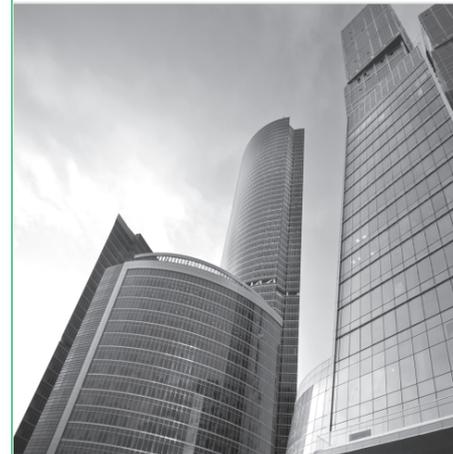


Hisense



Inverter-Driven Multi-Split Central Air Conditioning Heat Pump System

Water Source Hi-Flexi W Series

Technical Catalog

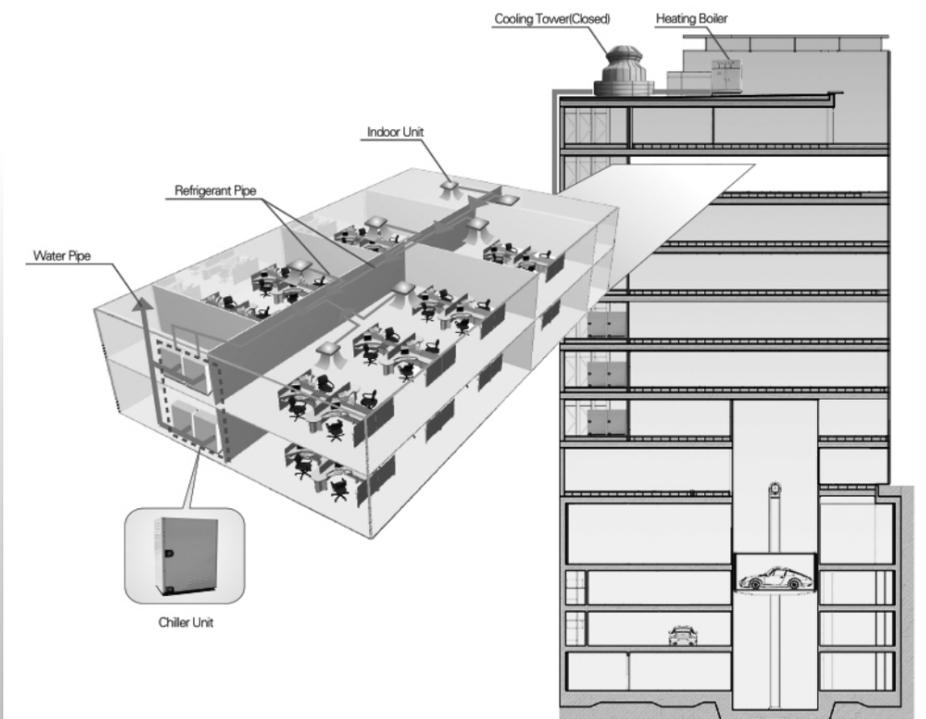
-Design-

-Installation-

-Service-

Model

- AVWW-28~54UCSA
- AVWW-28~54U2SA
- AVWW-76~290UESB
- AVWW-76~290U7SB
- AVWW-76~290U8SB



Hisense

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Specifications in this catalogue are subject to change without notice, in order that Hisense may bring the latest innovations to their customers.

IMPORTANT NOTICE

- Hisense pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- Hisense cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purpose such as drying clothes, refrigerating foods or for any other cooling or heating process.
- Do not install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
 - * Places where oil (including machinery oil).
 - * Places where a lot of sulfide gas drifts such as in hot spring.
 - * Places where inflammable gas may generate or flow.
 - * Places where strong salty wind blows such as coast regions.
 - * Places with an atmosphere of acidity or alkalinity.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave generates from medical equipment.
 - * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - * Install the unit at least 3 meters away from electromagnetic wave such as a radio.
- The installer and system specialist shall secure against leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should be add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of Hisense.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well for other models.
- This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.

Temperature		(°C)	
		Maximum	Minimum
Cooling Operation	Indoor	32 DB/23 WB	21 DB/15 WB
	Water Source	45	10 *
Heating Operation	Indoor	27 DB	15 DB
	Water Source	45	10

DB: Dry Bulb, WB: Wet Bulb

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

SAFETY SUMMARY

< Signal Words >

- Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words



: DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



: WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



: CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

: NOTICE is used to address practices not related to personal injury.

NOTE

: NOTE is useful information for operation and/or maintenance.

SAFETY SUMMARY

! DANGER

- Do not perform installation work, refrigerant piping work, drain pump, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use the specified non-flammable refrigerant (R410A) to the chiller unit in the refrigerant cycle. Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.
- Do not pour water into the indoor or chiller unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or chiller units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor unit or chiller units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Make sure that the refrigerant leakage test should be performed. Refrigerant (Fluorocarbon) for this unit is incombustible, non-toxic and odorless. However if the refrigerant is leaked and is contacted with fire, toxic gas will generate. Also because the fluorocarbon is heavier than air, the floor surface will be filled with it, which could cause suffocation.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Earth Leakage Breaker). In the event of fault, there is danger of an electric shock or a fire if it is not used.
- Do not install the chiller unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- For installation, firmly connect the refrigerant pipe before the compressor starts operating. For maintenance, relocation and disposal, remove the refrigerant pipe after the compressor stops.
- Do not perform a short-circuit of the protection device such as a pressure switch when operating. It may cause a fire and explosion.

