



DR90X-AP

PROFESSIONAL INSTALLATION GUIDE

INCLUDED IN THIS BOX



OPTIONAL CONTROLS SOLD SEPARATELY



Tools required to install DR90X-AP

- T25 TORX drive
- 3/8-in. hex drive
- Drill or duct cutting tool
- Wire stripper/cutter
- Scissors or utility knife
- Standard screwdriver
- Duct tape
- 10-in. round duct and starter collar
- 3/4-in. male NPT to drain line adaptor (1/2-in. Dia.) recommended)
- 1/2-in. diameter drain line (8 ft.)
- 1/2-in. drain clamps (2)

- A** DR90X-AP Dehumidifier (1 set)
- B** 10-in. duct collar, 2 PCs
- C** 6-in. duct collar, 1 PCs
- D** MERV 11 Filter, 1 PCs
- E** Filter Door, 2 PCs
- F** Installation guide
- G1** TrueIAQ indoor air quality control device
- G2** H8908 Manual Dehumidistat

Tool Options

- 1/2-in. drain p-trap (may be required by local code)
- Drain pan
- Float switch or water sensor



Installation Checklist

Included in This Box

- A DR90X-AP (1)
- B 10-in. duct collar (2) C 6-in. duct collar (1)
- C 6-in. duct collar (1)
- D Filter Door (2)
- E MERV 11 Filter (1)
- F Installation Guide

Control Options (Sold separately)

- G1 True IAQ
- G2 H8908 Manual Dehumidistat

Tools Required (Not Supplied)

- T25 TORX screwdriver
- 3/8-in. hex drive
- Drill or duct cutting tool
- Wire stripper/cutter
- Scissors or utility knife
- Standard screwdriver

- Duct tape
- 10-in. round duct and starter collar
- 18-22 gauge, 5 band thermostat wire
- 1/2-in. diameter drain line (8 ft.)
- 1/2-in. drain clamps (2)
- 3/4-in. male NPT to drain line adaptor (1/2-in. Dia. recommended)

Options

- 1/2-in. drain p-trap (may be required by local code)
- Drain pan
- Float switch or water sensor



Warning: Installation must be performed by a service technician and must comply with local codes.
Remove power to the device before installing or servicing the device.
Failure to connect the device according to these instructions may result in damage to the device or the controls.

INSTALLATION INSTRUCTIONS BEGIN ON PAGE 1

DR90X-AP Dehumidifier

Introduction to your newly purchased dehumidifier	Maintenance
Introduction to DR90X - AP Dehumidifier 2	Clean 9
Optional Controls 3	Technical Note 10
Dr90X-AP Specification 4	Fault Diagnosis 11
	Parts List 17
Installation Instructions	
Install in accordance with your application requirements 5	
Pipe Assembly 5	
Terminal Description 7	
Connection 7	
Test 9	

- DR90X - AP Dehumidifier is specially designed for interior use. Please install in dry condition.
- Please leave some space for the front panel when installing the Dehumidifier for repair and maintenance.
- The exhaust gas shall not face the human body or above the water area.
- In the case of the Dehumidifier is used in the pool area or near the hot spring, please ensure that the Dehumidifier does not fall into water or be splashed by water, and confirm that the Dehumidifier has been connected to the grounding fault circuit breaker (GFI) socket.
- Please do not place the Dehumidifier directly on the supporting structure of the living space to ensure quiet operation.
- Please be sure to install the Dehumidifier in a place below or above the drainage space. In the case of the Dehumidifier may be damaged, please install it in a place above the drainage space.



Do you need any help? For service support for this Product, please visit <http://www.resideo.com>, or call the After-sales Service Hotline 400-166-0812.

Read and save these instructions.

Introduction to DR90X-AP Dehumidifier

DR90X-AP Dehumidifier, with its high performance and high efficiency, can ensure that the air humidity in your home is maintained at the appropriate level.

Advantage

- Up to 90 pints (42.6 liters) of water can be removed from indoor air every day
- Connect the optional external controller to realize centralized pipeline control



Maintain ideal humidity

Dew point and relative humidity (RH) affect the perception of heat. Higher humidity levels make the body feel hotter than the actual temperature. In the case of the relative humidity is maintained at an appropriate level, then your refrigeration equipment can work less, because the air is also cool after removing the moisture.

