

## 1.1 Outdoor unit specifications

### (1) Packaged-type units

#### ■ Power inverter

Model Name			PUHZ-W50VHA(-BS)	PUHZ-W85VHA2(-BS)
Power supply (phase, cycle, voltage)			1φ, 230V, 50Hz	1φ, 230V, 50Hz
	Max. current	A	13.0	23.0
Breaker size			A	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell 3Y 7.8/1.1	Munsell 3Y 7.8/1.1
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SNB130FGCM	TNB220FLHM1T
	Motor output	kW	0.9	1.3
Start type			Inverter	Inverter
Protection devices			HP switch Discharge thermo Comp. Surface thermo	HP switch Discharge thermo Comp. Surface thermo
	Oil (Model)	L	0.35 (FV50S)	0.67 (FV50S)
Crankcase heater			W	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan x 1	Propeller fan x 1
	Fan motor output	kW	0.086	0.074
	Air flow	m <sup>3</sup> /min(CFM)	50 (1,760)	49 (1,730)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dB(A)	46	48
	Cooling	dB(A)	45	48
Noise level (PWL)	Heating	dB(A)	61	66
Dimensions	Width	mm(in.)	950 (37-3/8)	950 (37-3/8)
	Depth	mm(in.)	330+30 (13+1-3/16)	330+30 (13+1-3/16)
	Height	mm(in.)	740 (29-3/16)	943 (37-1/8)
Weight			kg(lbs)	64 (141)
Refrigerant			R410A	R410A
	Quantity	kg(lbs)	1.7 (3.7)	2.4 (5.3)
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			-	-
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-15 ~ +35	-20 ~ +35
	Cooling	°C	-5 ~ +46	-5 ~ +46
Outlet water temp. (Max in heating, Min in cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+9 ~ +59	+9 ~ +59
	Cooling	°C	+8 ~ +28	+8 ~ +28
Water flow rate range			L/min	6.5 ~ 14.3

## 1.2 Capacity

### (1) Packaged-type units

#### ■ Power inverter

Model name			PUHZ-W50VHA(-BS)	PUHZ-W85VHA2(-BS)
Nominal water flow rate (Heating mode)		L/min	14.30	25.80
Heating (A7/W35)	Capacity	kW	5.00	9.00
	COP		4.10	4.18
	Power input	kW	1.22	2.15
Heating (A2/W35)	Capacity	kW	5.00	8.50
	COP		3.13	3.17
	Power input	kW	1.60	2.68
Pressure difference (water circuit)		kPa	12	13.5
Heating pump input (based on EN14511)		kW	0.01	0.02
Nominal water flow rate (Cooling mode)		L/min	12.90	21.50
Cooling (A35/W7)	Capacity	kW	4.50	7.50
	EER (COP)		2.94	2.47
	Power input	kW	1.53	3.04
Cooling (A35/W18)	Capacity	kW	4.50	7.50
	EER (COP)		4.13	3.93
	Power input	kW	1.09	1.91
Pressure difference (water circuit)		kPa	10	10
Cooling pump input (based on EN14511)		kW	0.01	0.01
Recommended plate heat exchanger			Built-in	Built-in

Note: "COP" and "Power input" in the above table are values that contains the "pump input (based on EN 14511)".

#### ■ Zubadan

Model name			PUHZ-HW112YHA2(-BS)	PUHZ-HW140V/YHA2(-BS)
Nominal water flow rate (Heating mode)		L/min	32.10	40.10
Heating (A7/W35)	Capacity	kW	11.20	14.00
	COP		4.42	4.25
	Power input	kW	2.53	3.29
Heating (A2/W35)	Capacity	kW	11.20	14.00
	COP		3.11	3.11
	Power input	kW	3.60	4.50
Pressure difference (water circuit)		kPa	6	9
Heating pump input (based on EN14511)		kW	0.01	0.02
Nominal water flow rate (Cooling mode)		L/min	28.70	35.80
Cooling (A35/W7)	Capacity	kW	10.00	12.50
	EER (COP)		2.78	2.50
	Power input	kW	3.60	5.00
Cooling (A35/W18)	Capacity	kW	10.00	12.50
	EER (COP)		4.10	3.60
	Power input	kW	2.44	3.47
Pressure difference (water circuit)		kPa	5	7
Cooling pump input (based on EN14511)		kW	0.01	0.02
Recommended plate heat exchanger			Built-in	Built-in