SAFETY SUMMARY

⚠ WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse of specified capacity.
- Before performing any brazing work, check to ensure that there is no flammable material around. When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Provide a sufficiently strong foundation. If not, the unit may fall down and it may lead to injuries.
- Do not install the unit in a place where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid) may be present in quantities.
It may cause refrigerant leakage due to corrosion, electrical shock, deteriorated performance and breakage.
- Perform electrical work according to Installation Manual and all the relevant regulation and standards. If the instructions are not followed, an electrical shock and fire may occur due to insufficient capacity and inadequate performance.
- Use specified cables between units and choose the cables correctly. If not, an electrical shock or fire may occur.
- Ensure that the wiring terminals are tightened securely with the specified torques. If not, generating fire or electrical shock at the terminal connection part may occur.

⚠ CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.
- Provide a strong and correct foundation so that;
 - a. The outdoor unit is not on an incline.
 - b. Abnormal sound dose not occur.
 - c. The outdoor unit will not fall down due to a strong wind or earthquake.

SAFETY SUMMARY

NOTICE

- Do not install the indoor unit, chiller unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the oil heater for 12 hours before startup after a long shutdown.
- In some cases, the packaged air conditioner may not be operated normally under the following cases.
 - * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device*.
 - * In case that the power source wires for the device* and the packaged air conditioner are located close to each other.

Device*: (Ex) Lift, container crane, rectifier for electric railwa , inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch. It consumes a large quantity of electrical power.

Regarding the cases mentioned above, surge voltage may be inducted in the power supply wiring for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of switch.

Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.

NOTE

- It is recommended that the room will be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.
- Regarding transport / storage temperature within -25~55°C.
- All the operation method of remote control switch mention in this handbook is base on HYPE-J01H. Turn to the operation manul accompanied with the remote control switch for detailed information of other types.
- Correct Disposal of this product.

This marking indicates that this product should not be disposed with other household wastes.

To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.



– CONTENTS –

1. Features	1
1.1 Chiller Units	1
1.2 Indoor units	1
1.3 Combination(Standard Type)	2
1.4 Piping System	3
2. General Data	7
3. Dimensional Data	12
3.1 Structure	14
4. Service Space	16
4.1 Single Installation	16
4.2 Selection Data	18
4.3 Capacity Table	20
4.4 Water flow–pressure drop diagram	98
4.5 Correction Factor According to Piping Length	99
4.6 Electrical Data	101
4.7 Sound Data	103
4.8 Working Range	107
5. Component Data	108

Installation and Operation

1. Control System	110
1.1 Refrigerant Cycle	110
1.2 Function Control Unit	112
2. Installation Of Outdoor Unit	114
2.1 Necessary Tools and Instrument List for Installation	114
3. Transportation and Handling	115
3.1 Transportation	115
3.2 Handling of Chiller Unit	115
3.3 Service Space	116
3.4 Chiller Unit Installation	118
4. Refrigerant Piping Work	119
4.1 Piping Materials	119
4.2 Piping Connection	121
4.3 Electrical Wiring for Others	123
4.4 Stop Valve	128
4.5 Additional Refrigerant Charge	129
4.6 Refrigerant Piping Work	131
4.7 Special Attention Regarding Refrigerant Gas Leakage	133
4.8 Electrical Wiring	134

4.9 Electrical Wiring Connection	136
4.10 Electrical Wiring Diagram.....	139
5. Dip Switch Setting of Outdoor Unit	145
6. Test Run	149
7. Protection Control Code.....	152
7.1 Protection Control Code.....	152
8. Troubleshooting.....	155
8.1 Initial Troubleshooting	155
8.2 Troubleshooting by Alarm Code	155
8.3 Trouble shooting in the detection mode	156
9. Troubleshooting by 7–Segment Display	162
9.1 Simple Checking by 7–Segment Display.....	162
9.2 Checking Method by 7–Segment Display	162
9.3 Protection Control Code on 7–Segment Display	163
10. Procedure of Checking Each Main Parts.....	166
10.1 Self–Checking of PCBs using Remote Control Switch	166
10.2 Self–checking of Remote Control Switch.....	167
11. Maintenance.....	168
12. Mollier Chart for R410A	174

1. Features

1.1 Chiller Units

Model		AVWW-28U(C/2)SA	AVWW-38U(C/2)SA	AVWW-48U(C/2)SA	AVWW-54U(C/2)SA
Power Supply		AC 1Φ, 220~240V/50Hz, AC 1Φ, 220V/60Hz			
Nominal Cooling Capacity	Btu/h	27,300	38,200	47,800	52,900
	kW	8.0	11.2	14.0	15.5
Nominal Heating Capacity	Btu/h	30,700	42,700	54,600	61,400
	kW	9.0	12.5	16.0	18.0

Model		AVWW-76U(E/7/8)SB	AVWW-96U(E/7/8)SB	AVWW-154U(E/7/8)SB	AVWW-170U(E/7/8)SB	AVWW-190U(E/7/8)SB
Power Supply		AC 3Φ,380~415V/50Hz , AC 3Φ,380V /60Hz, AC 3Φ,220V /60Hz				
Nominal Cooling Capacity	Btu/h	76.5	95.6	153.6	170.6	191.1
	kW	22.4	28.0	45.0	50.0	56.0
Nominal Heating Capacity	Btu/h	85.3	107.5	170.6	191.1	215.0
	kW	25.0	31.50	50.0	56.00	63.00

Model		AVWW-229U(E/7/8)SB	AVWW-250U(E/7/8)SB	AVWW-268U(E/7/8)SB	AVWW-290U(E/7/8)SB
Power Supply		AC 3Φ,380~415V/50Hz , AC 3Φ,380V /60Hz, AC 3Φ,220V /60Hz			
Nominal Cooling Capacity	Btu/h	229.3	248.5	267.6	286.7
	kW	67.2	72.8	78.4	84
Nominal Heating Capacity	Btu/h	256.0	278.1	300.3	322.5
	kW	75	81.5	88	94.5

1.2 Indoor units

Various Indoor Units and Combinations

The line-up of new Hi-Flexi W series indoor units has been extended up to 104 indoor units in 12 types to meet various building requirements.