Apparent Temperature of Air

The combined effect of moisture and heat on the sensation of heat

For Instance: In 90 degrees Fahrenheit air, if the relative humidity is 50%, the human body will feel as high as 96 degrees Fahrenheit.

		Relative Humidity (Percent)																				
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Air Temperature	100	91	93	95	97	99	101	104	107	110	115	120	126	132	138	144						
	95	87	88	90	91	93	94	96	98	101	104	107	110	114	118	124	130	136				
	90	83	84	85	86	87	88	90	91	93	95	96	98	100	102	106	109	113	117	122		
	85	78	79	80	81	82	83	84	85	86	87	88	89	90	91	93	95	97	99	102	105	108
	80	73	74	75	76	77	77	78	79	79	80	81	81	82	83	85	86	86	87	88	89	91
	75	69	69	70	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	79	80
70	64	64	65	65	66	66	67	67	68	68	69	69	70	70	70	71	71	71	71	71	72	

Extreme
 Danger
 Danger
 Added Note
 Note

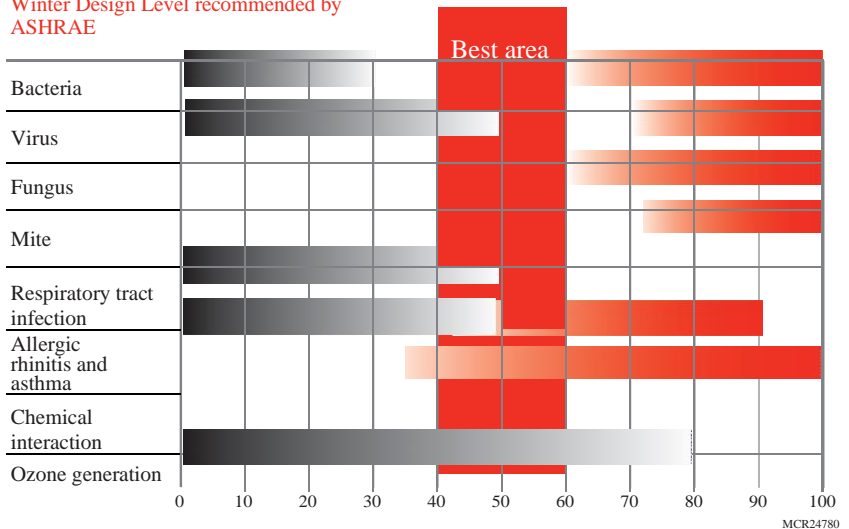
Reference: The temperature-humidity index proposed by R.G Steadman, Journal of Applied Meteorological Science, July 1979

Based on the annual average temperature statistics, the experts of ASHRAE * define the relative humidity of 40-60% as the ideal humidity range. When the indoor relative humidity exceeds 60%, the living space is more likely to breed fungi and bacteria.

DR90X-AP Dehumidifier can ensure that the humidity of living space is not too high all the year round.

*American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).

Winter Design Level recommended by ASHRAE



Optional Controls

The DR90X-AP Dehumidifier can be used with the following external controls:

TrueIAQ digital control device (DG115EZIAQ)



- Automatically adjusting and maintaining the ideal humidity.
- Sensors that display the outdoor temperature and humidity.
- Settings that display the actual and appropriate humidity.
- Advanced ventilation solutions, including energy-saving operation and shutdown under extreme conditions.
- Maintenance and Service reminder function.
- Control other indoor air quality management equipment.

Mechanical humidity control (H8908DSPST) and automatic ventilation control (W8150A1001)



- Manual humidity control with intuitive comfort Settings.
- The integrated humidity map, which allows precise control under changing outdoor conditions.
- Automatic W8150 ventilation meeting the standards of American Society of Heating, Refrigerating and Air-Conditioning Engineers.
- Control device, or continuous operation.

