

1. Specifications

Type				Inverter heat pump		
Model name				AOYG72LRLA	AOYG90LRLA	
Power supply				3N 400 V ~ 50 Hz		
Available voltage range				342—456 V		
Starting current			A	11.5	14.1	
Input power	Cooling	Rated	kW	5.99	7.24	
	Heating			6.12	7.65	
Current	Cooling	Rated	A	11.2	13.5	
		Max.		13.3	14.6	
	Heating	Rated		11.5	14.1	
		Max.		13.3	14.6	
Power factor	Cooling	Rated	%	77.2	77.4	
	Heating			76.8	78.3	
Fan	Airflow rate	Cooling	m³/h	8,400	8,400	
		Heating		8,400	9,000	
	Type × Q'ty			Propeller × 2		
	Motor output		W	111 × 2		
Sound pressure level *1		Cooling	dB (A)	55	55	
		Heating		55	57	
Sound power level		Cooling	dB (A)	68	68	
		Heating		70	71	
Heat exchanger type		Dimensions (H × W × D)	mm	1,386 × 1,293 × 36.38	Main: 1,386 × 1,293 × 36.38 Sub: 1,386 × 773 × 18.19	
		Fin pitch		1.45		
		Rows × Stages		2 × 66	2.6 × 66	
		Pipe type		Copper		
		Fin	Type (Material)	Corrugate (Aluminum)		
			Surface treatment	Blue fin		
Compressor	Type × Q'ty			Scroll × 1		
	Motor output		W	4,700		
Refrigerant		Type		R410A		
		Factory charge	g	5,600	7,100	
Refrigerant oil		Type		FVC68D		
		Amount	cm³	2,300		
Enclosure		Material		Painted galvanized steel		
		Color		Beige Approximate color of MUNSELL 10YR 7.5/1.0		
Dimensions (H × W × D)	Net		mm	1,428 × 1,080 × 480		
	Gross			1,557 × 1,174 × 600		
Weight	Net		kg	163	172	
	Gross			181	190	
Connection pipe	Size	Liquid	mm (in)	Ø 12.70 (Ø 1/2)		
		Gas		Ø 25.40 (Ø 1)		
	Method			Brazing		
	Pre-charge length		m	30		
	Max. length			100		
	Max. height difference			30		
Operation range		Cooling	°C	-15 to 46		
		Heating		-20 to 24		

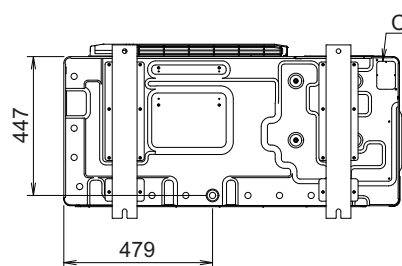
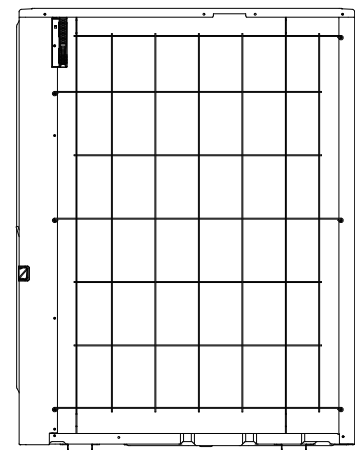
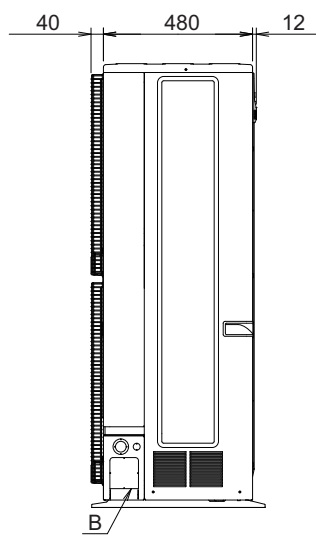
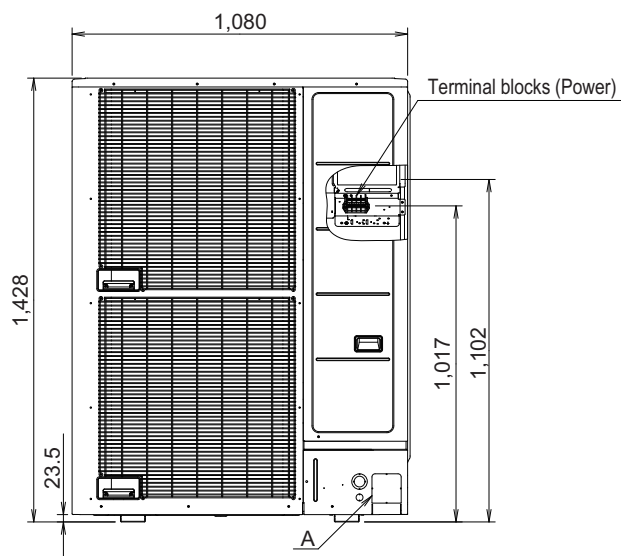
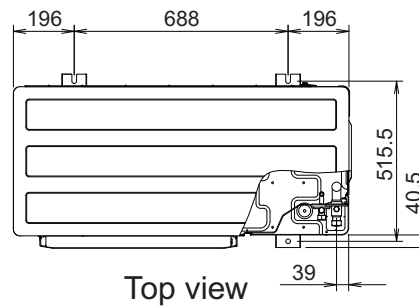
NOTES:

- Specifications are based on the following conditions:
 - Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
 - Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
 - Pipe length: 7.5 m, Height difference: 0 m.
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
 - Measured values in manufacturer's anechoic chamber.
 - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

2. Dimensions

2-1. Models: AOYG72LRLA and AOYG90LRLA

Unit: mm

OUTDOOR UNIT
AOYG72-90LRLAOUTDOOR UNIT
AOYG72-90LRLA

3. Installation space

3-1. Models: AOYG72LRLA and AOYG90LRLA

■ Space requirement

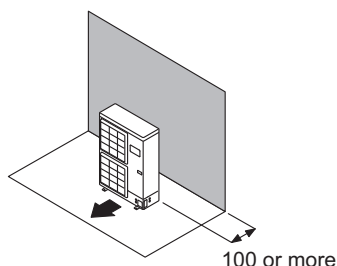
Provide sufficient installation space for product safety.

● Single outdoor unit installation

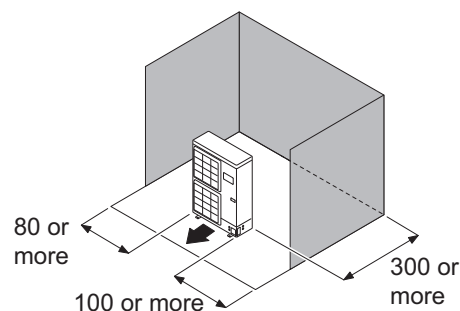
- When the upper space is open:

Unit: mm

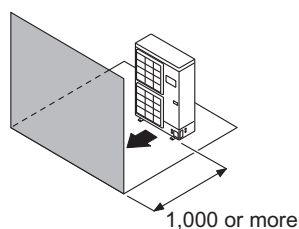
When there are obstacles at the rear only.



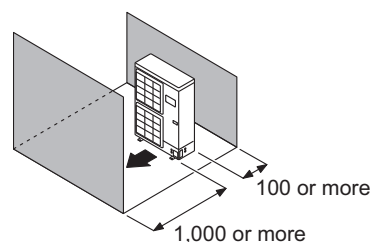
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



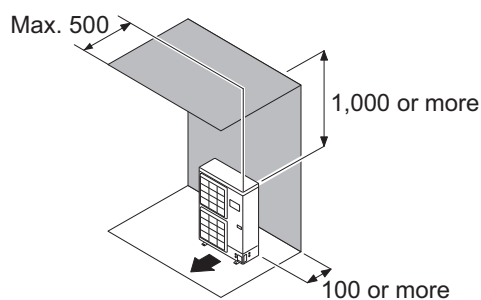
When there are obstacles at the front and rear.



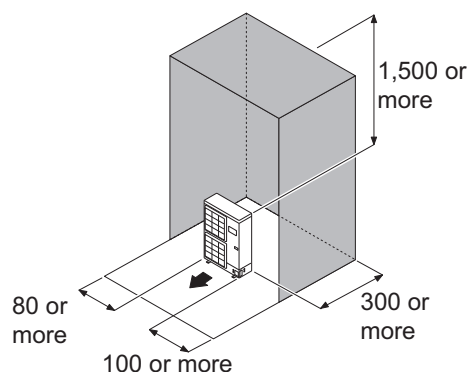
- When there is an obstruction in the upper space:

Unit: mm

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.