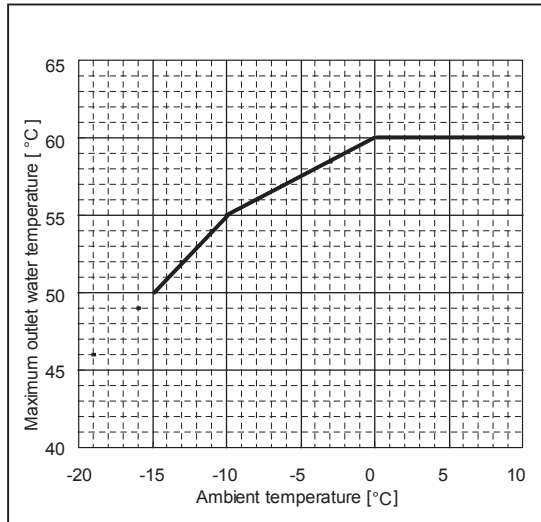
Note: "COP" and "Power input" in the above table are values that contains the "pump input (based on EN 14511)".

## 1.3 Maximum outlet water temperature

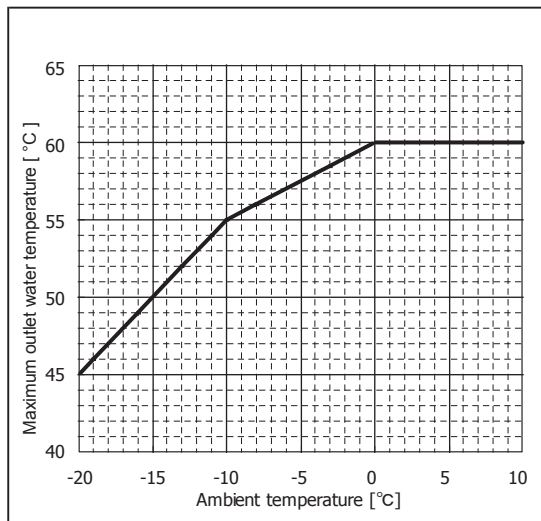