DR90X-AP Specifications

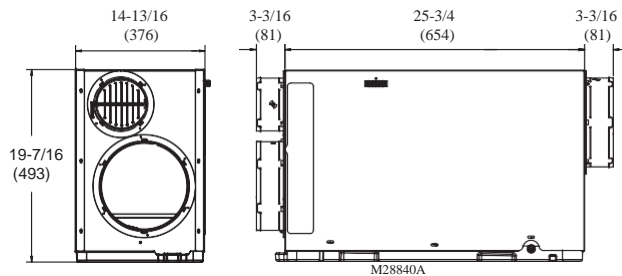
Please install DR90X-AP in accordance with the National Electrical Code

Dry bulb temperature	Inlet humidity	Dehumidification capacity (Pint/Day)
80°F (26.7°C)	60% RH	90
70°F (21.1°C)	60% RH	65
60°F (15.6°C)	60% RH	47

Living space area (square feet)	Dehumidification capacity required to maintain indoor relative humidity		
	60% indoor relative humidity (Pint/Day)	50% indoor relative humidity (Pint/Day)	40% indoor relative humidity (Pint/Day)
2080 (193.2)	49–54	55–58	71–78
2600 (241.5)	61–68	65–72	90–97
3120 (289.9)	75–82	79–86	95–110

*The data are based on extreme weather conditions with outdoor relative humidity of 70-90%. For relatively mild climate conditions, small dehumidification capacity can fully meet the dehumidification requirements of larger living space. The actual needs may be different.

Dimensions in inches and millimeters:



The air volume relative to the external static pressure when the pipe ends are installed (0-1 inch [0-25.4 mm] water column pressure)

0 in. (0 mm)	210 CFM
0.2 in. (5 mm)	180 CFM
0.4 in. (10 mm)	150 CFM
0.6 in. (15.2 mm)	100 CFM

Product Weight: 86 lbs.

Shipping Weight: 95 lbs.

Shipping Size: 25.2"H x 19.3"W x 35.8"L

Filtrating Screen: MERV 11, 14"H x 17.5"W x 1.75"L

Drainage System Connection: 3/4 "NPT Female Thread

Pipe Connection: 10 inch round inlet and outlet. 6 inch air supply inlet.
ABS plastic material, compatible to connect to rigid or flexible pipes with sheet metal screws and plastic material, or tape.

Shell: 20 ga

Thermal Insulation: R value 1

Compressor: Rotary, 7.46kBTU

Cryogen: R-410A, 1.4 lbs.

Operating Temperature Range (Outside the cabinet):

34°F to 135°F (1.1°C to 57.2°C)

Working Humidity Range: 0-99% RH

Rated Input

- Rated Input Voltage: 220 VAC, 50 Hz
- Rated Input Current: 3.2 A

Rated Output

- Power Transformer to R/C terminal:
24 VAC, 0.85 A
- Energy consumption performance: 2.5 Liters (5.4 pints) / kWh

Executive Standards and Certification

GB4706.32 standard and China CCC Certification

Install in accordance with your requirements

It is recommended to use expansion pipe to connect the air inlet of DR90X-AP to reduce vibration and noise.

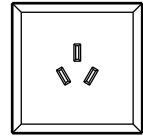


Pipe Size: In the case of the pipe length does not exceed 25 feet, please use a round pipe with a diameter of at least 10 inches; In the case of the length of the pipe exceeds 25 feet, please use a round pipe with a diameter of at least 12 inches. If there are two-three branch pipes at the main inlet/outlet, please use a circular pipe of at least 10 inches diameter; If there are four or more pipe branches at the main inlet/outlet, please use a circular pipe of at least 12 inches diameter;

Isolation Area: It may be necessary to route pipes to isolated areas or areas with stagnant air flow to achieve effective dehumidification effect.

Electrical requirements:

220 VAC Power Socket. It is recommended to use Ground Fault Interrupter (GFI).

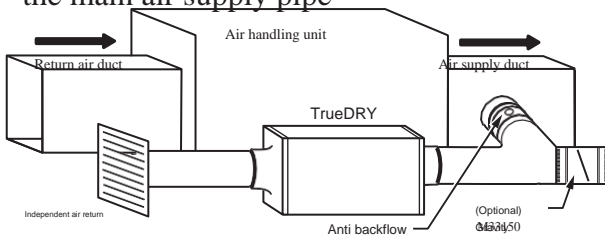


Installation Requirements

Please be sure to install it on a flat, stable and horizontal installation platform. The Product is fixed firmly and cannot be moved.