Indoor Unit Type	Nominal Capacity (kBtu/h)															
	05	07	09	12	14	17	18	22	24	27	30	38	48	54	76	96
Ceiling Ducted Type (Low Static Pressure)		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ceiling Ducted Type (High Static Pressure)		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Low-Height Ceiling Ducted Type	○	○	○	○	○	○	○	○	○							
Low-Height Ceiling Ducted Type (DC)		○	○	○	○	○	○	○	○							
Slim Ceiling Ducted Type		○	○	○	○											
1-Way Cassette Type		○	○	○	○	○		○								
2-Way Cassette Type		○	○	○	○		○		○							
4-Way Cassette Type			○	○	○	○	○	○	○	○	○	○	○	○		
Compact 4-Way Cassette Type	○	○	○	○	○	○										
Wall-Mounted Type		○	○	○	○	○	○	○	○							
Ceiling and Floor Type						○	○	○	○	○	○	○	○			
Floor-Concealed Type			○		○		○		○							

○ : Available

Various Outdoor Units and Combinations

	Capacity (KBtu/h)	Model	Combination
Base Unit	28(3HP)	AVWW-28U(C/2)SA	-
	38(4HP)	AVWW-38U(C/2)SA	-
	48(5HP)	AVWW-48U(C/2)SA	-
	54(6HP)	AVWW-54U(C/2)SA	-
	76(8HP)	AVWW-76U(E/7/8)SB	-
	96(10HP)	AVWW-96U(E/7/8)SB	-
Two Units Combination	154(16HP)	AVWW-154U(E/7/8)SB	AVWW-76U(E/7/8)SB×2
	170(18HP)	AVWW-170U(E/7/8)SB	AVWW-96U(E/7/8)SB+AVWW-76U(E/7/8)SB
	190(20HP)	AVWW-190U(E/7/8)SB	AVWW-96U(E/7/8)SB+AVWW-96U(E/7/8)SB
Three Units Combination	229(24HP)	AVWW-229U(E/7/8)SB	AVWW-76U(E/7/8)SB×3
	250(26HP)	AVWW-250U(E/7/8)SB	AVWW-96U(E/7/8)SB+AVWW-76U(E/7/8)SB+AVWW-76U(E/7/8)SB
	268(28HP)	AVWW-268U(E/7/8)SB	AVWW-96U(E/7/8)SB+AVWW-96U(E/7/8)SB+AVWW-76U(E/7/8)SB
	290(30HP)	AVWW-290U(E/7/8)SB	AVWW-96U(E/7/8)SB×3

1.3 Combination(Standard Type)

Model (KBtu/h)	Min. Capacity at Individual Operation (KBtu/h)	Max. Number of Connectable I.U.	Recommended Number of Connectable I.U.	Range of Combination Capacity
AVWW-28U(C/2)SA	05	4	3	50%~130%
AVWW-38U(C/2)SA	05	5	4	
AVWW-48U(C/2)SA	05	6	5	
AVWW-54U(C/2)SA	05	7	6	
AVWW-76U(E/7/8)SB	07	13	8	
AVWW-96U(E/7/8)SB	07	16	10	
AVWW-154U(E/7/8)SB	07	26	16	
AVWW-170U(E/7/8)SB	07	29	18	
AVWW-190U(E/7/8)SB	07	32	18	
AVWW-229U(E/7/8)SB	07	36	20	
AVWW-250U(E/7/8)SB	07	36	20	
AVWW-268U(E/7/8)SB	07	36	20	
AVWW-290U(E/7/8)SB	07	36	20	

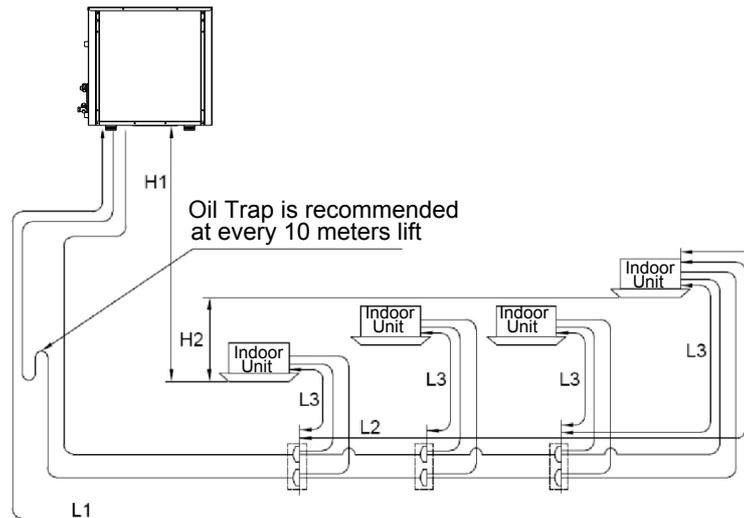
1.4 Piping System

(1) Configuration Refrigerant Piping According to the Following Table.

Pipe Dimension of Outdoor Unit

Piping Length Model	Piping External Diameter (mm)		The Maximum Total Piping Length	Branch Pipe Type
	Gas Pipe	Liquid Pipe		
28	φ 15.88	φ 9.53	Actual Length ≤ 45m	HFQ-102F
38			Actual Length ≤ 120m	
48				
54				

1.4.1 Selection of Piping System



< Branch Pipe ~ Indoor Unit Piping >

Pipe Dimension Indoor Unit Capacity (KBtu/h)	Gas/Liquid (φ mm)
05 ~ 14	12.7/6.35
17 ~ 18	15.88/6.35
22 ~ 54	15.88/9.53

Item		Applicable Range	
Ref. Pipe Length : L1	28	Within 30m	
	38 ~ 54	Within 75m	
Piping Length from 1st Branch to each I.U. : L2	28	Within 15m	
	38 ~ 54	Within 30m	
Piping Length from each Branch to I.U. : L3	28	Within 8m	
	38 ~ 54	Within 15m	
Lift between I.U. and I.U. : H2	28	Within 5m	
	38 ~ 54	Within 15m	
Lift between I.U. and O.U. : H1	O.U. is Higher	28	Within 15m
		38 ~ 54	Within 30m
	O.U. is Lower	28	Within 15m
		38 ~ 54	Within 30m

- In the case that the selected pipe size of the second branch or after branch is bigger than that of the first branch, use the branch having the same size as the first branch.
- In the case that the selected pipe size after the first branch is bigger than that of the first branch, use the branch having the same size as the first branch.