### (1) Packaged-type units

#### ■ Power inverter

#### PUHZ-W50VHA(-BS)

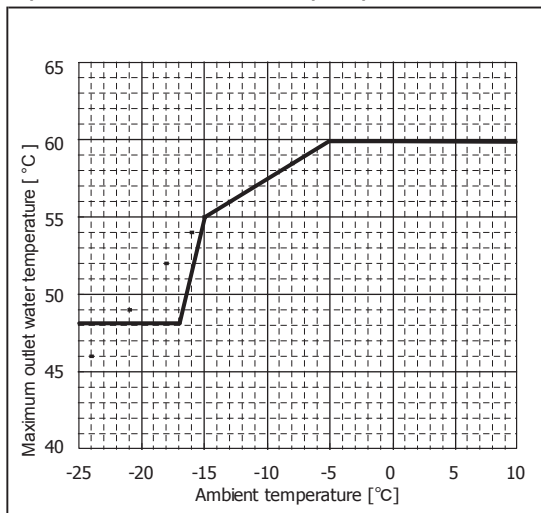


#### PUHZ-W85VHA2(-BS)



#### ■ Zubadan

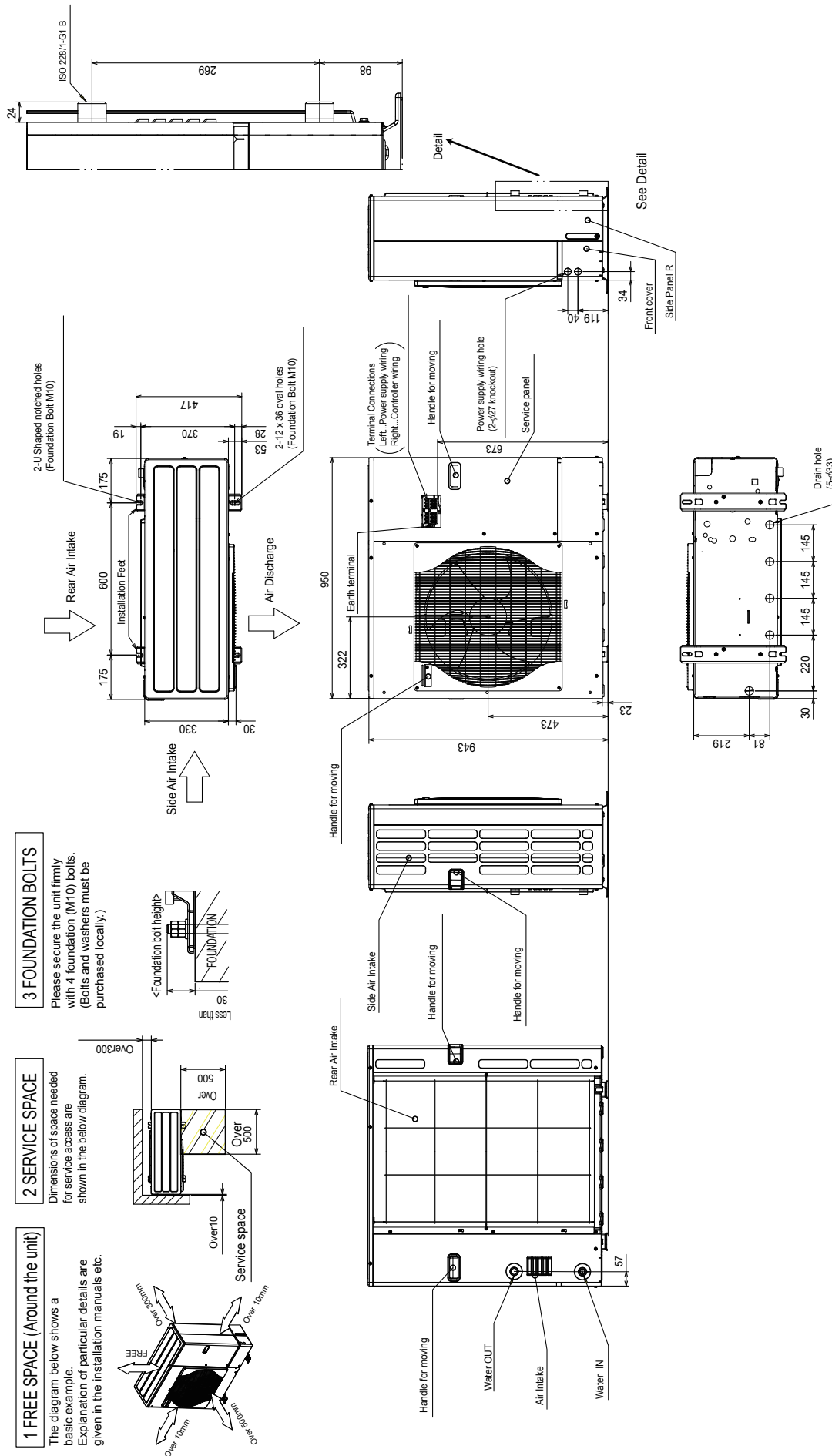
#### PUHZ-HW112/140YHA2(-BS) PUHZ-HW140VHA2(-BS)



■ PUAZ-W85VHA2(-BS)