Special air return outlet connected to the main air supply pipe

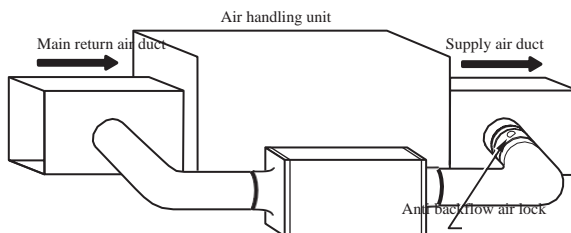


Achieve ideal working condition under the following conditions...

- **DR90X-AP** can be connected with dedicated centralized return air pipeline.
- If the dehumidifier needs to operate with the air conditioner at the same time, a damper shall be added on the outlet pipe of the DR90X-AP Dehumidifier to minimize the return of cold air when the dehumidifier is shut down.
- The DR90X-AP can be installed with adjustable opening gravity damper to provide air for specific areas.



It is connected between the main air return pipe and the air supply pipe

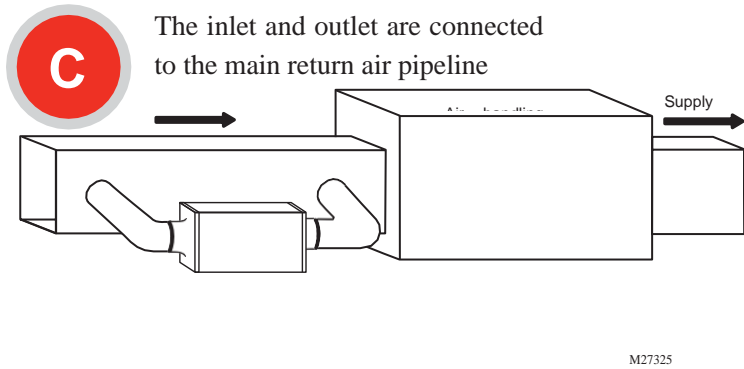


Achieve ideal working condition under the following conditions...

- In the case of the DR90X-AP dehumidifier needs to operate with the air conditioner at the same time, it is necessary to add a damper on the outlet pipe of the dehumidifier to minimize the return of cold air when the dehumidifier is shut down.
- **DR90X-AP** cannot be connected to dedicated centralized return air duct.

M27324

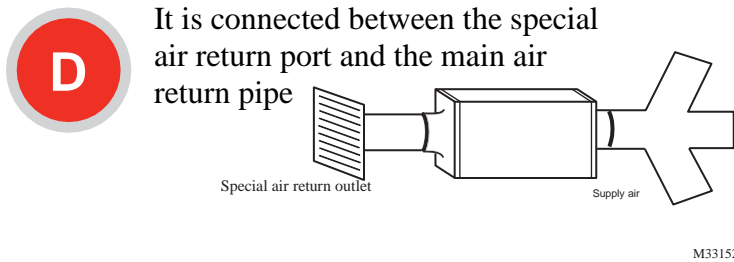
Install in accordance with your requirements (Continued)



Achieve ideal working condition under the following conditions...

- When the air conditioner is working, run DR90X-AP Dehumidifier.
- Try to avoid raising the air temperature of emissions (DAT).
- Do not connect the dedicated centralized return air system.

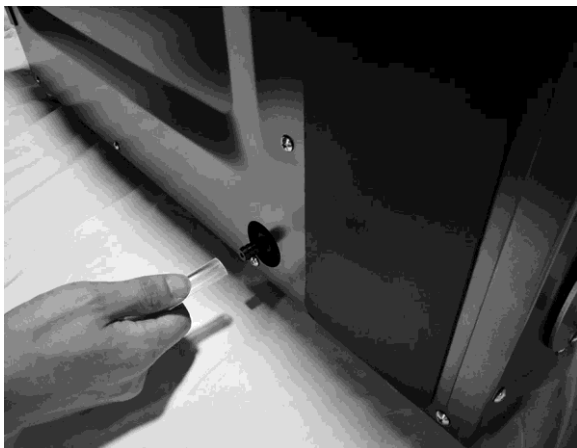
Note: when the air conditioning system is stopped, the moisture on the evaporator surface may increase the humidity of the air treated by DR90X-AP.



