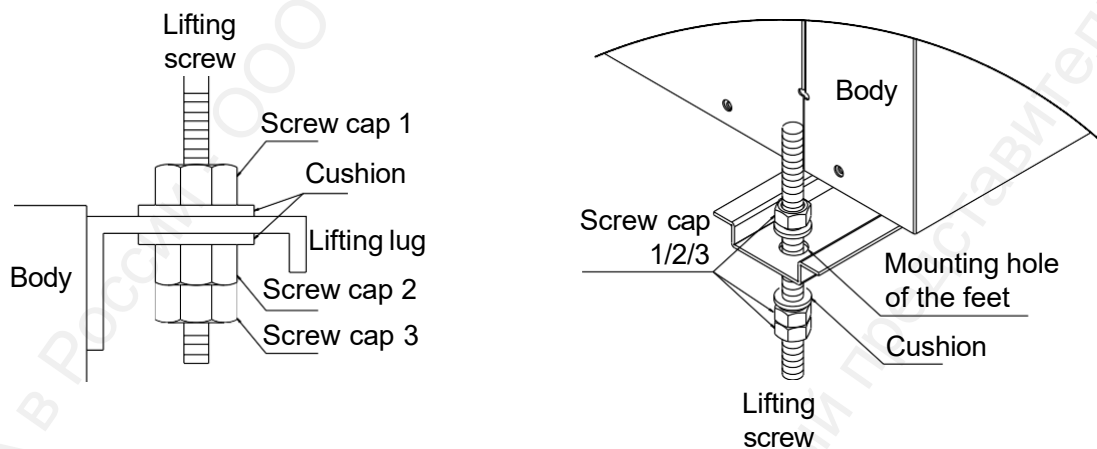
### 1) Precautions

- If the temperature and humidity above the ceiling are expected to exceed 30°C and 80% respectively, apply an insulation layer on the unit body.
- Do not share the same ODU with other inverter VRF IDU(s).
- Fresh air unit may generate larger noise. Noise mitigation and vibration isolation measures are required sometimes.
- A separate fresh air inlet is required. This inlet cannot be set at the air return side of other IDU; otherwise, the return air temperature sensor may not be able to correctly detect the actual indoor temperature.
- Reserve sufficient space around the unit for maintenance and repair.
- The filter screen shall be easily removed and cleaned.



### 2) Unit lifting

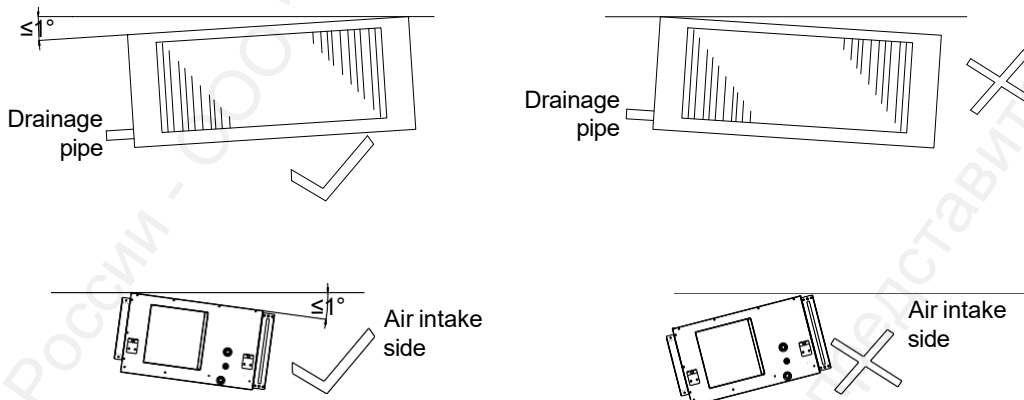
- Determine the place where the unit is located. Install the booms and make sure that the booms are securely fixed.
- Verify that the unit is ready for lifting.
- Lift the unit:
  - a) Mount the lifting lugs of the unit between screw caps 1 and 2 on the lifting screw.
  - b) Use screw cap 2 to adjust height of the device.
  - c) Guarantee that the unit is installed horizontally.
  - d) Tighten screw caps 1 and 3 to prevent the unit from falling off and vibrating.



#### Notes:

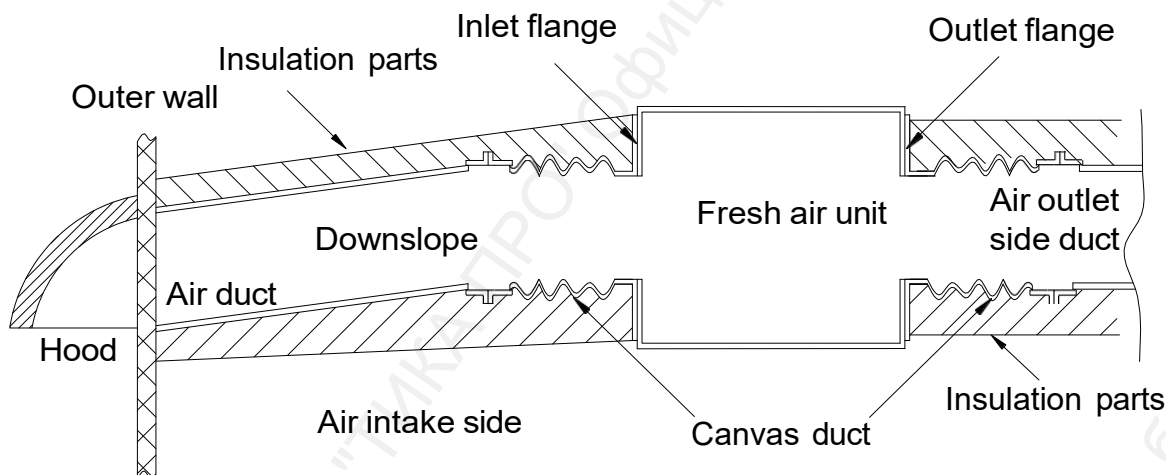
- For TMDF120-TMDF300, the parts for lifting are lifting lugs (as shown in the left figure above).

- For TMDF400-TMDF600, the parts for lifting are mounting holes of the feet (as shown in the right figure above).
- Put the drainage outlet and air intake vent side to a lower position to prevent water leakage, as shown in the following figure:



### 3) Duct installation

- Connect the duct and inlet/outlet flange.
- Use aluminum adhesive belt to seal the connection of inlet flange and duct and that of outlet flange and duct to prevent leakage.
- Use screws to connect the inlet/outlet flange to the unit.



#### Notes:

- Make sure that the air intake side of air duct tilts down to prevent water accumulation.
- Connect the air duct so that the air intake side can take in outside air; otherwise the unit cannot operate normally.
- To prevent condensation, take heat insulation measures for the air duct (material: glass wool or expanded polyethylene; thickness: 25mm).

## 7. Duct preparation and installation

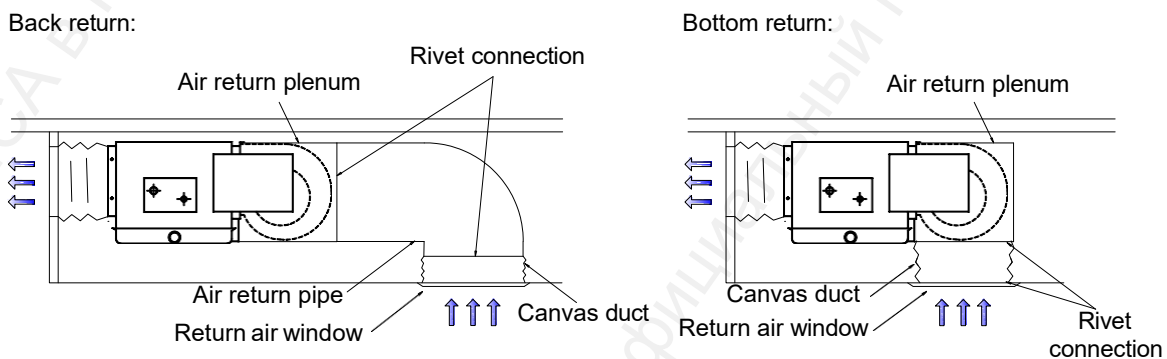
### 1) Precautions

- Design the air channel based on the unit external static pressure. The air channel resistance must be equal to the unit external static pressure. Otherwise, excessive or insufficient air flow may lead to unit malfunction.
- The distance between the indoor air return and the heat exchanger's air inlet must be at least 1 m.
- Proper duct design could effectively eliminate the noise.