● Multiple outdoor unit installation

NOTES:

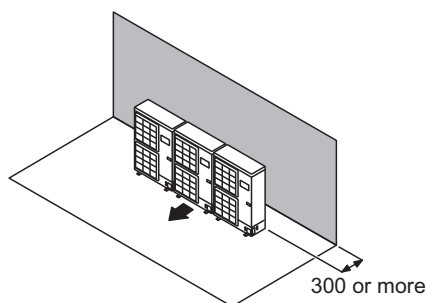
- Provide at least 100 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for the piping.
- No more than 3 units must be installed side by side.

When 3 units or more are arranged in a line, provide the space as shown in the following example when an obstruction is present also in the upward area.

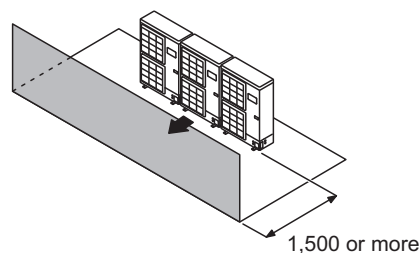
- **When the upper space is open:**

Unit: mm

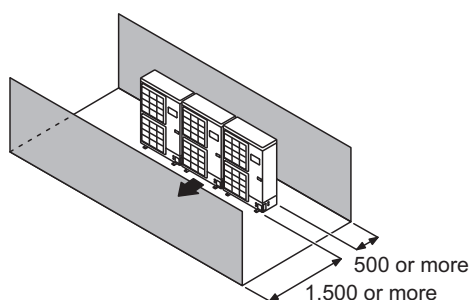
When there are obstacles at the rear only.



When there are obstacles at the front only.



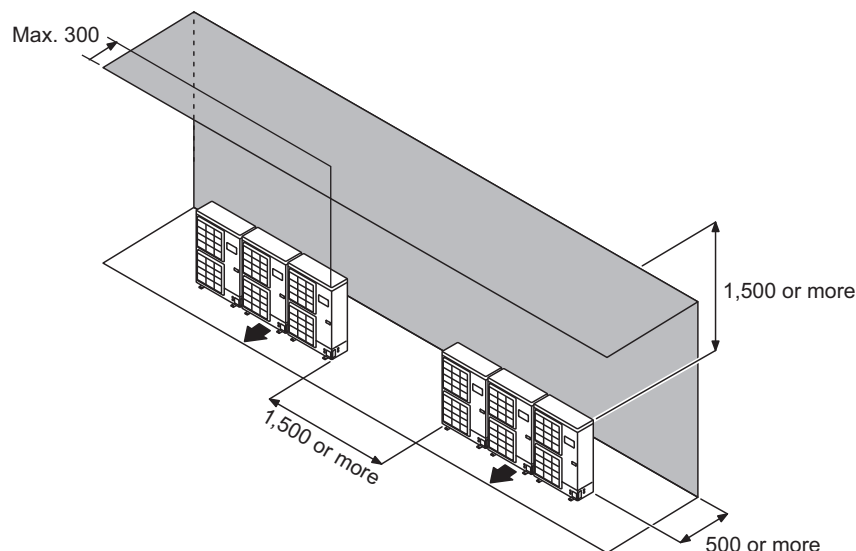
When there are obstacles at the front and rear.



- **When there is an obstruction in the upper space:**

Unit: mm

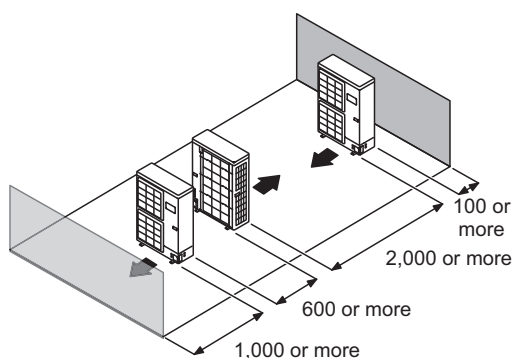
When there are obstacles at the rear and above.