Unit : mm

Outdoor unit



## 5.2 Heating performance data

### (1) Packaged-type units

#### ■ PUAZ-W50VHA(-BS)

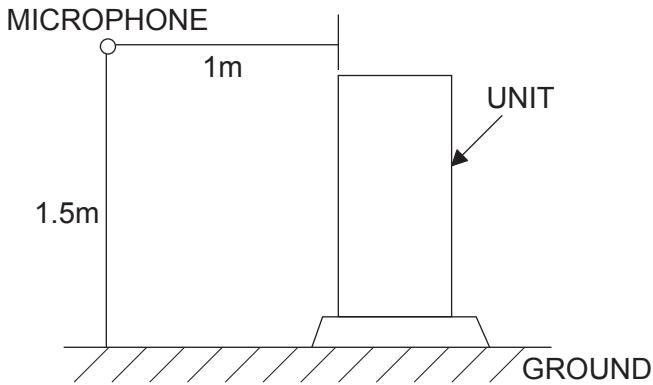
Water outlet temperature[°C]		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
STEP7	-20	-	-	-	-	-	-	-	-	-	-	-	-
	-15	3.50	2.24	3.50	2.06	3.50	1.87	-	-	-	-	-	-
	-10	4.13	2.55	4.13	2.32	4.13	2.10	4.23	1.94	4.34	1.78	-	-
	-7	4.50	2.73	4.50	2.49	4.50	2.24	4.50	2.05	4.50	1.85	-	-
	2	5.00	3.13	5.00	2.85	5.00	2.56	4.99	2.31	4.97	2.05	4.97	1.74
	7	5.00	4.10	5.00	3.66	5.00	3.21	5.00	2.89	5.00	2.56	5.00	2.14
	12	5.04	4.57	5.03	4.01	5.03	3.44	5.08	3.06	5.12	2.68	5.12	2.24
	20	5.06	4.84	5.06	4.22	5.05	3.59	5.12	3.17	5.20	2.74	5.20	2.30
STEP4	-20	-	-	-	-	-	-	-	-	-	-	-	-
	-15	2.93	2.44	2.86	2.20	2.78	1.96	-	-	-	-	-	-
	-10	3.45	2.77	3.36	2.48	3.27	2.19	3.36	1.99	3.45	1.79	-	-
	-7	3.76	2.96	3.67	2.65	3.57	2.33	3.55	2.13	3.53	1.92	-	-
	2	3.27	3.17	3.48	3.03	3.68	2.88	3.72	2.60	3.76	2.32	3.76	1.98
	7	3.46	4.22	3.62	3.81	3.77	3.40	3.79	3.01	3.80	2.62	3.80	2.42
	12	3.54	4.90	3.67	4.28	3.80	3.65	3.81	3.21	3.82	2.77	3.82	2.53
	20	3.58	5.32	3.70	4.56	3.83	3.81	3.83	3.34	3.82	2.87	3.82	2.59
STEP1	-20	-	-	-	-	-	-	-	-	-	-	-	-
	-15	-	-	-	-	-	-	-	-	-	-	-	-
	-10	-	-	-	-	-	-	-	-	-	-	-	-
	-7	2.80	2.99	2.75	2.67	2.70	2.35	2.62	2.12	2.53	1.89	-	-
	2	2.73	3.59	2.95	3.23	3.17	2.86	2.78	2.54	2.39	2.21	-	-
	7	2.83	4.64	3.00	4.03	3.17	3.41	3.17	3.07	3.17	2.73	-	-
	12	2.87	5.26	3.02	4.49	3.17	3.73	3.32	3.32	3.47	2.91	-	-
	20	2.90	5.64	3.03	4.78	3.17	3.91	3.41	3.46	3.66	3.01	-	-
20	2.94	6.26	3.06	5.25	3.17	4.23	3.57	3.71	3.96	3.19	-	-	

#### ■ PUAZ-W85VHA2(-BS)

Water outlet temperature[°C]		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
STEP7	-20	4.91	1.89	4.91	1.70	4.91	1.52	-	-	-	-	-	-
	-15	6.10	2.15	6.10	1.95	6.10	1.74	-	-	-	-	-	-
	-10	7.29	2.41	7.29	2.19	7.29	1.97	7.57	1.79	7.85	1.62	-	-
	-7	8.00	2.57	8.00	2.34	8.00	2.10	8.00	1.92	8.00	1.73	-	-
	2	8.50	3.17	8.50	2.89	8.50	2.61	8.47	2.34	8.44	2.06	8.44	1.82
	7	9.00	4.19	9.00	3.72	9.00	3.24	9.00	2.88	9.00	2.51	9.00	2.23
	12	9.07	4.74	9.21	4.17	9.35	3.59	9.24	3.17	9.14	2.76	9.14	2.37
	20	9.10	5.08	9.33	4.44	9.55	3.80	9.39	3.35	9.23	2.90	9.23	2.46
STEP4	-20	5.31	2.29	5.08	2.03	4.85	1.78	-	-	-	-	-	-
	-15	5.67	2.55	5.52	2.30	5.37	2.04	-	-	-	-	-	-
	-10	6.03	2.81	5.96	2.56	5.90	2.30	6.21	2.12	6.53	1.94	-	-
	-7	6.24	2.97	6.23	2.72	6.21	2.46	6.24	2.25	6.26	2.04	-	-
	2	5.58	3.90	5.60	3.50	5.61	3.10	5.53	2.72	5.44	2.34	5.44	2.09
	7	5.77	4.66	5.57	4.11	5.37	3.56	5.46	3.12	5.54	2.68	5.56	2.34
	12	5.98	5.39	5.87	4.70	5.76	4.00	5.82	3.49	5.88	2.99	5.88	2.63
	20	6.10	5.84	6.05	5.05	6.00	4.26	6.04	3.72	6.09	3.17	6.06	2.81
STEP1	-20	-	-	-	-	-	-	-	-	-	-	-	-
	-15	-	-	-	-	-	-	-	-	-	-	-	-
	-10	-	-	-	-	-	-	-	-	-	-	-	-
	-7	3.30	3.00	3.52	2.75	3.73	2.49	3.76	2.26	3.78	2.02	-	-
	2	3.33	4.01	3.27	3.44	3.20	2.86	3.20	2.52	3.20	2.18	-	-
	7	3.94	4.80	3.88	4.17	3.81	3.53	3.79	3.06	3.77	2.58	-	-
	12	4.53	5.65	4.46	4.85	4.40	4.06	4.44	3.50	4.47	2.94	-	-
	20	4.88	6.16	4.82	5.27	4.75	4.37	4.82	3.77	4.90	3.16	-	-
20	5.47	7.01	5.41	5.96	5.34	4.90	5.47	4.21	5.60	3.52	-	-	