Achieve ideal working condition under the following conditions

- **DR90X-AP** cannot be connected to forced ventilation HVAC system through pipes

Drainage



Install 3/4 inch NPT external thread drain pipe and connect the drain port.

Use a 1/2-inch drain to connect the drain port.

Clamp the drain fitting with pipe clamps and snap rings.

When installing the drainage pipe, maintain a continuous drainage slope connected to the drainage channel or condensate pump to ensure smooth drainage.

Terminal Description



Warning: The harm of low voltage.
 May cause equipment damage.
 Please disconnect the air conditioning system



***Note:** The screws at both ends of the wiring block are used to fix the wiring block on the chassis. This screw is not used for wiring connections.

A terminal block is installed on the side wall of the dehumidifier as shown in the figure.

The six terminals on the wiring block are (picture order is from right to left):

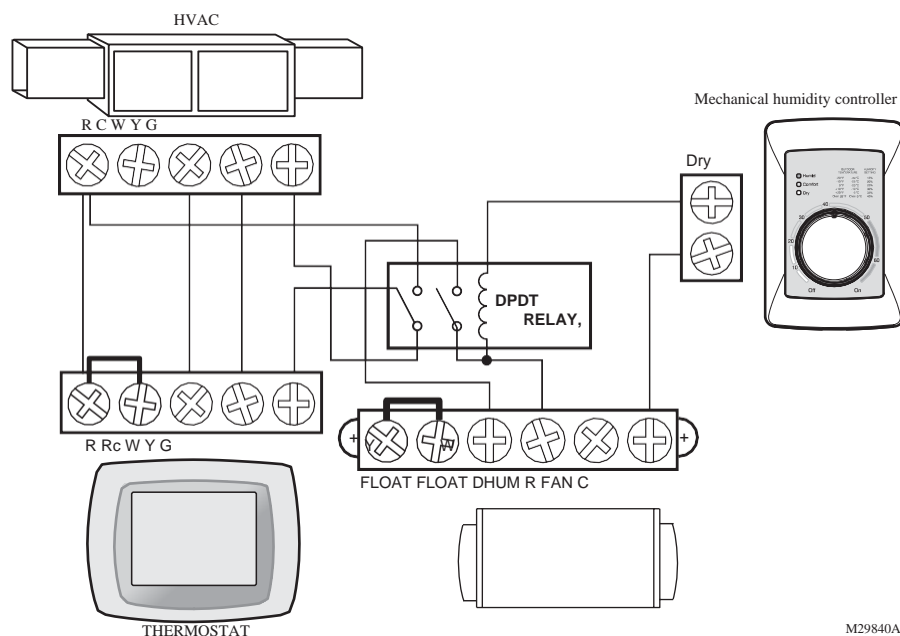
- FLOAT: External low voltage water level sensor or float switch (2 Terminals). Normally Closed Switch
- DHUM: During dehumidification operation, the compressor and fan work.
- R: DR90X - AP 24 V output.
- FAN: Run the fan in ventilation mode
- C: DR90X - AP 24 V Output

The R and C terminals can be supplied by external devices (Maximum power is 20 VA).

Connection

Connect the DR90X-AP in accordance with the operation control mode you need.