- A balance between the unit external static pressure and the pipeline resistance could be reached by changing the fan speed or adjusting the duct resistance (for example, adjust the diffuser's air supply speed).
- The return air pipe and air supply pipe must be insulated to minimize energy loss and condensation.
- The return air pipe and air supply pipe must be fixed onto the precast slab by iron support. All connections of duct must be sealed.
- The distance between the edge of the return air pipe/air supply pipe and the wall must be at least 150mm.

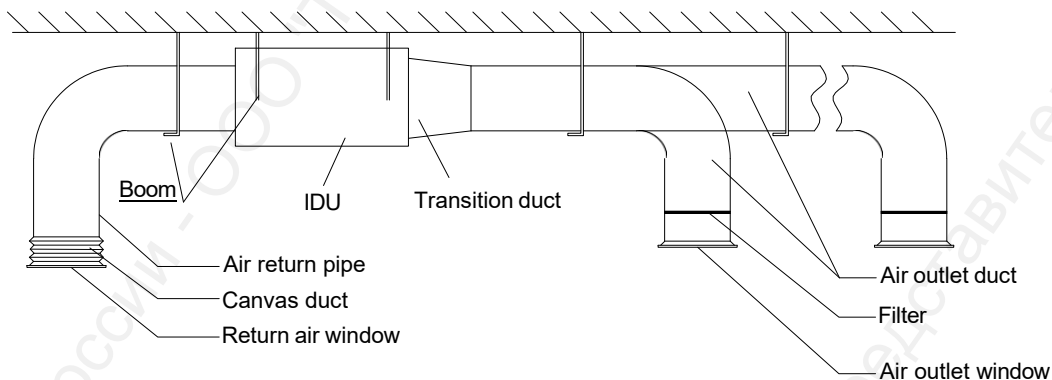
## 2) Installation of return air pipe (applicable to TMDN series)

- When bottom return air mode is adopted, purchase or make a segment of canvas duct, fold the canvas duct and use it to connect the return air inlet and the return air window. It can be flexibly adjusted to suit the height of the ceiling and avoid ceiling vibration when the unit is running.
- When back return air mode is adopted, make a return air pipe and use rivet to connect one end of the pipe to the IDU return air inlet, and connect the other end to the return air window, as shown in the figure below.

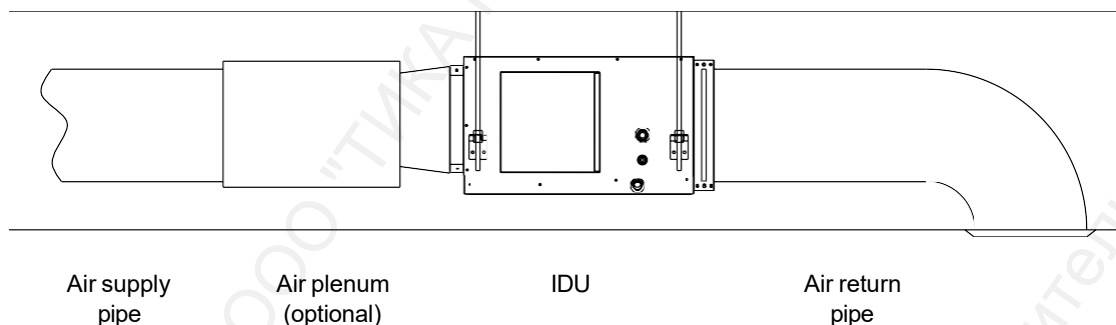


## 3) Installation of air outlet duct (applicable to TMDN series)

- Usually the air outlet duct is of the rectangle or circular type. The rectangle duct can be connected to the IDU air outlet through rivets directly. The circular duct requires adding a transition duct to connect to the IDU air outlet, and the other end can connect to the air outlet window separately or after diversion, as shown below:
- The wind speed of each air outlet window should be adjusted basically consistent to meet the room air conditioning requirements.



## 4) Duct installation (applicable to TMDH series)



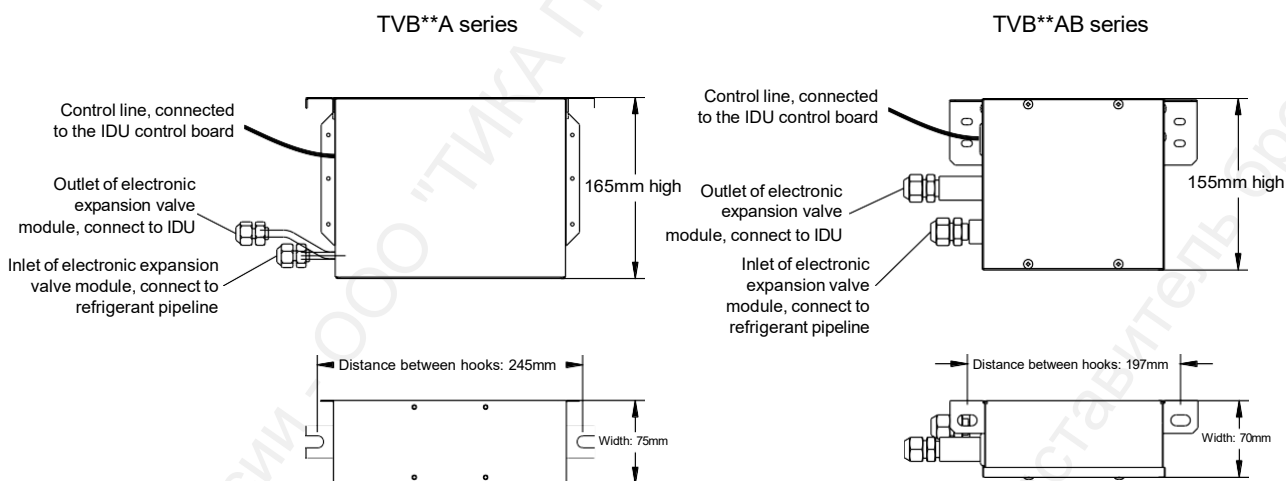
## 8. Selection and installation of IDU electronic expansion valve module

Electronic expansion valve module is required for the TMCD-AB, TMCS-AB, and TMVX-A series. Select the proper electronic expansion valve module according to the "Application identifier of electronic expansion valve module" label attached to the specific IDU.