1.4.2 Refrigerant Piping Work

① Outdoor Unit Pipe

② Piping Connection Kit to The First Branch (※1)

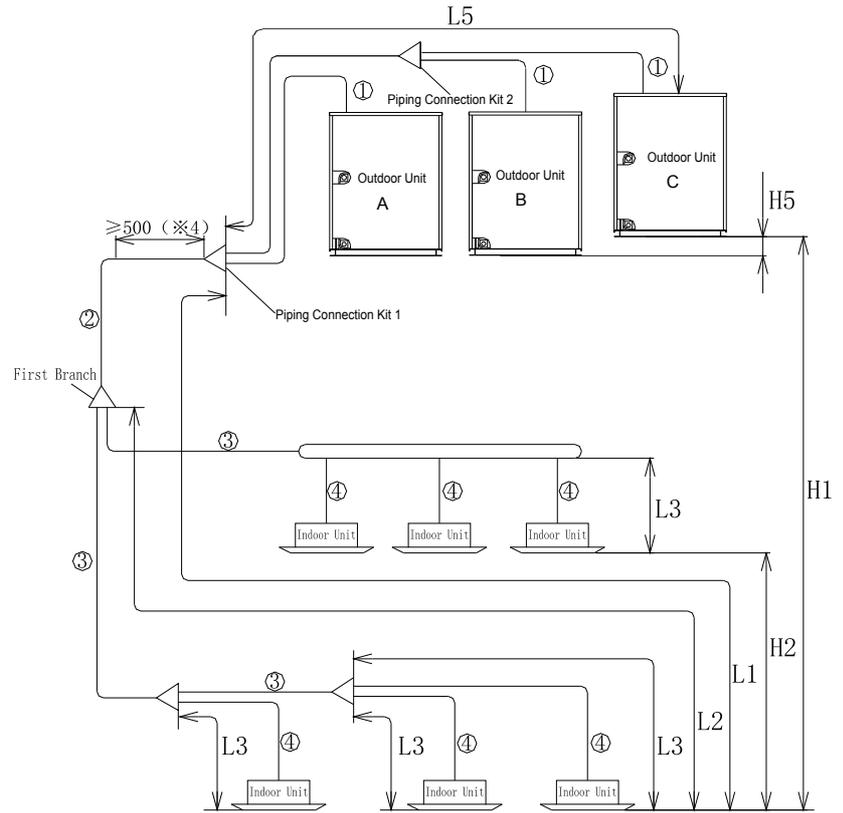
Outdoor Unit Capacity	Gas/Liquid(Φmm) (< 80M)	Gas/Liquid(Φmm) (≥ 80M)
76kBTu/h	19.05/12.7	19.05/12.7
96kBTu/h	22.2/12.7	22.2/12.7
154-190kBTu/h	28.6/15.88	28.6/19.05
229kBTu/h	28.6/19.05	28.6/22.2
250-290kBTu/h	31.75/19.05	31.75/22.2

③ First Branch to Last Branch (※2)

Total I.U. Capacity	Gas(Φmm)	Liquid(Φmm)
lower than 57kBTu/h	15.88	9.53
57~86kBTu/h	19.05	9.53
86~114kBTu/h	22.2	9.53
114~154kBTu/h	25.4	12.7
154~172kBTu/h	28.6	12.7
172~249kBTu/h	28.6	15.88
over 249kBTu/h	31.75	19.05

④ Last Branch to Indoor Unit (※3)

Indoor Unit Capacity	Gas(Φmm)	Liquid(Φmm)
07~14kBTu/h	12.7	6.35
18kBTu/h	15.88	6.35
24~28kBTu/h	15.88	9.53
76kBTu/h	19.05	9.53
96kBTu/h	22.2	9.53



Piping Connection Kit 1 and Kit 2

Outdoor Unit Capacity	Multi-kit Model
154~229kBTu/h	HFQ-242F
250~290kBTu/h	HFQ-302F

First Branch

Outdoor Unit Capacity	Multi-kit Model
76~96kBTu/h	HFQ-102F
154~229kBTu/h	HFQ-242F
250~290kBTu/h	HFQ-302F

Piping Size and Multi-kit after First Branch

Total I.U. Capacity	Gas/Liquid(Φmm)	Multi-kit Model
lower than 57kBTu/h	15.88/9.53	HFQ-102F
57~86kBTu/h	19.05/9.53	HFQ-102F
86~114kBTu/h	22.2/9.53	HFQ-102F
114~154kBTu/h	25.4/12.7	HFQ-162F
154~172kBTu/h	28.6/12.7	HFQ-162F
172~249kBTu/h	28.6/15.88	HFQ-242F
over 249kBTu/h	31.75/19.05	HFQ-302F

Table Refrigerant Piping Work

Item		Symbol	Applicable Range
Ref. Pipe Length	Actual	L1	≤ 120m
	Equivalent		≤ 140m
Piping Length from 1st Branch to each I.U.		L2	≤ 40m
Piping Length from each Multi-kit to I.U.		L3	≤ 30m
Piping Length from Piping Connection Kit to O.U.		L5	≤ 10m
Lift between I.U. And O.U.		O.U. Is Higher	≤ 50m
		O.U. Is Lower	≤ 40m
Lift between Indoor Units		H2	≤ 15m
Lift between Outdoor Units		H5	≤ 0.1m
Total Length of I.U. Piping			≤ 300m

※1 The basic model such as 76kBTu/h and 96kBTu/h, that means outdoor unit pipe since there is no multi-kit 1.