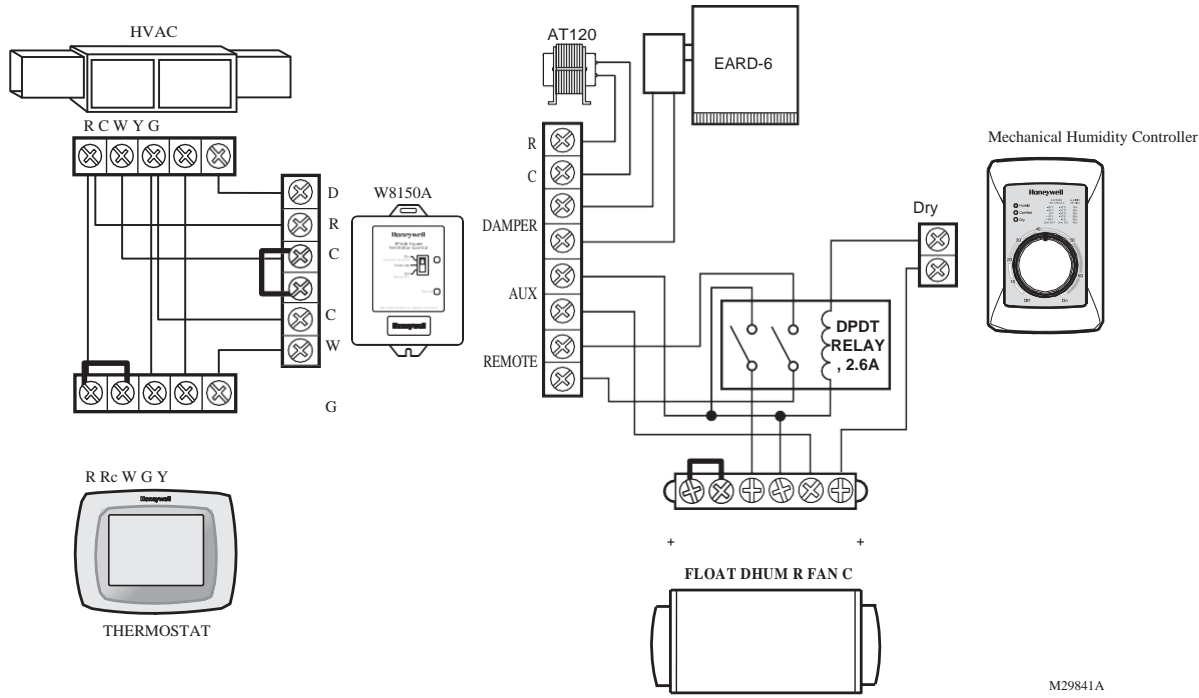
The figure on the right shows the connecting method of the external mechanical humidity controller to control the operation of the dehumidifier.



M29840A

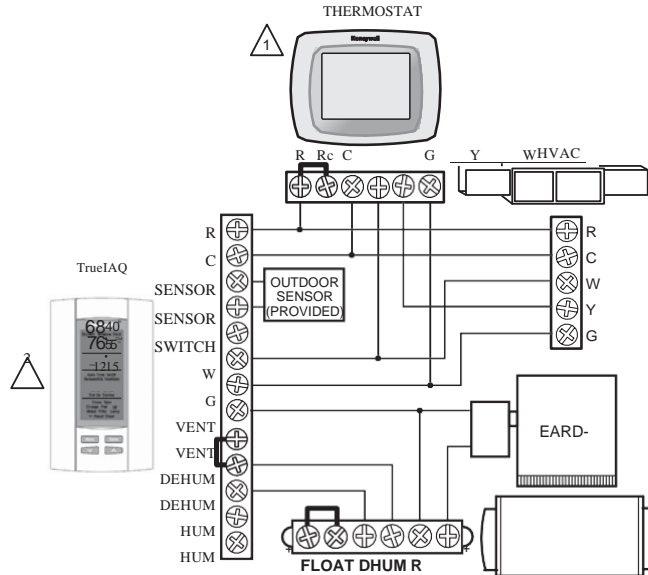
Connection (Continued)

Please connect in accordance with the right figure when connecting to the air duct system with external humidity and ventilation control device.



M29841A

If you need to use the dehumidifier with an electrified dehumidifier such as TrueIAQ (DG115EIQ), please install it as shown in the figure.