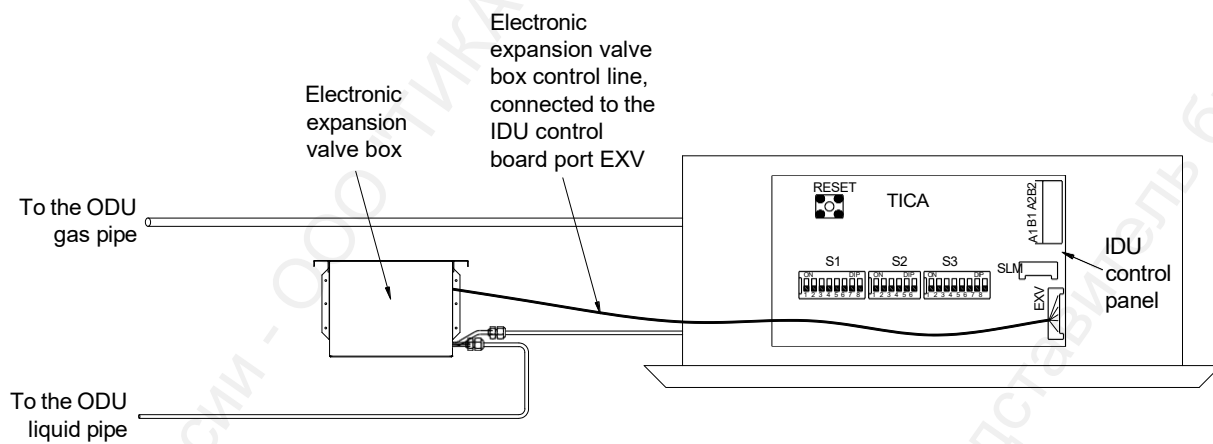
### 1) Precautions

- Make sure that the electronic expansion valve module is placed straight up.
- The electronic expansion valve module must be installed in the liquid pipe of the corresponding IDU, by screwing the electronic expansion valve module to the flared joint of the liquid pipe.
- The inlet of the electronic expansion valve module is connected to the copper pipe from the ODU's liquid pipe, and the outlet is connected to the IDU's liquid pipe.
- The control cable lead from the electronic expansion valve module must be securely connected to the control module of the corresponding IDU.
- The pipe connecting the electronic expansion valve module and the IDU should be no longer than 1 m.
- The copper pipe connecting the electronic expansion valve module and the IDU must be properly insulated to avoid drip.

### 2) Dimensions of electronic expansion valve module



### 3) Installation diagram of electronic expansion valve module

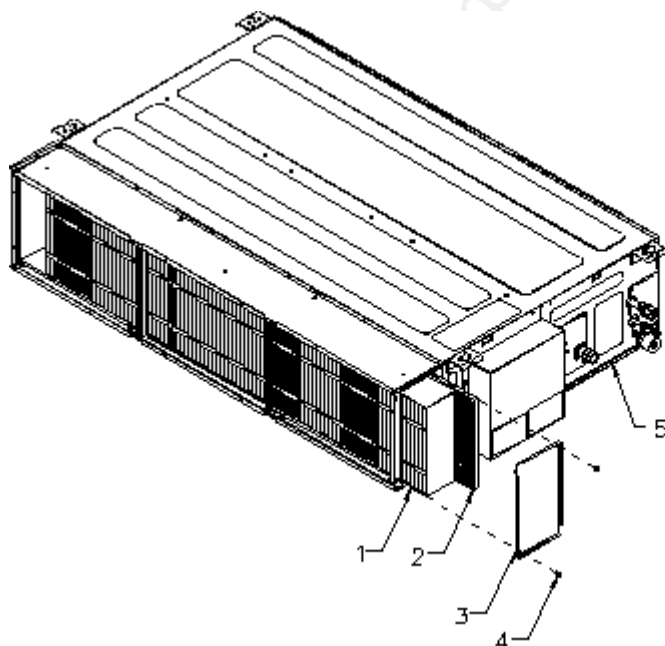


## 9. Replace the filter module of TP

TMDP series units must be installed with filter module. Please select filter module based on actual requirements .

### 1) Filter replacement method 1

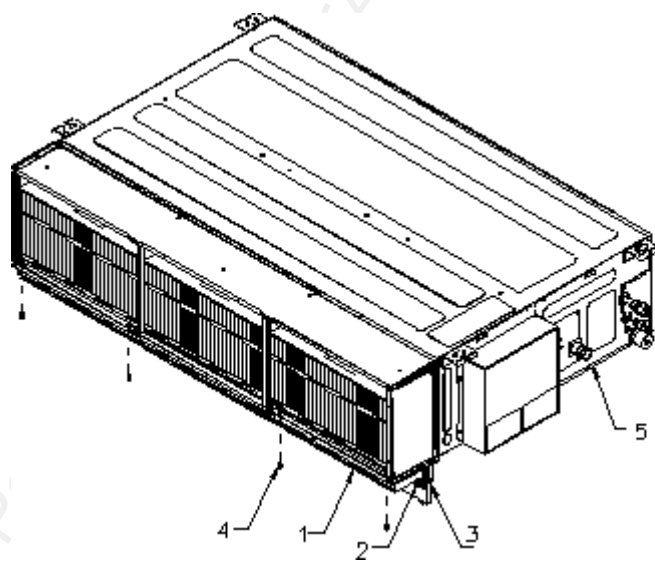
- Remove the two screws, then remove the left access plate, pull out the filter screen for replacement.



1. Medium filter
2. Formaldehyde filter
3. Left access plate
4. The M4 screw
5. Unit

### 2) Filter replacement method 2

- Remove the two screws, then turn the bottom access plate, pull out the filter screen for replacement.



- 1. Medium filter
- 2. Formaldehyde filter
- 3. Bottom access plate
- 4. The M4 screw
- 5. Unit

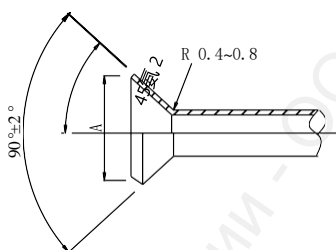
## IV. Refrigerant Pipe Connection

### 1. Principles of refrigerant pipe connection

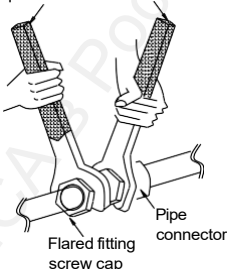
	Cause	Preventive measures
Drying	<ul style="list-style-type: none"> <li>External water intrusion (rain, water supply for construction, etc)</li> </ul>	Piping processing → blowing → vacuum drying
	<ul style="list-style-type: none"> <li>Condensate water intrusion from inside the pipe</li> </ul>	
Cleanness	<ul style="list-style-type: none"> <li>Oxide generation inside the pipe when welding</li> </ul>	Replacement of nitrogen
	<ul style="list-style-type: none"> <li>Dust or other foreign object entering</li> </ul>	Blowing
Air tightness	<ul style="list-style-type: none"> <li>Incomplete welding</li> </ul>	Use proper material → (copper pipe, welding rod)
	<ul style="list-style-type: none"> <li>Flare pipe leak</li> </ul>	Operate in strict accordance with relevant requirements on flare pipe usage
	<ul style="list-style-type: none"> <li>Edge leak</li> </ul>	Operate in strict accordance with relevant requirements on welding Operate in strict accordance with relevant requirements on piping

### 2. Connection to flared joint of refrigerant pipe

- Use a special cutting tool to cut the pipe. For pipes with too large diameter, a metal cut saw may be used, but make sure to avoid the saw dust from entering the pipe.
- Use the delivery-attached flared joint screw cap only. Before flaring, install the screw cap on the copper pipe first.
- Verify that the flared joints are concentric, and the surface is free from damage and defects such as burr, crack and wrinkle.
- Before connecting the flared joint, apply ester oil or ethereal oil on both sides of the flared joint, and finger-tight the screw cap for 3 to 4 screws.
- Fasten the screw cap with a proper torque. Use two wrenches to hold the pipe.