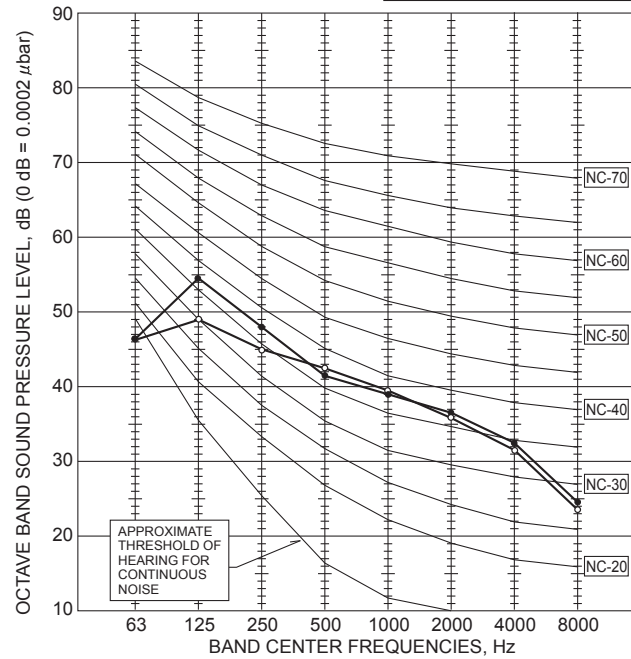
Outdoor unit

## 6.1 Packaged-type units



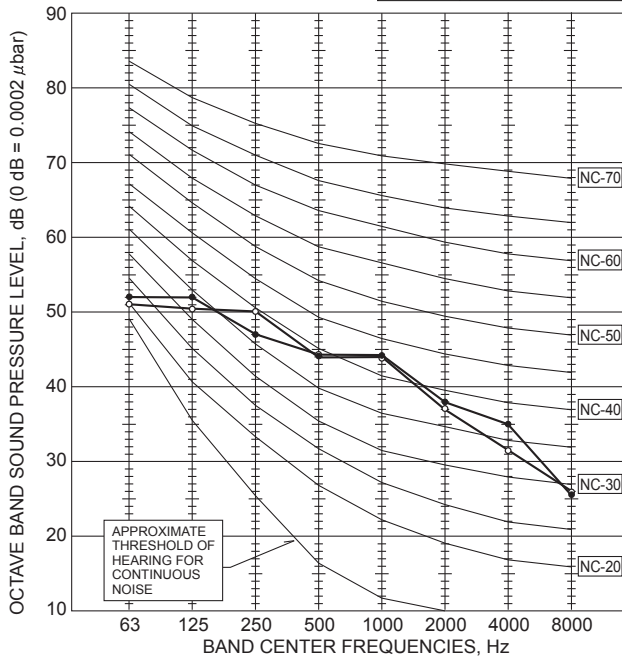
### PUHZ-W50VHA(-BS)