- 1 IF A THERMOSTAT OTHER THAN A TH5110, TH5220, TH5320, TH6110, TH6220, TH6320, TH8110, TH8320, OR TH8321 IS USED, A RELAY MAY BE REQUIRED TO ISOLATE THE G WIRE.
 - 2 PROGRAM ISU SETTING 60 TO Ø TO FORCE SYSTEM FAN ON WITH DEHUMIDIFICATION CALL.
- M29842A

Test

After the DR90X-AP Dehumidifier is powered on, set the humidity control function at a lower relative humidity level to start the dehumidification function. Make sure that the compressor and fan of DR90X-AP dehumidifier are on. The blower shall also be on to allow air circulation. These will take up to two minutes. When the test is completed, make sure that the control function is set at the required relative humidity percentage or turn off the control function. Setting the humidity control to “off” will turn off the DR90X-AP dehumidifier.

1

Cut and discard the plastic straps. This strap is only used to secure the compressor during transportation.



2

Power on the DR90X-AP dehumidifier. And set the humidity controller at a low relative humidity level. Make sure the compressor and fan are in operation. The blower also starts to turn on normally and circulate air. When the test is completed, make sure that the controller is set at the required relative humidity percentage or turn off the controller.

3

If ventilation mode is required, initially set ventilation on. Make sure that DR90X-AP is not running while the fan is running.

Clean

It is necessary to repair and maintain the Product every year to ensure the efficient operation of the dehumidifier.

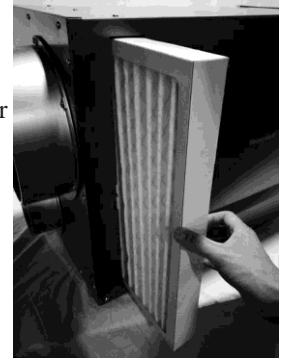
1

Unplug the power supply of the DR90X-AP dehumidifier, and then perform maintenance. Open the cover plate of the magnetic filter screen and the filter screen mounting bracket from the side of the dehumidifier.



2

Take out the filter screen (50049536-003) And replace with a new filter screen.



3

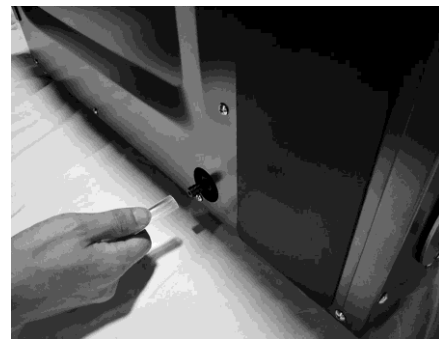
Remove the dehumidifier outlet side cover plate. Use a wet cloth to remove dust accumulated on the interior, including the wind wheel and inner wall.

Replace the cover when you're done.



4

Check the drain connection and drain pipe to make sure they are not blocked by mud, etc. When the drain pipe is cleaned, ensure that all pipes and joints are sealed.



5

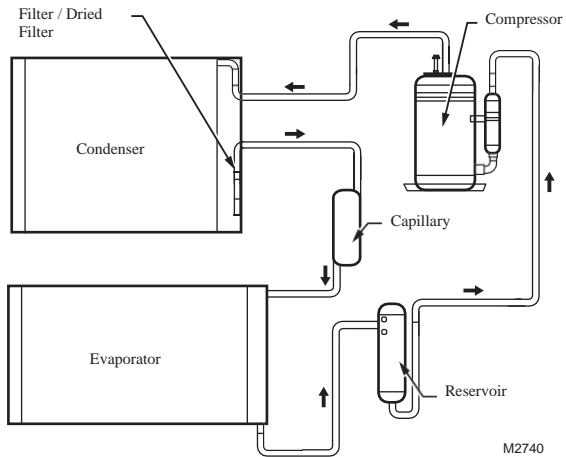
When cleaning is complete, start the dehumidification mode to check whether the compressor and fan are working properly. If you are using the TrueIAQ controller, you need to reset the maintenance prompt.

Technical Description

The **DR90X-AP** dehumidifier uses a cooling system similar to an air conditioner that removes heat and moisture from the incoming air and transfers it to the outgoing air.