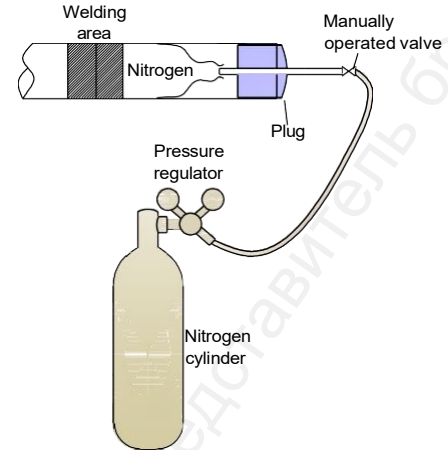
Torque wrench Common wrench



Diameter (mm)	Torque	Pipe flared joint size A (mm)
φ6.35	14.2-17.2 N•m (144-176 kgf•cm)	8.7-9.1
φ9.52	32.7-39.9 N•m (333-407 kgf•cm)	12.8-13.2
Φ12.70	49.5-60.3 N•m (504-616 kgf•cm)	16.2-16.6
φ15.88	61.8-75.4 N•m (630-770 kgf•cm)	19.3-19.7
φ19.05	92.7-118.6 N•m (990-1210 kgf•cm)	23.1-23.7

### 3. Welding of refrigerant pipe

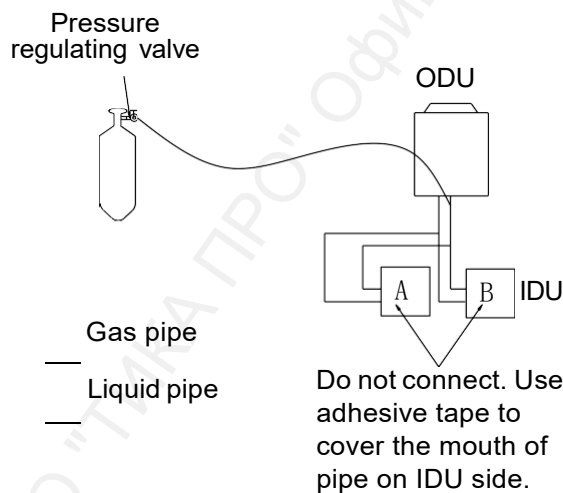
- Perform welding downward or horizontally. Avoid overhead welding if possible.
- Install the liquid pipe and gas pipe in proper direction and angle to avoid inadequate supply of refrigerant and build-up of oil.
- Replacement of nitrogen during welding: During welding, fill 0.02-0.05 MPa nitrogen into the pipe to avoid system block due to oxide generation. After welding, use nitrogen to blow or let it cool down. Do not spray cold water for cooling because cracks will be generated upon sudden cooling of the weld junction.
- Try to reduce bended piping and use bends with larger radius.
- Requirement for distance between supports of horizontal pipeline is listed in the following table:



Pipe diameter	< 20mm	20-45mm	Above 45mm
Max distance (m)	1.0	1.5	2.0

### 4. Blowing of refrigerant pipe

Entering of dust and moisture into the pipe is unavoidable during installation and construction. Therefore, the pipe must be blown dry with nitrogen after pipe construction is completed.



- Use nitrogen for blowing. The nitrogen cylinder should be equipped with a pressure regulating valve.
- Use an inflation tube to connect the pressure regulating valve to the inlet on the liquid pipe side of the ODU.
- Use blind plugs to block up all copper pipe connectors on the liquid pipe side, except for IDU A.
- Open the nitrogen cylinder and set the pressure to 0.5MPa.
- Check whether the nitrogen flows through the liquid pipe leading to IDU A (the corresponding connector on the IDU must be sealed with adhesive tape to prevent dirt from entering the pipe).
- Blowing:
  - a) Use insulating material to block up the liquid pipe of IDU A.
  - b) When you feel that you cannot block up the pipe anymore as the pressure increases, remove the insulating material quickly and let the nitrogen release quickly from the pipe (first blowing).
  - c) Use insulating material to block up the liquid pipe again (second blowing).
  - d) Place a clean cloth at the pipe mouth. You may find the dirt brought out by the nitrogen on the cloth. If the cloth turns a bit damp, it indicates that there is water inside the pipe. Blow the pipe repeatedly until

nothing can be blown out and the cloth is no longer damp.

- Repeat the above steps on IDU B.
- After blowing the liquid pipe, blow the gas pipe.

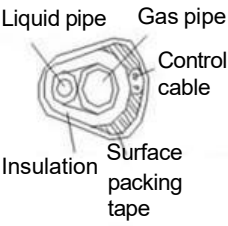

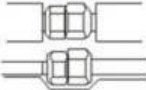
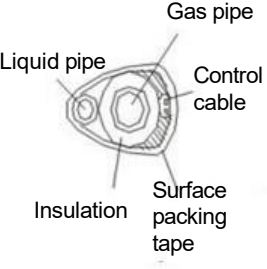
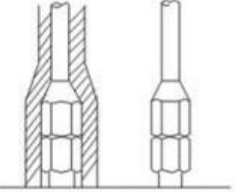
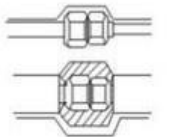
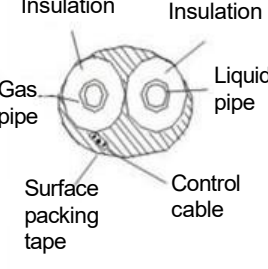
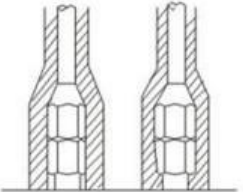
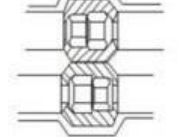
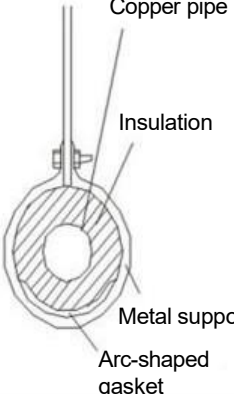
## 5. Leakage detecting and insulation of refrigerant pipe

- After piping work is completed, make sure to do air tightness test for the entire refrigeration system (IDU and piping). Fill nitrogen from both the gas pipe and liquid pipe sides simultaneously until the pressure reaches the stipulated value (R410A model: 4.0 MPa). Maintain the pressure for 24 hours. Then, check if the pressure changes. In this way, you can determine the air tightness of the connections (welding joint or flare) and the entire system and find the leak source (if any).

Note: If the temperature during pressure increasing is different from the temperature when observing, adjust according to the following formula:

Actual value = Pressure during pressure increasing + (Temperature during pressure increasing - Temperature when observing) x 0.1 kgf/cm<sup>2</sup>

- When there is no leak, insulate the piping. The gas pipe and liquid pipe need to be insulated separately.

Incorrect	Correct		
<ul style="list-style-type: none"> <li>• Gas pipe and liquid pipe cannot be insulated together</li> </ul>  <ul style="list-style-type: none"> <li>• Piping connection should also be properly insulated</li> </ul>  	<ul style="list-style-type: none"> <li>• Insulate gas pipe only (cooling)</li> </ul>   	<ul style="list-style-type: none"> <li>• Insulate gas pipe and liquid pipe</li> </ul>   	<ul style="list-style-type: none"> <li>• Insulation support</li> </ul> 

## V. Drain Pipe Installation

### 1. Precautions

- Before installing the drainage pipe, remove the drainage plug on the left or right side of the chassis.
- Keep the condensate water pipe as short as possible and make the water drain in a downward direction along the slope (en route). Avoid zigzag layout of the drainage pipe; otherwise, the condensate water may flow backward.
- For the installation of horizontal drainage pipe, a slop grade of at least 1/100 should be guaranteed, and the pipe should be fixed with booms every 1.0 to 1.5 m.