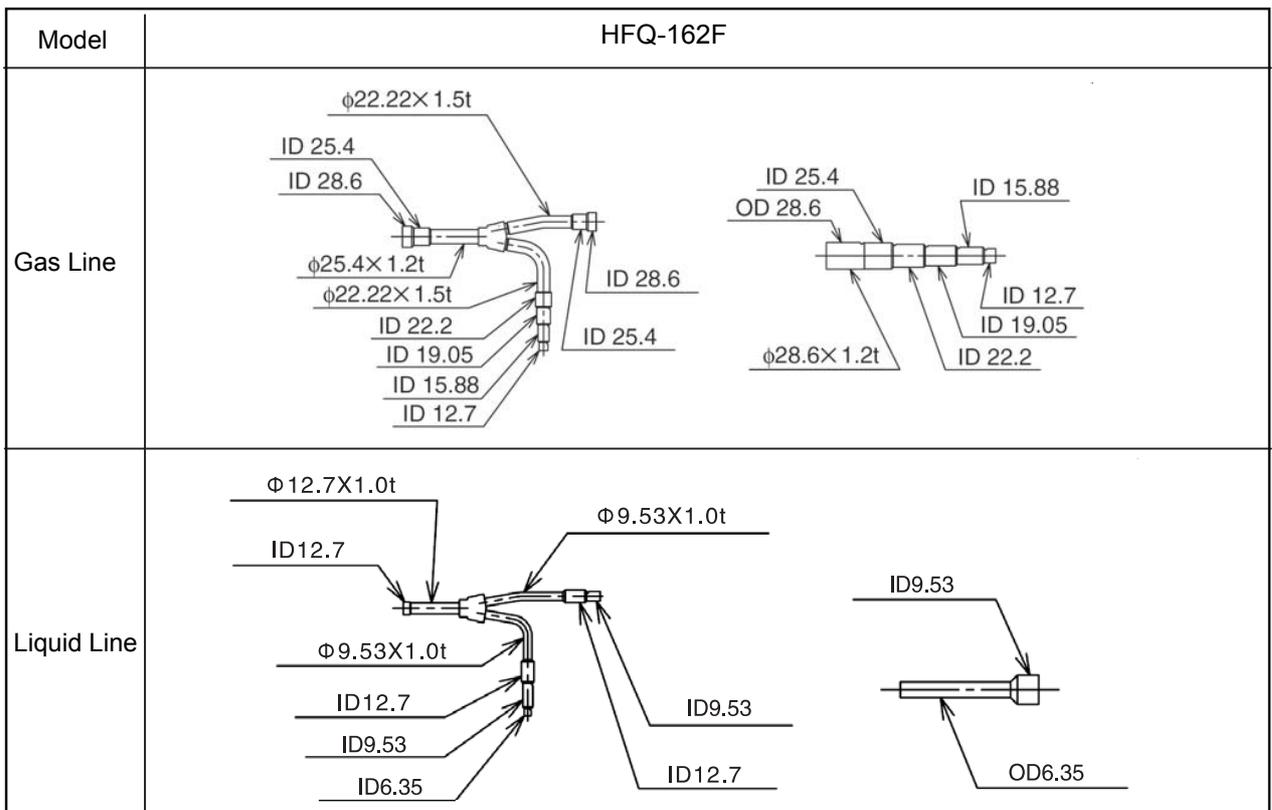
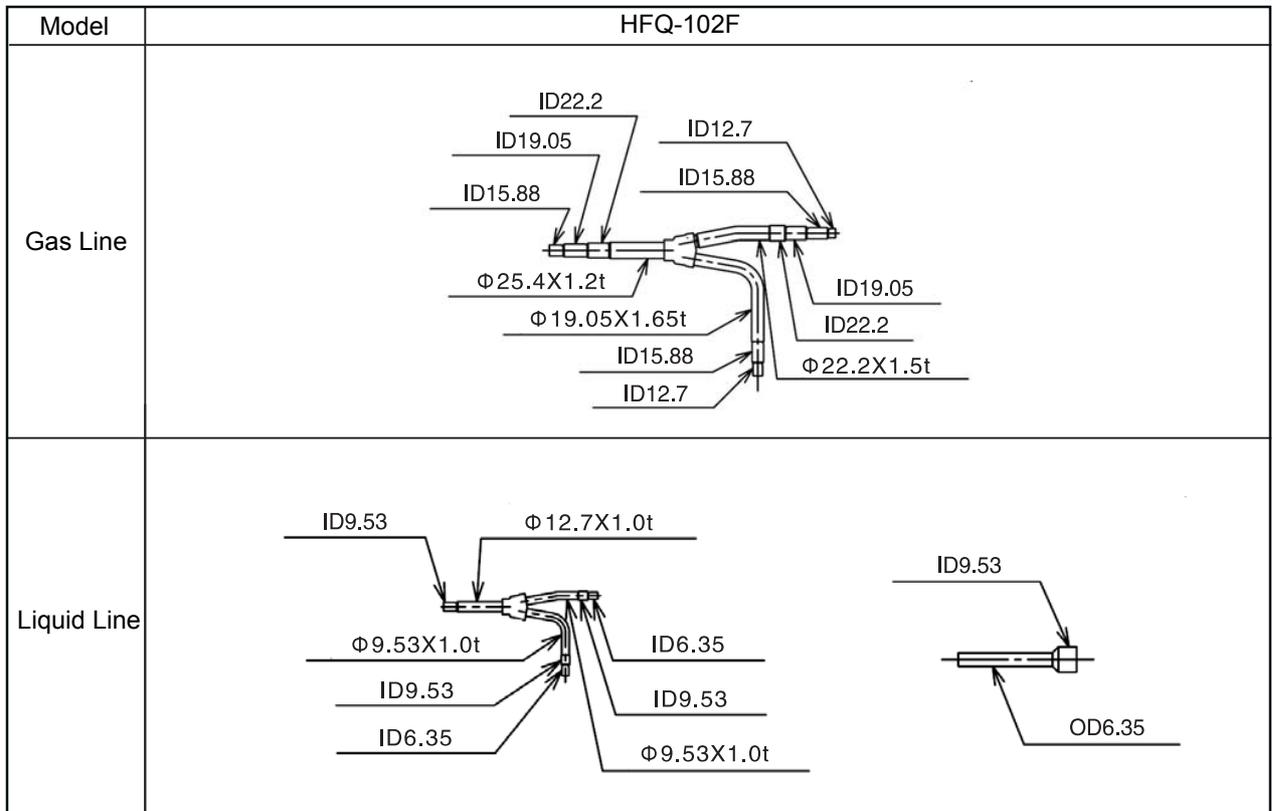
※2 In the case that the selected pipe size after the first branch is bigger than the pipe size before the first branch, use the same size as before the branch.