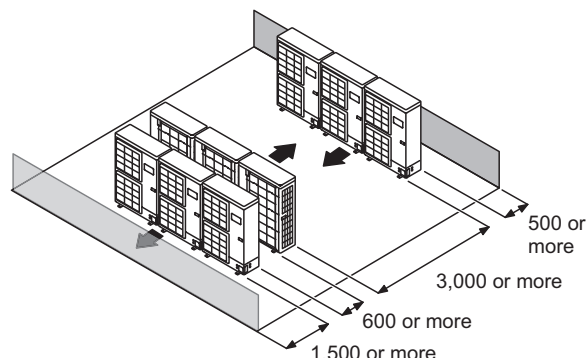
● Outdoor unit installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

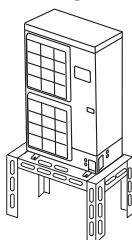


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

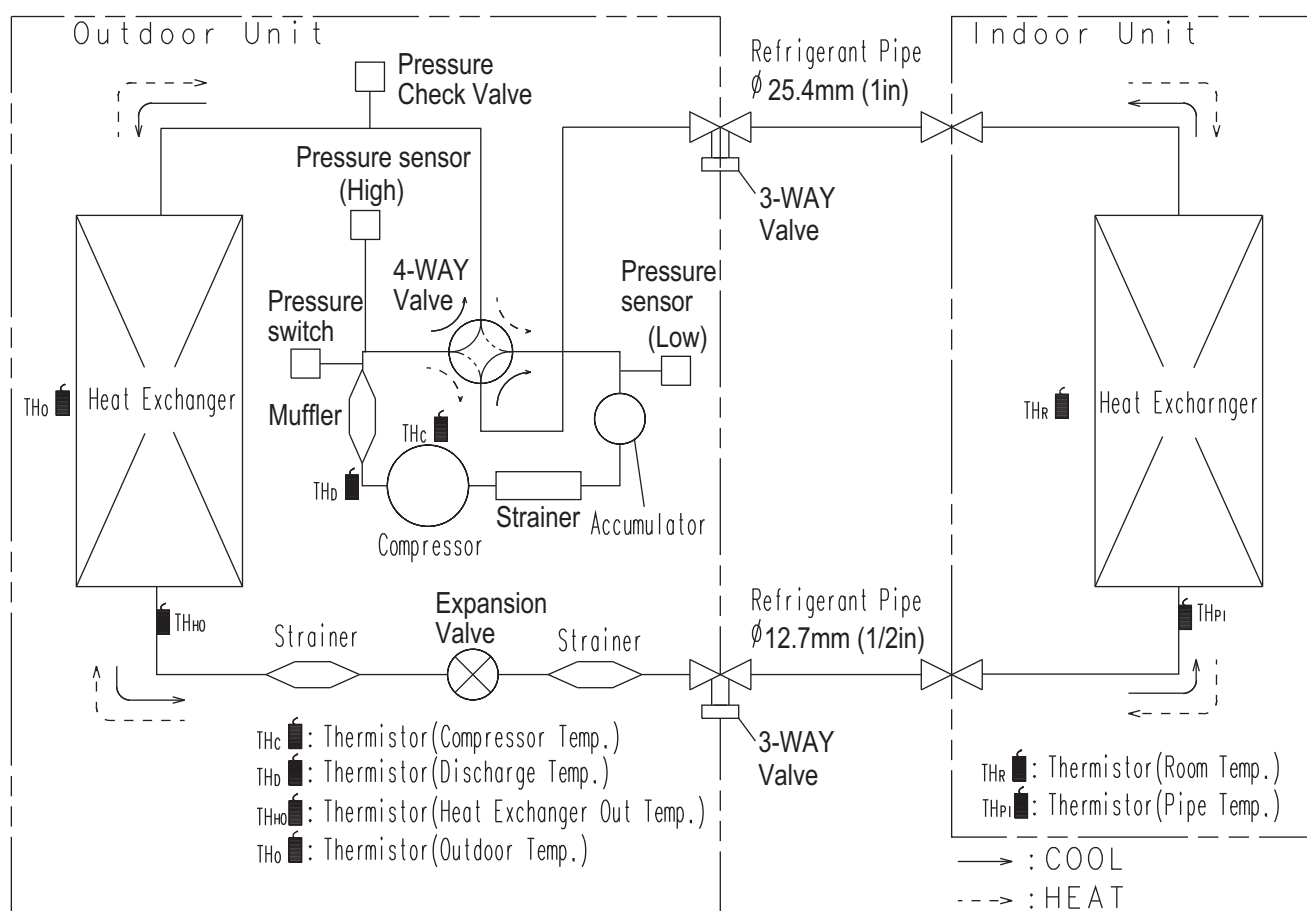
⚠ CAUTION

- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.