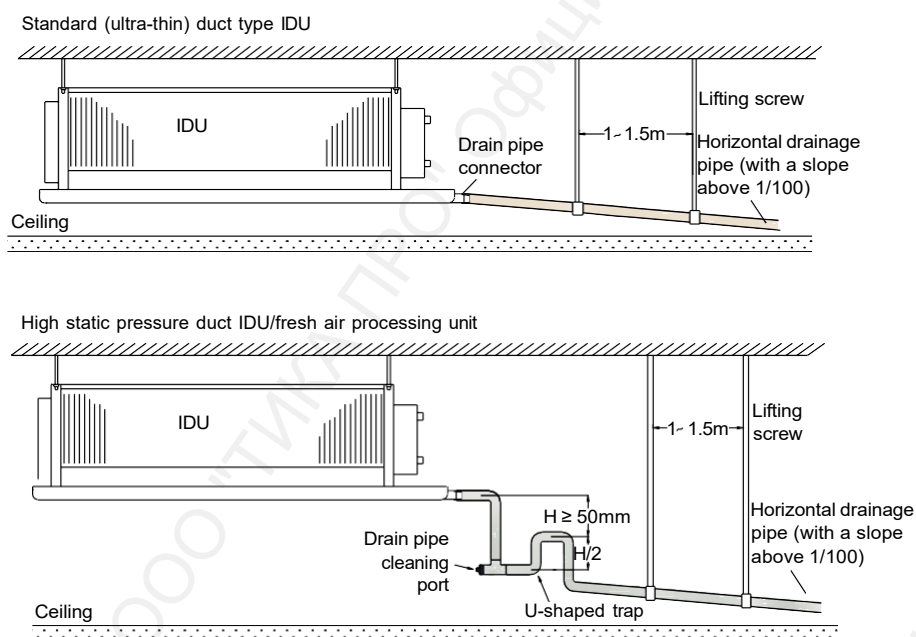
The interval of booms for fixing the horizontal drainage pipe is:

Material	Nominal diameter	Spacing
Rigid PVC pipe	25-40mm	Less than 1.5m

### 2. Connection of drainage pipe

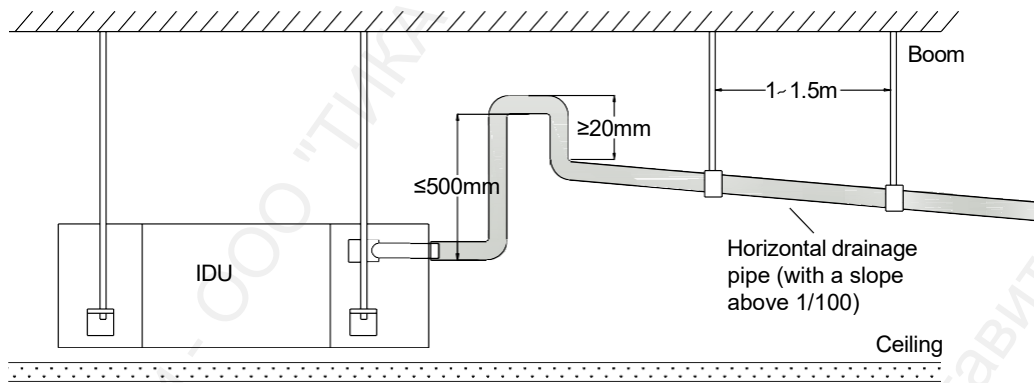
#### 1) When no drain pump is provided:

- Do not install the drain pipe upward; otherwise, water may flow back into the machine.
- Install a U-shaped water trap at the end of drain pipe for the high static pressure and fresh air handling units to prevent water from flowing back into the IDU, and install a drain cleaning port at the same time.



#### 2) When a drain pump is provided:

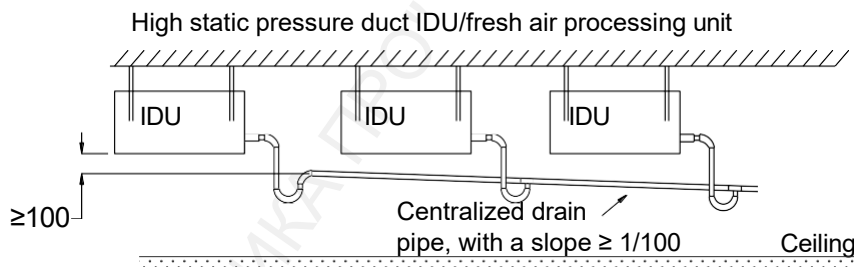
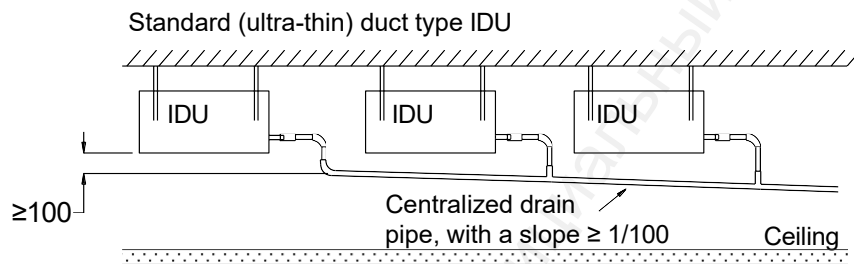
- The drainage height outside the unit cannot exceed 500mm; otherwise water may leak.
- Raise the drainage pipe by 300 to 500mm, and then lower it for at least 20mm.



### 3. Centralized drainage

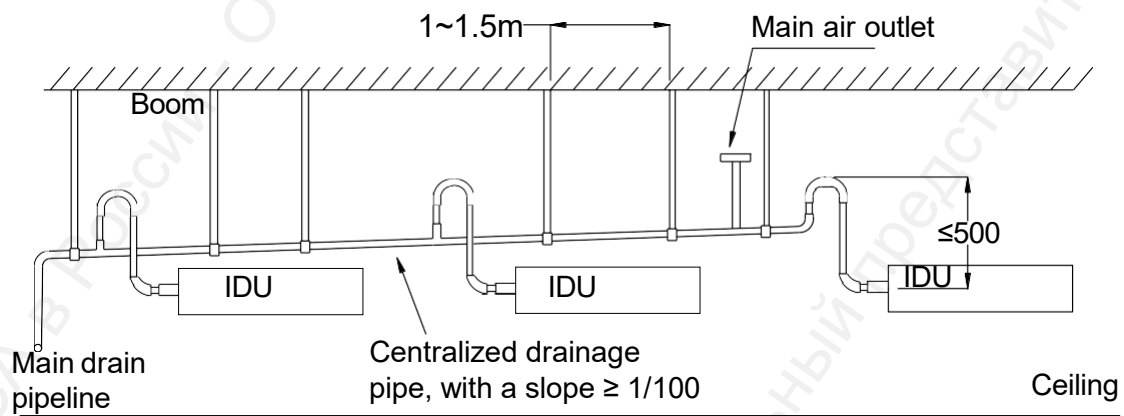
Please select a drainage pipe diameter matched with the unit operating capacity.

#### 1) When no drain pump is provided:



#### 2) When a drain pump is provided:

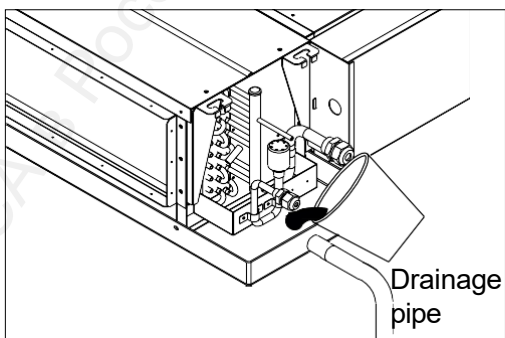
When more than three IDUs are installed, install the main exhaust port in the front of the IDU farthest from the main drainage pipeline.



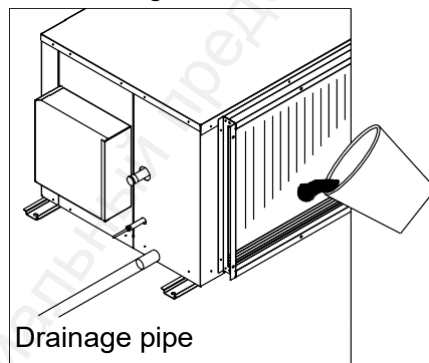
## 4. Drainage test

- After the drainage pipe is installed, check whether water is drained smoothly. Prepare 2 liter water. Inject water to the water tray of the IDU, as shown in the following figure.
- For the model configured with a drain pump, run the machine under the cooling mode and check pumping of the drain pump.
- Check for water drainage at the end of the drainage pipe. Ensure that condensate water can be smoothly drained and water does not leak at the water drainage position.
- After the drainage test is completed, apply insulation materials to the condensing water pipe.