MODE	SPL(dB)	LINE
COOLING	45	○—○
HEATING	46	●—●



### PUHZ-W85VHA2(-BS)

MODE	SPL(dB)	LINE
COOLING	48	○—○
HEATING	48	●—●

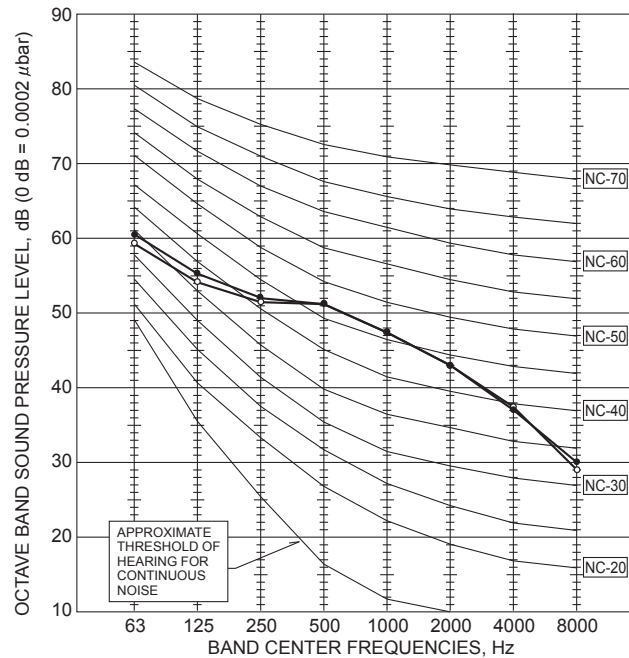


### PUHZ-HW112YHA2(-BS)

### PUHZ-HW140VHA2(-BS)

### PUHZ-HW140YHA2(-BS)

MODE	SPL(dB)	LINE
COOLING	53	○—○
HEATING	53	●—●



## 9.1. Packaged-type units ( Power inverter / ZUBADAN )

PUHZ-W50VHA(-BS), PUHZ-W85VHA2(-BS),  
PUHZ-HW112YHA2(-BS), PUHZ-HW140VHA2(-BS), PUHZ-HW140YHA2(-BS)

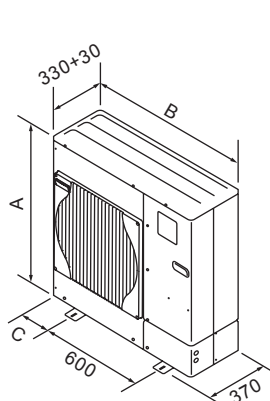


Fig. 1-1

Models	A(mm)	B(mm)	C(mm)
50	740	950	175
85	943	950	175
112	1350	1020	210
140	1350	1020	210

### 9.1.1. Choosing the outdoor unit installation location

- Avoid locations where the unit is exposed to direct sunlight or other sources of heat.
- Select a level location where noise emitted by the unit does not disturb neighbors.
- Select a location where easy wiring and pipe access to the power source is available.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that condensate water may be produced by the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered with snow. In areas where heavy snow fall is anticipated, special precautions must be taken to prevent the snow from blocking the air intake such as to install the unit at higher position or installing a hood on the air intake. This can reduce the airflow and the unit may not operate properly.
- Avoid locations where the unit is exposed to oil, steam, or sulfuric gas.
- Make sure to hold the handles to transport the unit. Do not hold the base of the unit, as there is a risk that hands or fingers may be pinched.

### 9.1.2. Outline dimensions (Outdoor unit) (Fig. 1-1)

### 9.1.3. Windy location installation

When installing the outdoor unit on a rooftop or other location where the unit is exposed to strong wind, do not face the air outlet of the unit directly into the winds. Strong wind entering the air outlet may impede the normal airflow and it may result in a malfunction.

The following shows three examples of precautions against strong winds.

- ① Face the air outlet towards the nearest available wall keeping about 50 cm distance. (Fig. 1-2)
- ② Install an optional air guide if the unit is installed in a location where strong winds such as a typhoon, etc. may directly blow to the air outlet. (Fig. 1-3)
  - Ⓐ Air protection guide
- ③ Position the unit so that the outlet air can blow at right angle to the seasonal wind direction, if possible. (Fig. 1-4)
  - Ⓑ Wind direction

