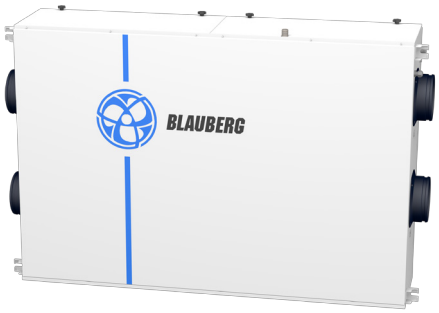
MERENFORT DTF

Residential ERV With Dehumidifier



Features

- Suitable for environments that require efficient dehumidification while needing fresh air ventilation with heat exchange functionality.
- Fresh air dehumidification, where outdoor fresh air is dehumidified and supplied into the room; also supports internal circulation for rapid and powerful dehumidification.
- Isothermal dehumidification, without increasing the energy consumption of air conditioning.
- Flange size is 150mm.

Design

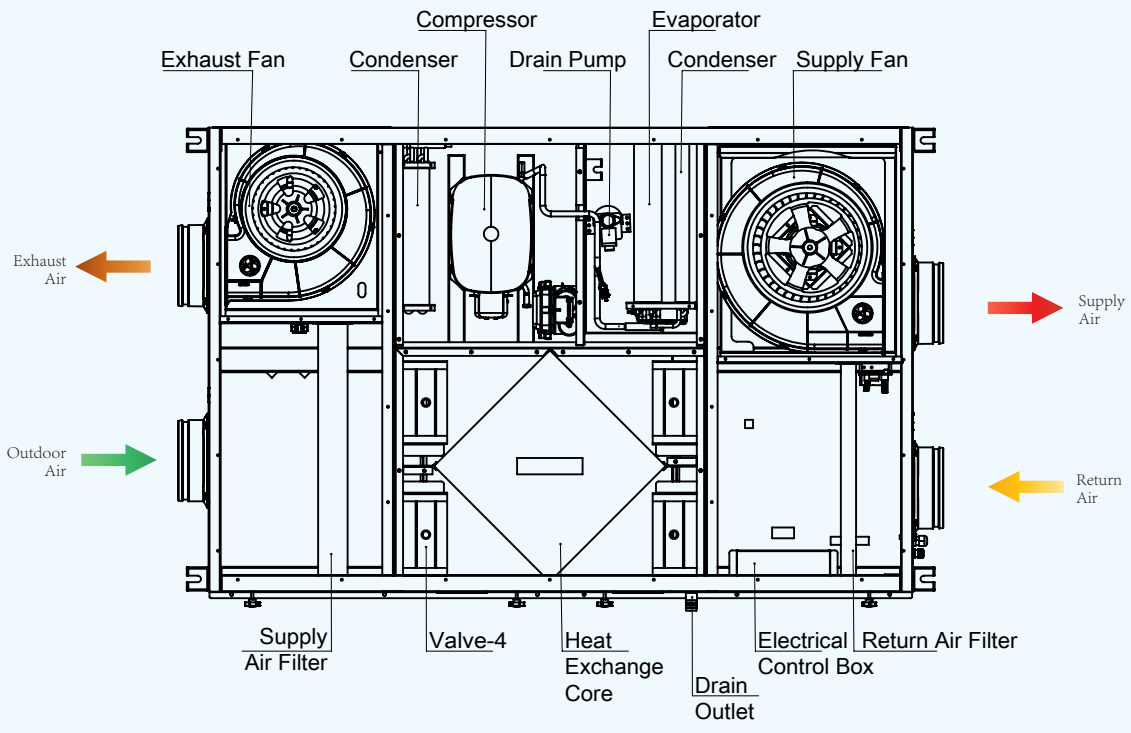
- Constructed with polymer-coated sheet metal and internally insulated with EPP for effective thermal insulation and noise reduction.
- Equipped with removable side panels for easy maintenance and filter replacement.
- Flanges are installed at both ends of the ERV with dehumidifier for convenient duct connection.
- Mounting brackets are integrated into the casing for ceiling installation.
- A five-in-one sensor is installed at the return air inlet, and a temperature & humidity sensor is installed at the outdoor air inlet for intelligent monitoring.
- RS485 interface is provided as standard.
- The dehumidification, heat exchange core, and fan modules are designed independently, allowing for easier maintenance and servicing.

Compressor

- Uses a high-efficiency piston compressor, energy-saving and quiet.
- The compressor is fixed with a cushioning system, effectively reducing vibration transmission.

Fan

- Uses a DC forward-tilted volute fan.
- Constant air volume, optimized internal duct structure, low noise.
- Fan dynamic and static balance calibration for smoother operation.