Duct unit



High static pressure/fresh air handling unit



## VI. Electric Control Installation

TIMS series inverter VRF air conditioning unit has both high voltage (power) line and control (communications) line. The high voltage line consists of the power of the chiller and that of the IDU; the control line consists of the communications cable for the IDU and ODU and that for the centralized wired controller.

- Select cables in accordance with relevant local or national regulations. The model of cable must comply with relevant local and national specifications.
- The cables must be securely connected. Do not exert force on the terminal strip.

### 1. Power supply wiring specifications and precautions

For the power cable specifications of the chiller, refer to the ODU installation instruction. The power cable specifications of IDU are listed as follows:

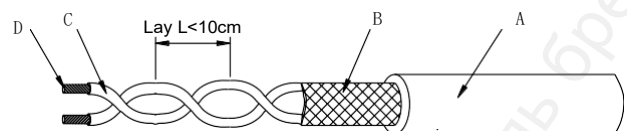
Power supply	Power supply range (V)	Power cord	Earth line
220V~/50(60)Hz	242/198	≥1.5mm <sup>2</sup>	1.5mm <sup>2</sup>

Notes:

- In case the total power of the IDU exceeds 1700 W (for example, when the electric heater is equipped), adopt the power cable with higher specifications.
- The distribution box shall be provided with a set of electric leakage protection device and air switch for each module.
- A circuit breaker with larger capacity is required if it is used to connect to multiple IDUs.
- If the power cord is damaged, to avoid danger, make sure to ask a professional from the manufacturer or its maintenance department or similar department to replace it.

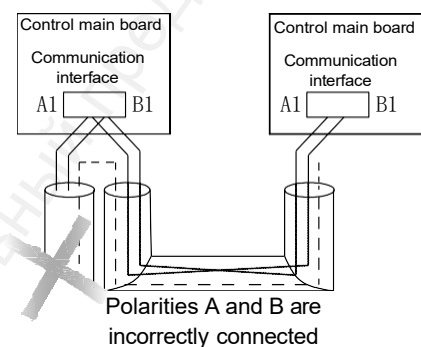
### 2. Communication line specifications and precautions

- The 0.75~1.25mm<sup>2</sup> shielded twisted pair is used for communications between the IDU, ODU, centralized controller and unit).
- Do not connect power line to the connecting terminal of communication cables.
- The total length of communication cable is less than 1000 m.
- The communication cable, the shield layer and the chiller must be grounded.
- Communication cable is well connected before being powered on. Do not remove the power plug with power on, lest the communication chips would be damaged.
- To prevent high voltage signal from disturbing control signal, shielded twisted pair must be used. Try to select communication cable with dense shielding layers and smaller lay.
- Control signal has two polarities A and B, and different polarities cannot be connected; otherwise, communication failures may be caused, as shown in the figure on the right.
- When power line is parallel with the communication cable, they shall be covered by respective conduits and kept at some



Legends of shielded twisted pair

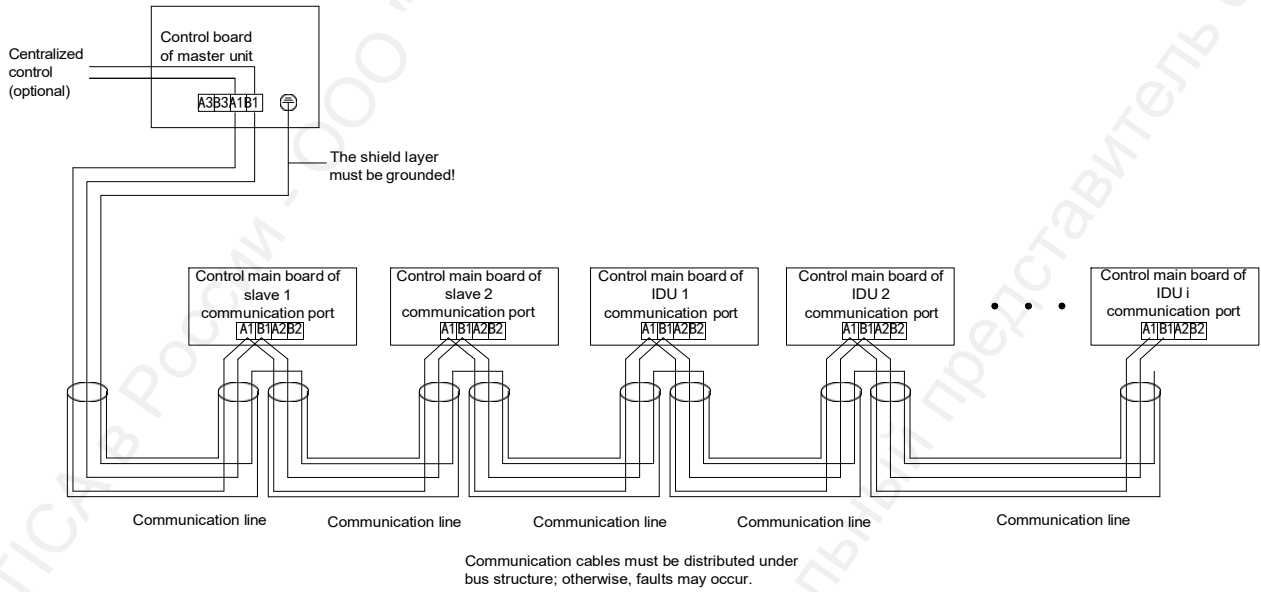
A: Sleeve B: Shielding layer C: Insulator D: Conductor



distance away.

- After installation, protect the communication cables of the wired controller or the centralized controller and ensure good connection.

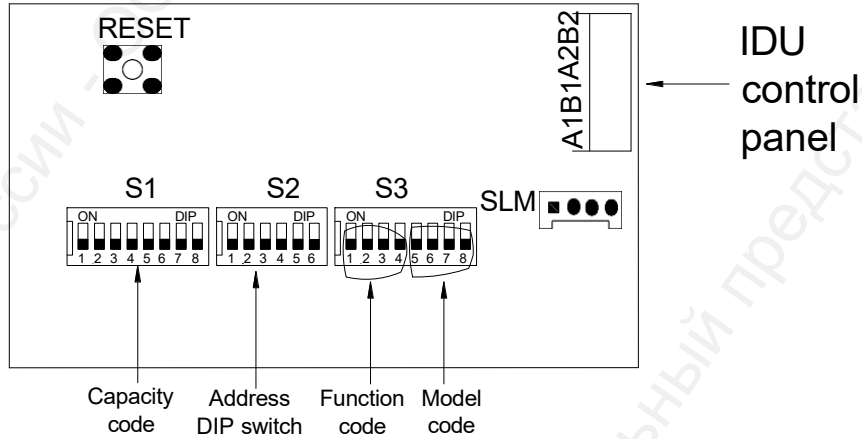
### Diagram of IDU and ODU communication cable layout:



## VII. IDU Code Settings

IDU capacity code and model code are preset before delivery. Check if they are correct. There are two types of codes. For details, please refer to the actual air conditioning unit.