※3 If the pipe length from multi-kit to indoor unit is more than 15m, the pipe size must be increased from 6.35mm to 9.53mm.

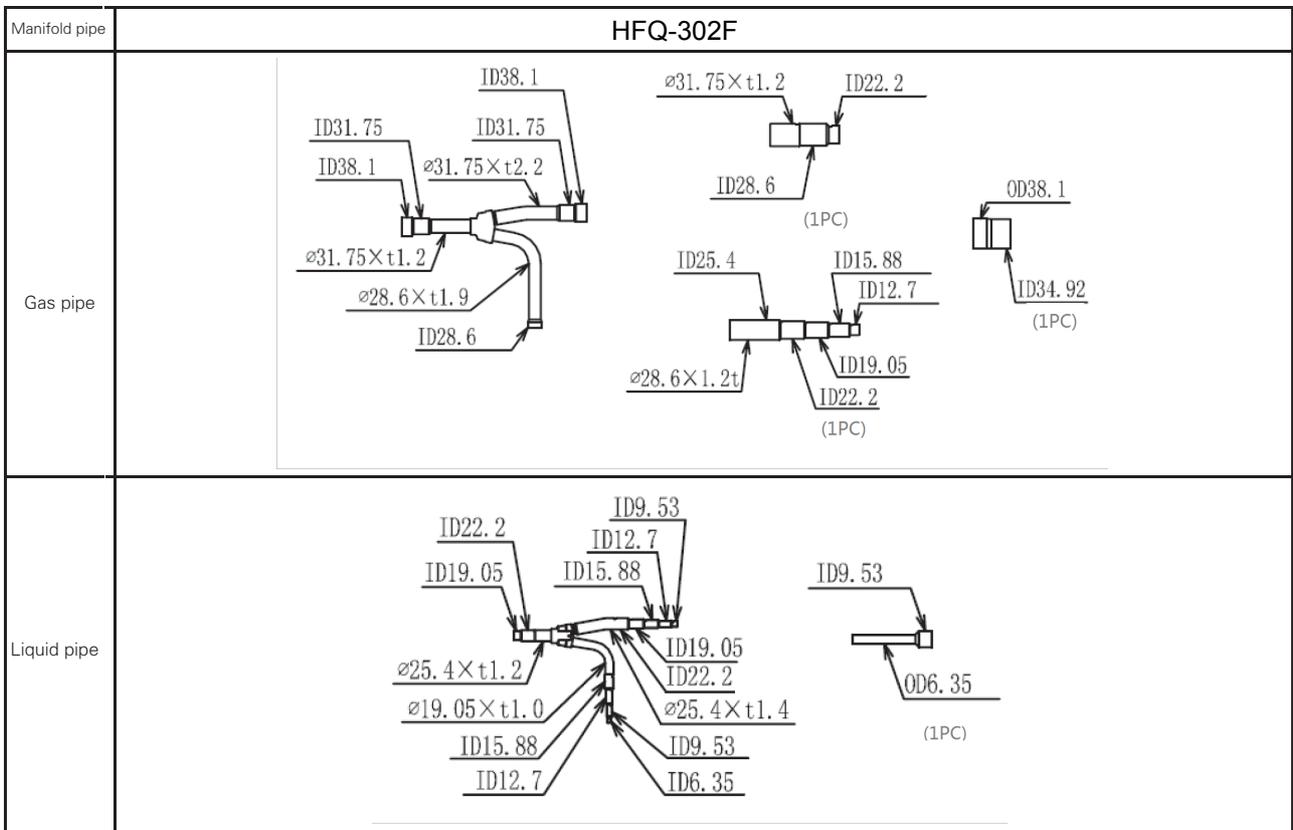
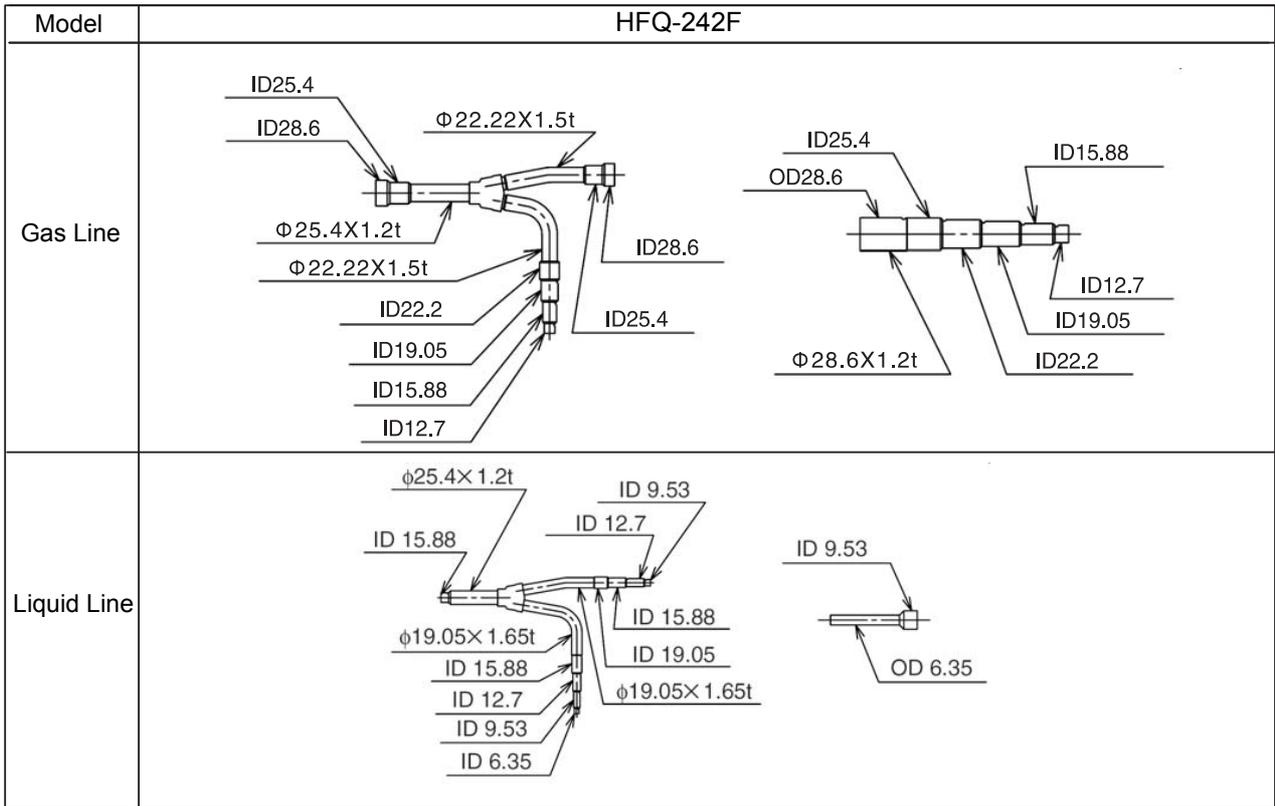
※4 The linear pipe length after multi-kit should be more than 500mm.