4. Refrigerant circuit

4-1. Models: AOYG72LRLA and AOYG90LRLA



OUTDOOR UNIT
AOYG72-90LRLA

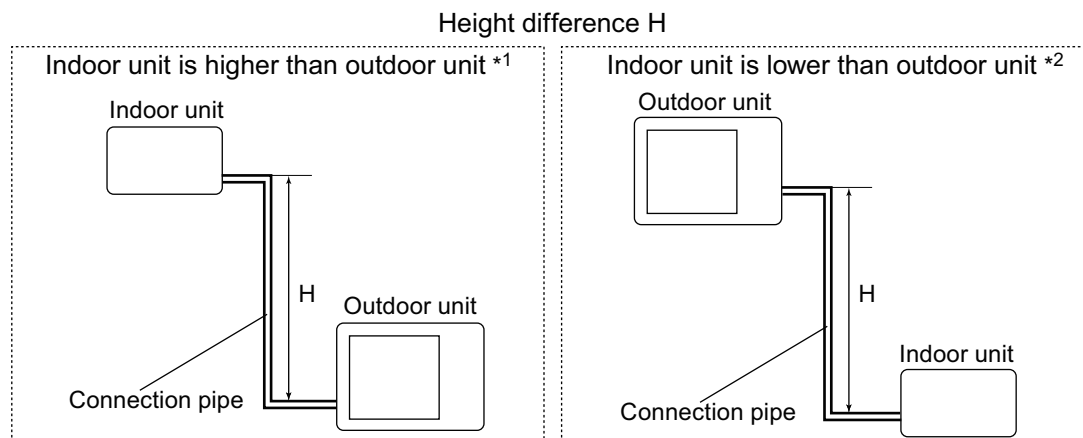
OUTDOOR UNIT
AOYG72-90LRLA

OUTDOOR UNIT
AOYG72-90LRLA

5-1. Models: AOYG72LRLA and AOYG90LRLA



6. Capacity compensation rate for pipe length and height difference



6-1. Model: AOYG72LRLA

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)											
			5	7.5	10	20	30	40	50	60	70	80	90	100
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	—	—	—	—	0.898	0.874	0.850	0.826	0.803	0.780	0.756	0.732
		20	—	—	—	0.938	0.913	0.889	0.864	0.840	0.817	0.793	0.769	0.744
		10	—	—	0.978	0.953	0.928	0.903	0.879	0.854	0.830	0.806	0.781	0.757
		7.5	—	0.988	0.982	0.957	0.932	0.907	0.882	0.858	0.834	0.809	0.784	0.760
		5	0.992	0.992	0.986	0.961	0.935	0.911	0.886	0.861	0.837	0.812	0.788	0.763
		0	1.000	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-7.5	—	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-10	—	—	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-20	—	—	—	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-30	—	—	—	—	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769

HEATING			Pipe length (m)											
			5	7.5	10	20	30	40	50	60	70	80	90	100
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	—	—	—	—	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		20	—	—	—	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		10	—	—	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		7.5	—	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		5	1.000	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		0	1.000	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.995	0.992	0.982	0.972	0.961	0.951	0.941	0.933	0.923	0.913	0.903
		-7.5	—	0.993	0.990	0.980	0.970	0.959	0.949	0.939	0.931	0.921	0.911	0.901
		-10	—	—	0.987	0.977	0.967	0.956	0.946	0.937	0.928	0.918	0.908	0.898
		-20	—	—	—	0.967	0.957	0.947	0.937	0.927	0.919	0.909	0.899	0.889
		-30	—	—	—	—	0.948	0.937	0.927	0.918	0.909	0.900	0.890	0.880