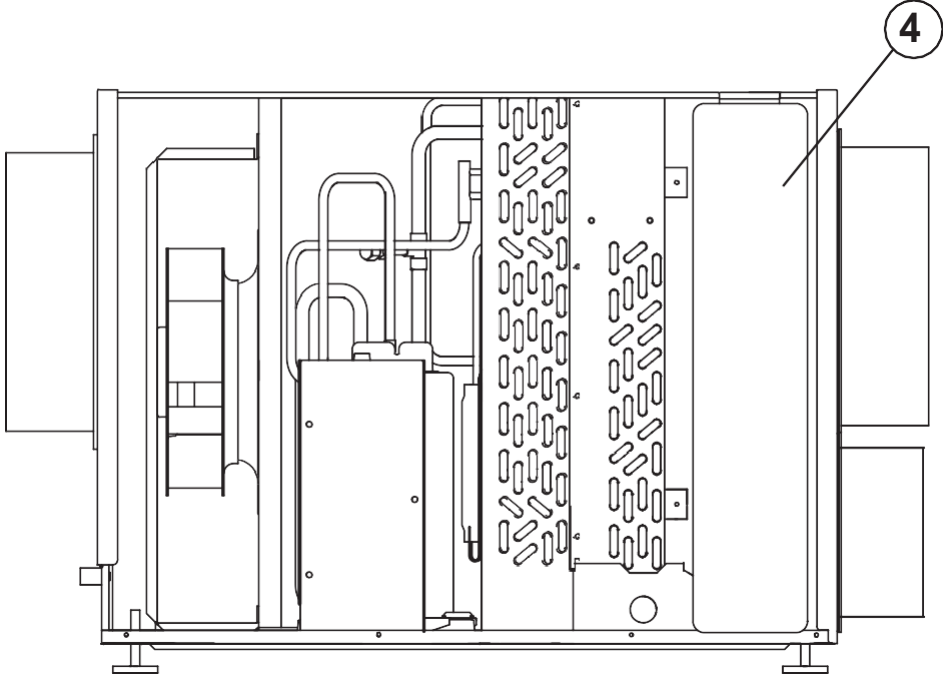
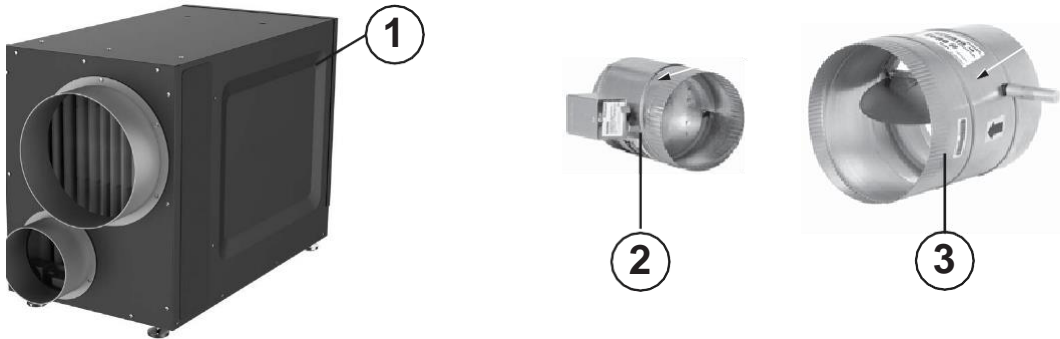
The high temperature and high pressure refrigerant gas reaches the condenser coil from the compressor. The refrigerant is cooled and condensed by the air to be discharged, and the heat is released. After that, the liquid refrigerant passes through a drying filter and a capillary tube which can reduce the pressure and temperature of the refrigerant. Then, the refrigerant enters the evaporator coil, absorbs the heat in the air and evaporates.

Evaporators need to operate under wetting conditions, which means that all evaporator tubes contain liquid refrigerant in normal operation. The wetted evaporator shall maintain a nearly stable pressure and temperature from inlet to outlet in the whole coil.



Parts Lists

Refer to Figure No	Basic Parts and Accessories	Part Number
1	TrueDRY	DR90X -AP
2	Motor Driven Air Valve	EARD6
3	10-inch anti backflow damper (without counterweight)	SPRD10
4	Filter screen	50070171-002



For Reference Only



resideo

Resideo Smart Homes Technology (Tianjin) Co.,Ltd.

Address: 156 Nanhai Road, Economic and Technological Development Zone, Tianjin, China

Postcode: 300457

Telephone: (86)2266299292