CAUTION: Place the multi-kit parallel to the ground (within ±15°).

1.4.3 Distribution Method by Branch Pipe (Optional Parts)



Unit: mm, ID: Inner Diameter, OD: Outer Diameter



Unit: mm, ID: Inner Diameter, OD: Outer Diameter

2. General Data

Model			AVWW-28U(C/2)SA	AVWW-38U(C/2)SA
Power Supply		V/Hz	AC 1 ϕ , 220~240V/50Hz, 220V/60Hz	
Cooling *1	Nominal Capacity	KW	8.00	11.20
		kBtu/h	27.3	38.2
	Power Input	kW	1.9	2.6
	COP	kW /kW	4.2	4.3
Heating *1	Nominal Capacity	KW	9.00	12.50
		kBtu/h	30.7	42.7
	Power Input	kW	1.8	2.4
	COP	kW /kW	5.0	5.2
Cooling / Heating Ave. COP		kW /kW	4.6	4.75
Outer Dimensions	Height	mm	800	800
	Width	mm	800	800
	Depth	mm	370	370
	Footprint	m ²	0.30	0.30
Net Weight(Gross Weight)		kg	78(85)	100(107)
Sound	Pressure Level *2	dB(A)	49	51
	Power	dB(A)	63	65
Cabinet Color		-	Ivory White	
Refrigerating Installation Compressor		-	Rotary Comp.	Scroll Comp.
Crankcase Heater Capacity		W	24 \times 2	28 \times 2
Refrigerant	Type	-	R410A	
	Charge Amount	Kg	2.2	3.8
Design pressure (High/ Low)		MPa	4.15/2.21	4.15/2.21
Water Side Heat Exchanger	Water temp.Range *3	°C	10~45	10~45
	Water Flow Rate	l/min.	30	38
	Water Pressure Drop	kPa	30	30
Refrigerant Piping	Liquid Line	Φ mm	9.53	9.53
	Gas Line	Φ mm	15.88	15.88
Water Piping	Water Inlet/Outlet Pipeline Diameter		DN25	DN25
	Thread of Connector *4		G1B	G1B
	Drain Pipe / Hole		Φ 18mm	Φ 18mm
Water Side Bearing Pressure Capacity		kgf/cm ²	20	20

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 27°C DB (80°F DB)
Water Inlet/Outlet Temperature: 30/35°C (86/95°F)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
15°C WB (43°F WB)
Outdoor Air Inlet Temperature: 20°C DB (68°F DB)
Water Inlet Temperature: 20°C (68°F)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. When unit is used out of the allowable range of water temperature, the unit will not start normally and will show water temperature alarm. In cooling operation, unit operates continuously in a range of 15~45°C.

4. It is the thread of connection joint for heat source inlet/outlet of chiller unit.

Model			AVWW-48U(C/2)SA	AVWW-54U(C/2)SA
Power Supply		V/Hz	AC 1 φ, 220~240V/50Hz, 220V/60Hz	
Cooling *1	Nominal Capacity	KW	14.00	15.50
		kBtu/h	47.8	52.9
	Power Input	kW	3.41	3.88
	COP	kW /kW	4.1	4.0
Heating *1	Nominal Capacity	KW	16.00	18.00
		kBtu/h	54.6	61.4
	Power Input	kW	3.14	3.6
	COP	kW /kW	5.1	5.0
Cooling / Heating Ave. COP		kW /kW	4.6	4.5
Outer Dimensions	Height	mm	800	800
	Width	mm	800	800
	Depth	mm	370	370
	Footprint	m ²	0.30	0.30
Net Weight(Gross Weight)		kg	100(107)	100(107)
Sound	Pressure Level *2	dB(A)	51	51
	Power	dB(A)	65	65
Cabinet Color		-	Ivory White	
Refrigerating Installation Compressor		-	Scroll Comp	
Crankcase Heater Capacity		W	28 × 2	28 × 2
Refrigerant	Type	-	R410A	
	Charge Amount	Kg	3.8	3.8
Design pressure (High/ Low)		MPa	4.15/2.21	4.15/2.21
Water Side Heat Exchanger	Water temp. Range *3	°C	10~45	10~45
	Water Flow Rate	l/min.	48	53
	Water Pressure Drop	kPa	35	40
Refrigerant Piping	Liquid Line	Φ mm	9.53	9.53
	Gas Line	Φ mm	15.88	15.88
Water Piping	Water Inlet/Outlet Pipeline Diameter		DN25	DN25
	Thread of Connector *4		G1B	G1B
	Drain Pipe / Hole		Φ 18mm	Φ 18mm
Water Side Bearing Pressure Capacity		kgf/cm ²	20	20