6-2. Model: AOYG90LRLA

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)											
			5	7.5	10	20	30	40	50	60	70	80	90	100
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	—	—	—	—	0.898	0.874	0.850	0.826	0.803	0.780	0.756	0.732
		20	—	—	—	0.938	0.913	0.889	0.864	0.840	0.817	0.793	0.769	0.744
		10	—	—	0.978	0.953	0.928	0.903	0.879	0.854	0.830	0.806	0.781	0.757
		7.5	—	0.988	0.982	0.957	0.932	0.907	0.882	0.858	0.834	0.809	0.784	0.760
		5	0.992	0.992	0.986	0.961	0.935	0.911	0.886	0.861	0.837	0.812	0.788	0.763
		0	1.000	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-7.5	—	1.000	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-10	—	—	0.994	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-20	—	—	—	0.969	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769
		-30	—	—	—	—	0.943	0.918	0.893	0.868	0.844	0.819	0.794	0.769

HEATING			Pipe length (m)											
			5	7.5	10	20	30	40	50	60	70	80	90	100
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	—	—	—	—	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		20	—	—	—	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		10	—	—	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		7.5	—	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		5	1.000	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
		0	1.000	1.000	0.997	0.987	0.977	0.966	0.956	0.946	0.938	0.928	0.918	0.908
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.995	0.992	0.982	0.972	0.961	0.951	0.941	0.933	0.923	0.913	0.903
		-7.5	—	0.993	0.990	0.980	0.970	0.959	0.949	0.939	0.931	0.921	0.911	0.901
		-10	—	—	0.987	0.977	0.967	0.956	0.946	0.937	0.928	0.918	0.908	0.898
		-20	—	—	—	0.967	0.957	0.947	0.937	0.927	0.919	0.909	0.899	0.889
		-30	—	—	—	—	0.948	0.937	0.927	0.918	0.909	0.900	0.890	0.880

7. Additional charge calculation

7-1. Model: AOYG72LRLA

Refrigerant type		R410A
Factory charge amount	g	5,600

■ Refrigerant charge

Total pipe length	m	30 or less	40	50	60	70	80	90	100 (Max.)	110 g/m
Additional charge amount	g	0	1,100	2,200	3,300	4,400	5,500	6,600	7,700	

7-2. Model: AOYG90LRLA

Refrigerant type		R410A
Factory charge amount	g	7,100

■ Refrigerant charge

Total pipe length	m	30 or less	40	50	60	70	80	90	100 (Max.)	110 g/m
Additional charge amount	g	0	1,100	2,200	3,300	4,400	5,500	6,600	7,700	

8. Airflow

8-1. Model: AOYG72LRLA

● Cooling

Airflow	
m ³ /h	8,400
l/s	2,334
CFM	4,944

● Heating

Airflow	
m ³ /h	8,400
l/s	2,334
CFM	4,944

8-2. Model: AOYG90LRLA

● Cooling

Airflow	
m ³ /h	8,400
l/s	2,334
CFM	4,944

● Heating

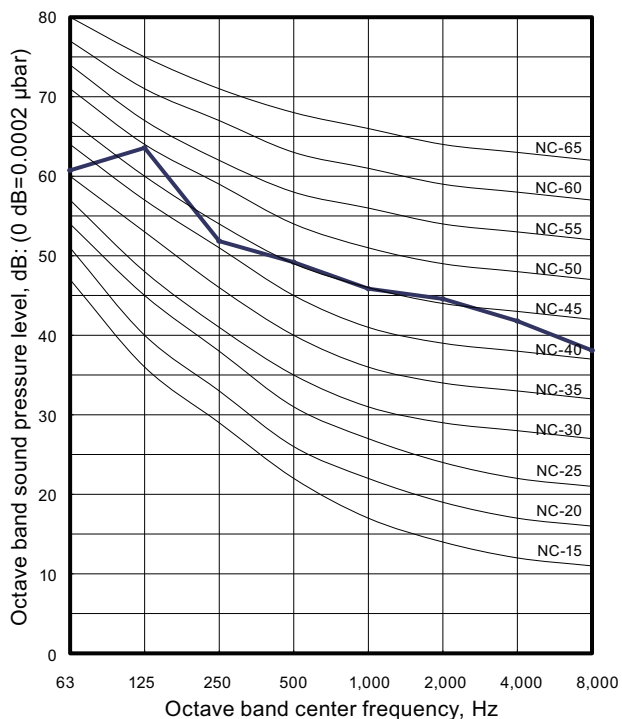
Airflow	
m ³ /h	9,000
l/s	2,500
CFM	5,297