### 1. Type I

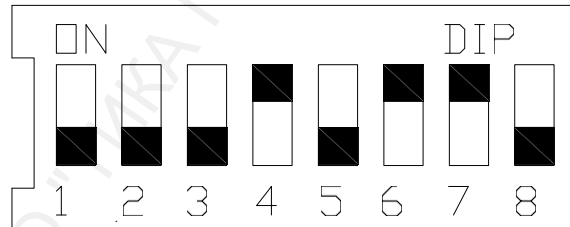


#### 1) S1: IDU capacity code

(1) Applicable to IDUs except TMDF

IDU models	S1							
	1	2	3	4	5	6	7	8
TM**015	0	0	0	0	1	1	1	1
TM**022	0	0	0	1	0	1	1	0
TM**025	0	0	0	1	1	0	0	1
TM**028	0	0	0	1	1	1	0	0
TM**032	0	0	1	0	0	0	0	0
TM**036	0	0	1	0	0	1	0	0
TM**040	0	0	1	0	1	0	0	0
TM**045	0	0	1	0	1	1	0	1
TM**050	0	0	1	1	0	0	1	0
TM**056	0	0	1	1	1	0	0	0
TM**063	0	0	1	1	1	1	1	1
TM**071	0	1	0	0	0	1	1	1
TM**080	0	1	0	1	0	0	0	0
TM**090	0	1	0	1	1	0	1	0
TM**100	0	1	1	0	0	1	0	0
TM**112	0	1	1	1	0	0	0	0
TM**125	0	1	1	1	1	1	0	1
TM**140	1	0	0	0	1	1	0	0
TM**160	1	0	1	0	0	0	0	0

For example: for model TMCF022, S1 code is 00010110 as below.



## S1

(2) Applicable to TMDF

IDU models	S1							
	1	2	3	4	5	6	7	8
TMDF120A-020	0	0	1	1	0	0	1	0
TMDF140A-020	0	0	1	1	1	1	0	0
TMDF175A-022	0	1	0	1	0	0	0	0
TMDF210A-020	0	1	1	0	0	1	0	0
TMDF250A-015	0	1	1	0	0	1	0	0
TMDF250A-020	0	1	1	0	0	1	0	0
TMDF250A-030	0	1	1	0	0	1	0	0
TMDF300A-020	0	1	1	0	0	1	0	0
TMDF350A-025	0	1	1	0	0	1	0	0
TMDF400A-020	1	0	1	0	0	0	0	0
TMDF400A-030	1	0	1	0	0	0	0	0
TMDF500A-020	1	1	0	0	1	0	0	0
TMDF500A-030	1	1	0	0	1	0	0	0
TMDF600A-020	1	1	0	0	1	0	0	0
TMDF600A-030	1	1	0	0	1	0	0	0

### 2) S2: Address DIP (refer to the actual unit)

IDU address	Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Digit 6
1#	0	0	0	0	0	1
2#	0	0	0	0	1	0
3#	0	0	0	0	1	1
.....	.....	.....	.....	.....	.....	.....
62#	1	1	1	1	1	0
63#	1	1	1	1	1	1

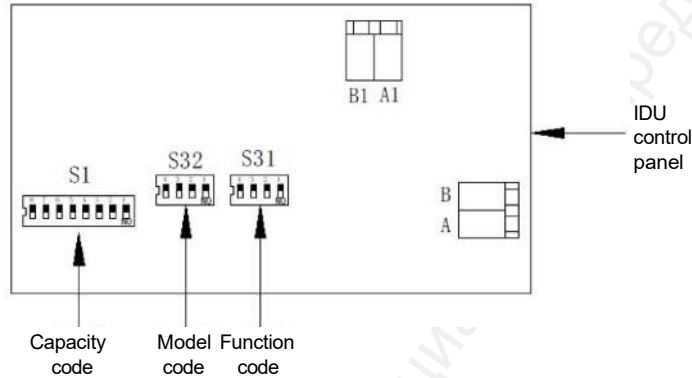
### 3) S3: Model, function code

No.		Function	0	1
S3 Function code	Digit 1	Remote switch/hotel card	Remote switch	Hotel card
	Digit 2	Air return temperature selection	Use air return temperature on control panel	Use air return temperature on wired controller
	Digit 3	Electric heater	Electric heater unavailable	Electric heater available
	Digit 4	Reserved (set to 0)	/	/

Note: When hotel card is used, connect the interlock switch to the control panel X8A.

S3 model code	Digit 5	Digit 6	Digit 7	Digit 8
TMDN	0	0	0	0
TMDH	0	0	1	0
TMCF	0	0	1	1
TMVX	0	1	0	0
TMVW	0	1	0	1
TMDF	0	1	1	0
TMCS	0	1	1	1
TMCD	1	0	0	0

## 2. Type II

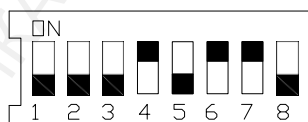


### 1) S1: IDU capacity code

(1) Applicable to IDUs except TMDF

IDU models	S1							
	1	2	3	4	5	6	7	8
TM**015	0	0	0	0	1	1	1	1
TM**022	0	0	0	1	0	1	1	0
TM**025	0	0	0	1	1	0	0	1
TM**028	0	0	0	1	1	1	0	0
TM**032	0	0	1	0	0	0	0	0
TM**036	0	0	1	0	0	1	0	0
TM**040	0	0	1	0	1	0	0	0
TM**045	0	0	1	0	1	1	0	1
TM**050	0	0	1	1	0	0	1	0
TM**056	0	0	1	1	1	0	0	0
TM**063	0	0	1	1	1	1	1	1
TM**071	0	1	0	0	0	1	1	1
TM**080	0	1	0	1	0	0	0	0
TM**090	0	1	0	1	1	0	1	0
TM**100	0	1	1	0	0	1	0	0
TM**112	0	1	1	1	0	0	0	0
TM**125	0	1	1	1	1	1	0	1
TM**140	1	0	0	0	1	1	0	0
TM**160	1	0	1	0	0	0	0	0

For example: for model TDCF022, S1 code is 00010110 as below.



S1

(2) Applicable to TMDF

IDU models	S1							
	1	2	3	4	5	6	7	8
TMDF120A-020	0	0	1	1	0	0	1	0
TMDF140A-020	0	0	1	1	1	1	0	0
TMDF175A-022	0	1	0	1	0	0	0	0
TMDF210A-020	0	1	1	0	0	1	0	0
TMDF250A-015	0	1	1	0	0	1	0	0
TMDF250A-020	0	1	1	0	0	1	0	0
TMDF250A-030	0	1	1	0	0	1	0	0
TMDF300A-020	0	1	1	0	0	1	0	0
TMDF350A-025	0	1	1	0	0	1	0	0
TMDF400A-020	1	0	1	0	0	0	0	0
TMDF400A-030	1	0	1	0	0	0	0	0
TMDF500A-020	1	1	0	0	1	0	0	0
TMDF500A-030	1	1	0	0	1	0	0	0
TMDF600A-020	1	1	0	0	1	0	0	0
TMDF600A-030	1	1	0	0	1	0	0	0

## 2) S31: Function code

No.	Function	0	1
S31 Function code	Digit 1 Remote switch/hotel card	Remote switch	Hotel card
	Digit 2 Air return temperature selection	Use air return temperature on control panel	Use air return temperature on wired controller
	Digit 3 Electric heater	Electric heater unavailable	Electric heater available
	Digit 4 AC/DC fan	AC fan	DC fan

Note: When hotel card is used, connect the interlock switch to the control panel X8A.