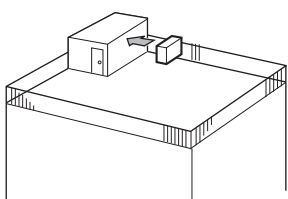


Fig. 1-2

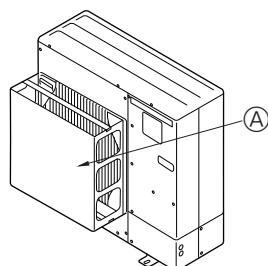


Fig. 1-3

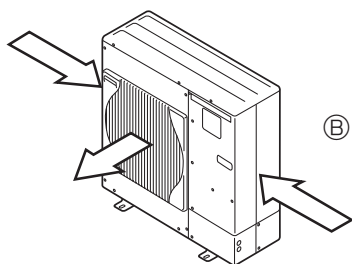


Fig. 1-4

### 9.1.4. NECESSARY SPACE TO INSTALL

#### (1) When installing a single outdoor unit (Refer to the next page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

The figures in parentheses are for 112/140 models.

Refer to the figures for each case.

- ① Obstacles at rear only (Fig. 1-5)
- ② Obstacles at rear and above only (Fig. 1-6)
- ③ Obstacles at rear and sides only (Fig. 1-7)
- ④ Obstacles at front only (Fig. 1-8)
  - \*When using an optional air outlet guide, the clearance for 112/140 models is 500 mm or more.
- ⑤ Obstacles at front and rear only (Fig. 1-9)
  - \*When using an optional air outlet guide, the clearance for 112/140 models is 500 mm or more.
- ⑥ Obstacles at rear, sides, and above only (Fig. 1-10)
  - \*Do not install the optional air outlet guides for upward airflow.

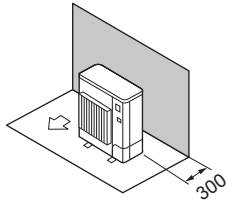
#### (2) When installing multiple outdoor units (Refer to the next page)

Leave 10 mm space or more between the units.

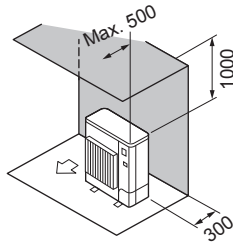
The figures in parentheses are for 112/140 models.

- ① Obstacles at rear only (Fig. 1-11)
- ② Obstacles at rear and above only (Fig. 1-12)
  - \*No more than 3 units must be installed side by side. In addition, leave space as shown.
  - \*Do not install the optional air outlet guides for upward airflow.
- ③ Obstacles at front only (Fig. 1-13)
  - \*When using an optional air outlet guide, the clearance for 112/140 models is 1000 mm or more.
- ④ Obstacles at front and rear only (Fig. 1-14)
  - \*When using an optional air outlet guide, the clearance for 112/140 models is 1000 mm or more.
- ⑤ Single parallel unit arrangement (Fig. 1-15)
  - \*When using an optional air outlet guide installed for upward airflow, the clearance is 500 (1000) mm or more.
- ⑥ Multiple parallel unit arrangement (Fig. 1-16)
  - \*When using an optional air outlet guide installed for upward airflow, the clearance is 1000 (1500) mm or more.
- ⑦ Stacked unit arrangement (Fig. 1-17)
  - \*The units can be stacked up to 2 units high.
  - \*No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