9. Operation noise (sound pressure)

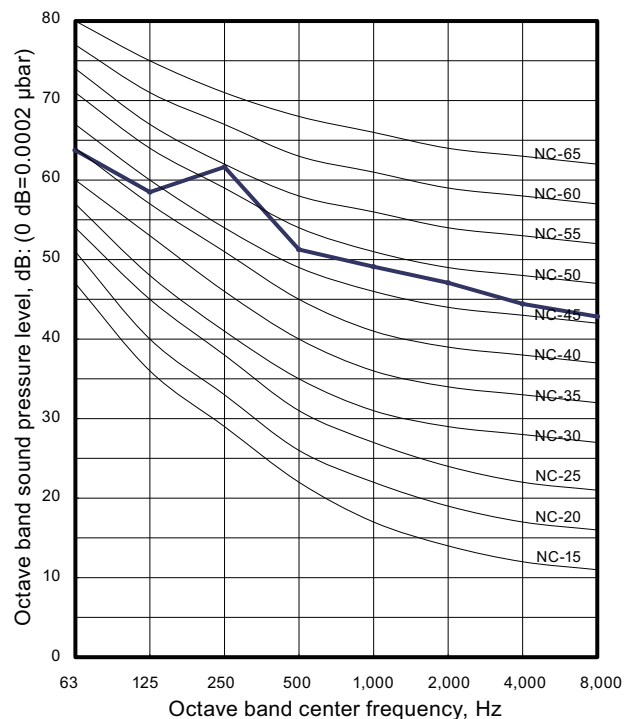
9-1. Noise level curve

Model: AOYG72LRLA

● Cooling

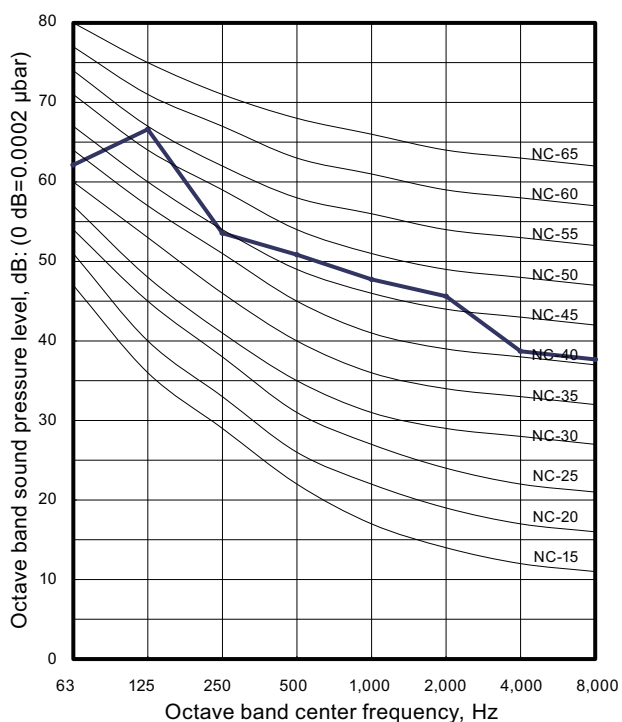


● Heating

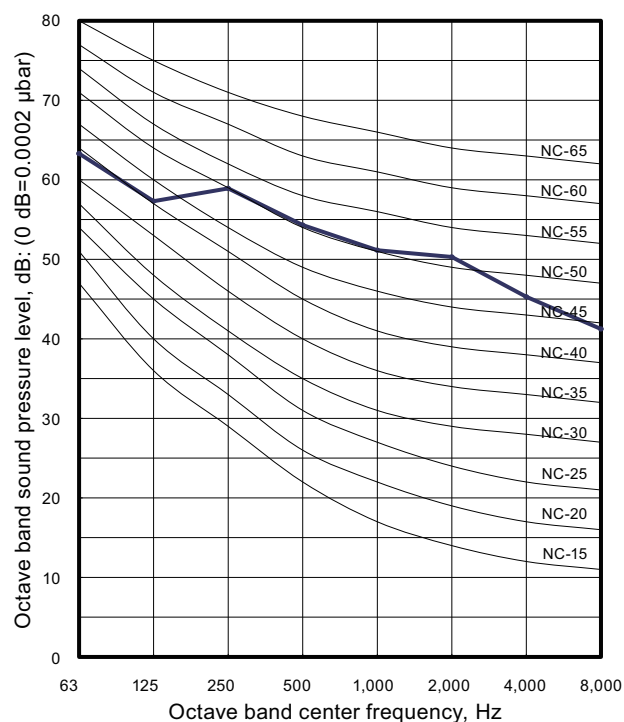


Model: AOYG90LRLA

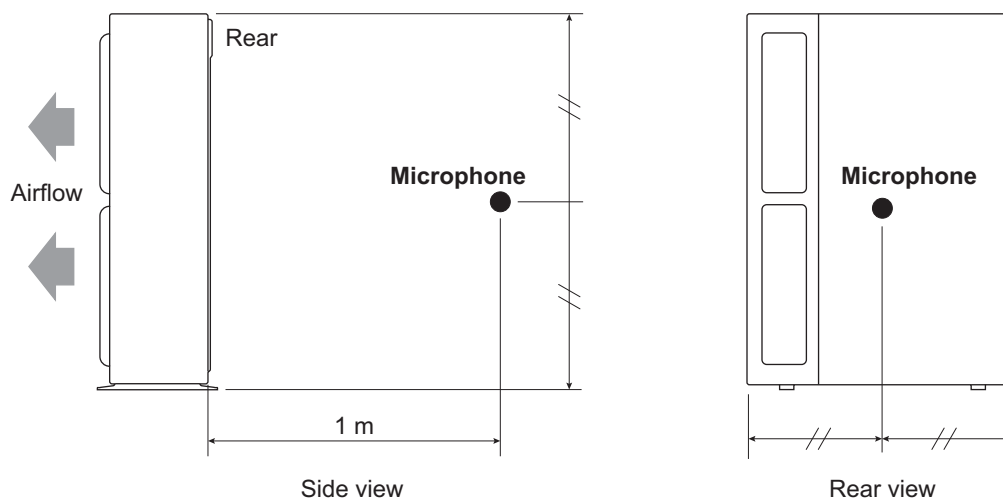
● Cooling



● Heating



9-2. Sound level check point



NOTE: Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.

10. Electrical characteristics

Model name				AOYG72LRLA	AOYG90LRLA
Power supply	Voltage		V	3N 400 ~	
	Frequency		Hz	50	
Max operating current			A	13.3	14.6
Wiring spec. *1	Circuit breaker current		A	30	
	Power cable		mm ²	6.0	
	Connection cable *2	Cross-sectional area	mm ²	1.5	
		Limited wiring length	m	101	

*1: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005. As the regulations of wire size and circuit breaker differ in each country or region, select appropriate devices complied to the regional standard.

*2: Limit voltage drop to less than 2%. Increase conductor size if voltage drop is 2% or more.

11. Safety devices

Type of protection	Protection form		Model	
			AOYG72LRLA	AOYG90LRLA
Circuit protection	Current protector (Filter PCB)		500 V, 45 A × 3	
	Current fuse (Main PCB)		250 V, 10 A	
	Current fuse (Terminal)		250 V, 20 A	
Fan motor protection	Thermal protection program	Activate	115±15 °C Fan motor stop	
		Reset	70 °C Fan motor restart	
Compressor protection	Terminal protection program (Compressor temp.)	Activate	130 °C Compressor stop	
		Reset	80 °C Compressor restart	
	Thermal protection program (Discharge temp.)	Activate	115 °C Compressor stop	
		Reset	After 7 minutes Compressor restart	
High pressure protection	Pressure switch	Activate	4.2 ⁺⁰ _{-0.15} MPa Compressor stop	
		Reset	3.2±0.15 MPa Compressor restart	
	Pressure sensor	Activate	4.1 MPa Compressor stop	
		Reset	After 3 minutes Compressor restart	
Low pressure protection	Pressure sensor	Cooling	0.12 MPa or less (for 5 minutes) Compressor stop	
		Reset	0.15 MPa Compressor restart	