Isothermal Dehumidification Process

- Fresh Air Dehumidification Mode: High-temperature, high-humidity air enters the unit through the outdoor air inlet. It first passes through the evaporator, where it is cooled below the dew point, causing moisture to condense and be removed. The resulting low-temperature, low-humidity air then passes through part of the condenser for preheating. Afterward, it flows through the heat exchange core, where it exchanges heat with the indoor exhaust air. The final air delivered indoors is low-humidity air at a temperature close to the indoor temperature.
- Powerful Dehumidification Mode: High-temperature, high-humidity air enters through the indoor return air inlet. It is cooled by the evaporator to below the dew point, allowing moisture to condense and be removed, becoming low-temperature, low-humidity air. This air is then reheated by the condenser to reach a temperature close to the indoor environment and is supplied back indoors as dry, room-temperature air. Meanwhile, outdoor air is drawn in through the outdoor air inlet, and a motorized damper controls the airflow to discharge excess heat, generated by the compressor and another part of the condenser, through the exhaust air outlet.

Filter

- The air inlet is equipped with a G3+H11 composite filter, providing a PM2.5 filtration efficiency of over 97%.
- At the same time, it protects the compressor and the evaporator-condenser, preventing internal blockage.

Control & Automation

Merenfort DTF Dehumidifier Dedicated Controller:

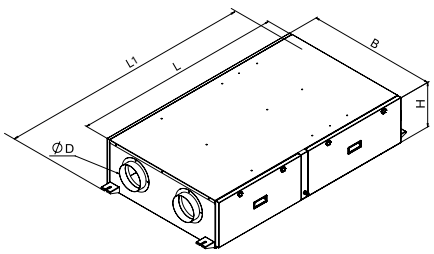
- Device power switch
- Operation mode switching (Smart Mode, Fresh Air Ventilation, Fresh Air Dehumidification, Powerful Dehumidification, Rapid Purification Mode)
- Dehumidification function switch
- Humidity setting (20-95%)
- Air volume adjustment (High, Medium, Low, Auto)
- Indoor air quality monitoring (Temperature & Humidity, TVOC, PM2.5, CO2)
- RS485 interface, MODBUS RTU protocol, compatible with BMS systems
- Mobile App function for remote monitoring and control

Installation

- Due to its ultra-thin body, the unit is ideal for ceiling installation in houses with limited space.
- The installation location must provide sufficient space for future maintenance and servicing.
- Proper drainage for condensate must be considered.

Dimensions

Model	D	B	H	L	L1
MERNFORT DTF38L/350-ARI-2.0	150	875	292	1292	1330
MERNFORT DTF70L/450-ARI-2.0	150	875	292	1292	1330



Technical Parameters

Parameters		MERNFORT DTF38L/350-ARI-2.0	MERNFORT DTF70L/450-ARI-2.0
Rated Voltage [V]		220~	220~
Rated Frequency [Hz]		50	50
Rated Input Power [W]		390	840
Weight [kg]		92	100
Dehumidification Capacity	30/80[L/D]	38	70
	27/60[L/D]	19	38
Total Heat Exchange Efficiency	Cooling Recovery [%]	55	55
	Heating Recovery [%]	60	60
Rated Airflow	Supply Air Volume [m^3/h]	High/Medium/Low：350/280/210	High/Medium/Low：450/360/300
	Return Air Volume [m^3/h]	High/Medium/Low：300/230/160	High/Medium/Low：400/310/250
Available Outdoor Air Intake [m^3/h]		0-350	0-450
External Static Pressure [Pa]		150	150
Noise [dB (A)]		34	41
Applicable Area [m^3]		50-75	75-140
Filtration Level	Supply Air	Silver Ion+HEPA	Silver Ion+HEPA
	Return Air	Silver Ion+G4	Silver Ion+G4
Refrigerant / Charge Amount [g]		R290/200	R290/300
Dehumidification Operating Temperature [°C]		5-38	5-38
Flange Size [mm]		ϕ150*4	ϕ150*4

Notes:

1.The input power, dehumidification capacity, noise level, and airflow data are all tested under dehumidification mode.

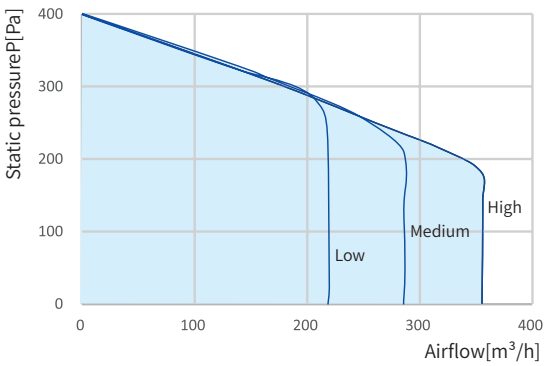
2.The airflow, input power, and dehumidification capacity data are measured with 1m air ducts connected to both the air inlet and outlet of the unit, under 0Pa static pressure.

3.The noise level is an A-weighted average sound pressure level, with a central value from laboratory tests and a tolerance range of ±3dB.

4.The noise level is measured in a noise testing room at a distance of 1.5m below the product, with a 1m silencer pipe connected to the air outlet and a 1m air duct connected to the air inlet.

5.The dehumidification operating temperature refers to the inlet air temperature range within which the compressor can start and operate, without affecting fan operation.

MERNFORT DTF 38L/350-ARI-2.0



MERNFORT DTF 70L/450-ARI-2.0