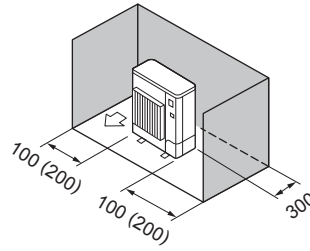
UNIT : mm  
( ) : HW112,140



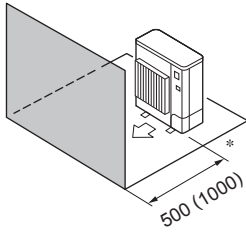
**Fig. 1-5**



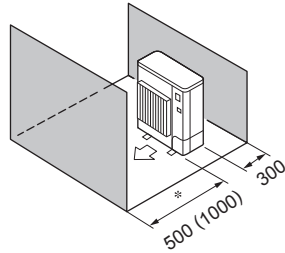
**Fig. 1-6**



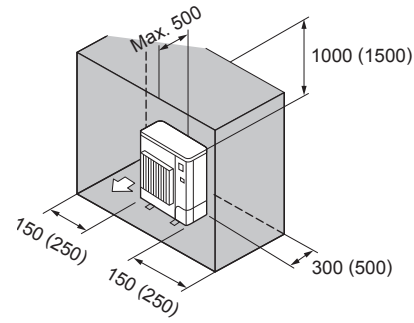
**Fig. 1-7**



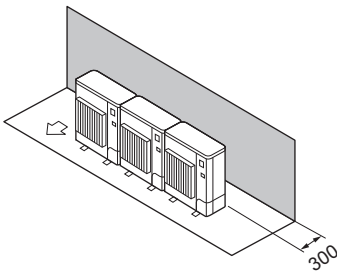
**Fig. 1-8**



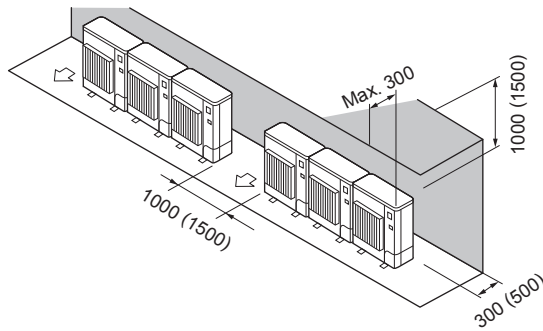
**Fig. 1-9**



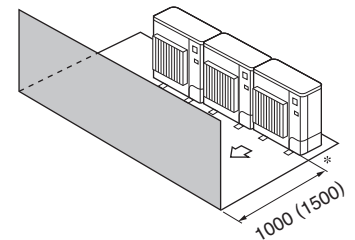
**Fig. 1-10**



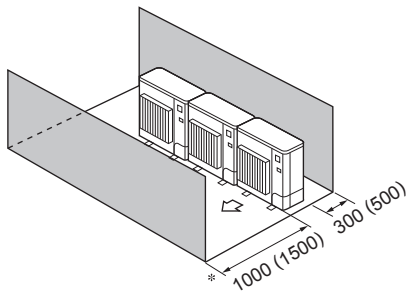
**Fig. 1-11**



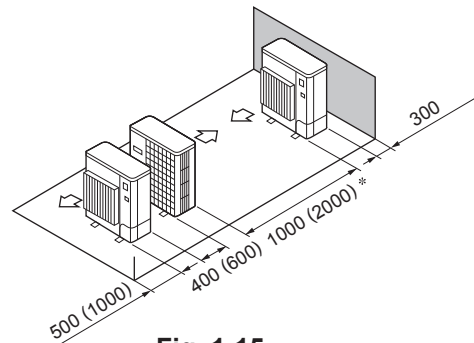
**Fig. 1-12**



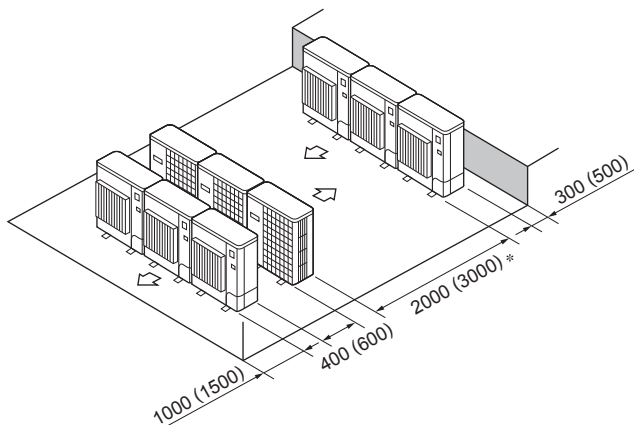
**Fig. 1-13**



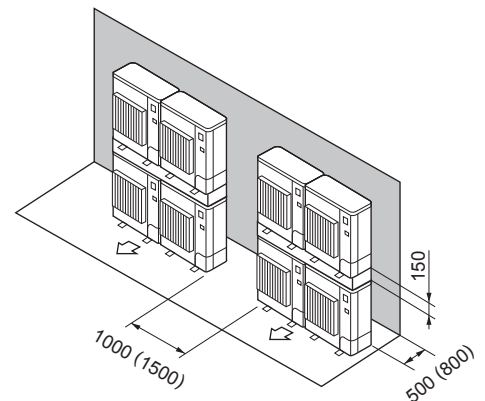
**Fig. 1-14**



**Fig. 1-15**



**Fig. 1-16**



**Fig. 1-17**