## 3) S32: Model code

Applicable to IDUs except TMDN\*\*\*ACC

S32 model code	1	2	3	4	5	6	7	8
TMDN*** (except ACC/D/E)	0	0	0	0	-	-	-	-
TMDN***ACD	1	1	1	1	-	-	-	-

TMDN***ACE	1	1	1	0	-	-	-	-
TMDN***AEB	0	0	0	1	0	0	0	1
TMDH	0	0	1	0	-	-	-	-
TMCF	1	0	1	1	-	-	-	-
TMWW	0 (by default)	0 (by default)	0 (by default)	0 (by default)	-	-	-	-
T MDF	0	1	1	0	-	-	-	-
TMDP	0	0	0	1	0	0	0	0

## VIII. Precautions When Using/Maintaining Air Conditioner

### 1. Precautions for air conditioner usage

- Set a proper indoor temperature.
  - ◆ Recommended temperature for cooling: 26~28°C; recommended temperature for heating: 18~23°C. Too high or too low indoor temperature can make people feel uncomfortable. If the set temperature is 1°C higher in cooling mode or 2°C lower in heating mode, 10% electricity could be saved.
- Clean the filter screen.
  - ◆ Clogged filter will severely affect the air supply efficiency and may lead to malfunction.
  - ◆ If the air conditioner is not used for a long time, clean the filter thoroughly before running cooling or heating modes.
- Open doors and windows as little as possible to reduce indoor and outdoor heat exchange.
  - ◆ When cooling and heating, do not open doors and windows. If not necessary, do not open doors or exits to reduce indoor heat loss.
  - ◆ To prevent hot air from entering the air conditioning room during cooling, set curtains or blinds on the windows to shield direct sunlight.
- Ventilate as necessary.
  - ◆ The long-term stagnation of indoor air, as well as the breath of personnel and the smell emitted by other objects, will cause indoor air pollution, so it is necessary to ventilate the indoor space in a timely manner to keep the indoor air fresh.
- Effectively use the timer.
  - ◆ When sleeping and going out, use a timer to keep the unit running for the necessary time to save power.
- Do not touch the air conditioner with wet hand to prevent electric shock.
  - ◆ Do not operate the wired controller or remote controller with wet hand, or splash water into the wired controller or remote controller.
- Do not use air conditioner for special purposes such as food preservation, animal and plant keeping, precision instrument and artwork preservation, etc.
  - ◆ Otherwise, the quality of these items will be affected.
- Do not place indoor heating equipment under the IDU.
  - ◆ Hot air may deform the suction grille of the IDU.

### 2. Precautions for air conditioner maintenance

- If the air conditioner is not to be used for a long time period:
  - ◆ Run the air conditioner in air supply mode for 3 to 4 hours to completely dry it. Then, turn off the air conditioner and power off.
- If the air conditioner is to be used after being left idle for a long time:
  - ◆ Make sure that the unit is in stop status and the power is not connected. Then, clean the filter and the IDU body.
  - ◆ Do not clean the IDU and ODU of air conditioner with water to avoid electric shock and fire.
  - ◆ Use a soft cloth to wipe the IDU body. Do not use gasoline, benzene, dilute alkali solution, grinding powder, detergent and insecticide to clean the unit, which may cause damage.
  - ◆ Confirm that the air inlet and outlet of the IDU and ODU are not blocked by sundries.
  - ◆ Check whether the grounding wire is loose. Connect the power supply for at least 12 hours to keep the unit

in standby state.

- ◆ Do not turn off the power during seasons when the air conditioner is frequently used.
- Clean the filter:
  - ◆ Remove the filter. Use a vacuum cleaner or water to clean it.
  - ◆ If the filter is too dirty, use neutral detergent to brush.
  - ◆ Do not clean with hot water (about 50°C or more) to avoid deformation.
  - ◆ After cleaning with water, let the filter dry in a shady and well-ventilated place. Do not expose the filter to direct sunshine or dry it on fire.

### 3. Troubleshooting non-air conditioner faults

- If the phenomenon in the following table occurs during the use of the air conditioner, the user can troubleshoot these common and simple faults:

Symptom	Analysis of Causes	Solution
IDU fan does not operate	Room temperature higher (during heating) or lower than set temperature (during cooling)	Reset the temperature
	Measure to prevent cold air supply upon turn-on in heating mode	Wait for about 4 minutes
Air conditioning unit does not work	Power supply is not on	Check and power on
	Timed start function is set	Wait or cancel timed start
	Main power supply fuse burnt	Replace the fuse
Too little cold air or insufficient hot air	The filter is too dirty	Clean or replace the filter
	Air return outlet of the IDU is blocked	Remove obstacles
	ODU is not well-ventilated	
Remote controller display blurred or malfunctioning	Low battery	Replace with a new battery
	The battery is not installed correctly	Reinstall correctly
	Whether the unit is too far from the remote controller (over 6 m)	Close to the unit remote control
	Whether the electronic ballast is started or shut down	Wait a moment
There is condensate water on the front panel of the IDU	High air humidity	Dehumidification
IDU stops running in heating mode	ODU frosting after long-term running of air conditioner in heating mode, it is defrosting	The IDU resumes running

		automatically after defrosting
Fan stops running in dry mode	Dehumidification is controlled by microcomputer. The start/stop of fan motor and compressor is determined by a special program. This is a normal phenomenon.	Auto recovery

#### 4. Troubleshooting air conditioner faults

- If the problem cannot be resolved, contact local maintenance service personnel and record the fault code of the wired controller and remote controller.

When the remote controller is faulty, the corresponding indicator on the IDU panel blinks (once every 2.5s, each blink takes 1s):

Times of blinks of the indicator	Fault name	Times of blinks of the indicator	Fault name
1	Entering coil temperature sensor fault	2	Md-coil temperature sensor fault
3	Leaving coil temperature sensor fault	4	Return air temperature sensor fault
5	Communication failure of IDU and ODU	6	Operating mode conflict
7	Water level alarm fault		
<b>Note:</b> Wall-mounted units (TMVW) display failures via the indicator of running status; while units of other models via the indicator of defrosting.			
IDU model	Fault indicator	IDU model	Fault indicator
TMCF	Defrosting indicator	TMVW	Run indicator
TMCS	Defrosting indicator	TWCD	Defrosting indicator
TMVX	Defrosting indicator		



## X. Names and Content of Hazardous Substances in Products

- This product complies with the environmental protection requirements of the Measures for the Administration of the Restricted Use of the Hazardous Substances Contained in Electrical and Electronic Products.
- Environmental protection service life: In the environmental protection service life, the user's normal use of this product will not cause serious pollution to the environment or cause serious damages to persons and properties. The service life is specified by TICA. The environmental protection service life is not equivalent to the service life of safe use.
- Recycling: When this product is not needed or its service life ends, recycle it according to the related national regulations on recycling of waste electrical and electronic products. Do not discard it at will.
- **Names and content of hazardous substances in products**

Part name	Hazardous substance					
	Plumbum (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Motor	O	O	O	O	O	O
Heat exchanger	O	O	O	O	O	O
Refrigerant	O	O	O	O	O	O
Pipeline fittings and valves	x	O	O	O	O	O
Screws, bolts, and other fasteners	O	O	O	x	O	O
Other metal parts	O	O	O	x	O	O
Controller and electrical components	x	O	O	O	O	O
Sponge	O	O	O	O	O	O
Foam	O	O	O	O	x	O
Other plastic parts	O	O	O	O	O	x
Rubber parts	O	O	O	O	O	O
Other printed matters	O	O	O	O	O	O
Accessories (remote controller, battery, etc.)*	O	O	O	O	O	O

This table is prepared according to the provisions of SJ/T 11364.

O: It indicates that the content of this hazardous substance in all homogeneous materials in this part is below the limit requirement defined in GB/T 26572.

x: It indicates that the content of this hazardous substance in at least one homogeneous material in this part exceeds the limit requirement defined in GB/T 26572. Moreover, substitution cannot be implemented at present due to technical reasons, and it will be improved gradually along with technical progress in the future.

\*: It indicates that the environmental protection service life of the battery matched with the product is 2 years.



The number in this identification indicates that the environmental protection service life of the product under the normal use status is 15 years. Some parts may also have the identification of environmental protection service life, and their environmental protection service life is subject to the number in the identification. The product configuration may be different due to different models or product improvements. The actual configuration of sold products should prevail.