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 27°C DB (80°F DB)
Water Inlet/Outlet Temperature: 30/35°C (86/95°F)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
15°C WB (43°F WB)
Outdoor Air Inlet Temperature: 20°C DB (68°F DB)
Water Inlet Temperature: 20°C (68°F)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. When unit is used out of the allowable range of water temperature, the unit will not start normally and will show water temperature alarm. In cooling operation, unit operates continuously in a range of 15~45°C.
4. It is the thread of connection joint for heat source inlet/outlet of chiller unit.

Model			AVWW-76U(E/7/8)SB	AVWW-96U(E/7/8)SB
Power Supply		V/Hz	AC 3 ϕ , 380~415V/50Hz, 380V/60Hz, 220V/60Hz	
Cooling *1	Nominal Capacity	KW	22.40	28.00
		kBtu/h	76.5	95.6
	Power Input	kW	4.42	6.26
	COP	kW /kW	5.07	4.47
Heating *1	Nominal Capacity	KW	25.00	31.50
		kBtu/h	85.3	107.5
	Power Input	kW	4.20	5.81
	COP	kW /kW	5.95	5.42
Cooling / Heating Ave. COP		kW /kW	5.51	4.95
Outer Dimensions	Height	mm	1000	1000
	Width	mm	780	780
	Depth	mm	550	550
	Footprint	m ²	0.43	0.43
Net Weight(Gross Weight)		kg	160(165)	160(165)
Sound	Pressure Level *2	dB(A)	50/51	51/52
	Power	dB(A)	64/65	65/66
Cabinet Color		-	Ivory White	
Refrigerating Installation Compressor		-	Scroll Comp	
Crankcase Heater Capacity		W	40	40
Refrigerant	Type	-	R410A	
	Charge Amount	Kg	2.2	2.2
Design pressure (High/ Low)		MPa	4.15/2.21	4.15/2.21
Water Side Heat Exchanger	Water temp. Range *3	°C	10~45	10~45
	Water Flow Rate	l/min.	76.8	96
	Water Pressure Drop	kPa	18	27.7
Refrigerant Piping	Liquid Line	Φ mm	12.7	12.7
	Gas Line	Φ mm	19.05	22.2
Water Piping	Water Inlet/Outlet Pipeline Diameter		DN32	DN32
	Thread of Connector *4		G1 1/4B	G1 1/4B
	Drain Pipe / Hole		Φ 18mm	Φ 18mm
Water Side Bearing Pressure Capacity		kgf/cm ²	20	20

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 27°C DB (80°F DB)
Water Inlet/Outlet Temperature: 30/35°C (86/95°F)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
15°C WB (43°F WB)
Outdoor Air Inlet Temperature: 20°C DB (68°F DB)
Water Inlet Temperature: 20°C (68°F)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. When unit is used out of the allowable range of water temperature, the unit will not start normally and will show water temperature alarm. In cooling operation, unit operates continuously in a range of 15~45°C.

4. It is the thread of connection joint for heat source inlet/outlet of chiller unit.

Model		AVWW-154U(E/7/8)SB	AVWW-170U(E/7/8)SB	AVWW-190U(E/7/8)SB	
Power Supply		V/Hz	AC 3 ϕ , 380~415V/50Hz, 380V/60Hz, 220V/60Hz		
Cooling *1	Nominal Capacity	KW	45.00	50.00	56.00
		kBtu/h	153.6	170.6	191.1
	Power Input	kW	8.84	10.68	12.52
	COP	kW /kW	5.07	4.68	4.47
Heating *1	Nominal Capacity	KW	50.00	56.00	63.00
		kBtu/h	170.6	191.1	215.0
	Power Input	kW	8.4	10.01	11.62
	COP	kW /kW	5.95	5.59	5.42
Cooling / Heating Ave. COP		kW /kW	5.51	5.14	4.95
Outer Dimensions	Height	mm	1000	1000	1000
	Width	mm	780+780	780+780	780+780
	Depth	mm	550	550	550
	Footprint	m ²	0.86	0.86	0.86
Net Weight(Gross Weight)		kg	160+160(165+165)	160+160(165+165)	160+160(165+165)
Sound	Pressure Level *2	dB(A)	52/53	52/53	53/54
	Power	dB(A)	66/67	66/67	67/68
Cabinet Color		-	Ivory White		
Refrigerating Installation Compressor		-	Scroll Comp		
Crankcase Heater Capacity		W	40+40	40+40	40+40
Refrigerant	Type	-	R410A		
	Charge Amount	Kg	2.2+2.2	2.2+2.2	2.2+2.2
Design pressure (High/ Low)		MPa	4.15/2.21	4.15/2.21	4.15/2.21
Water Side Heat Exchanger	Water temp. (Cooling)*3	°C	10~45	10~45	10~45
	Water Flow Rate	l/min.	153.6	172.8	192.0
	Water Pressure Drop	kPa	18	23	27.7
Refrigerant Piping	Liquid Line	Φ mm	15.88	15.88	15.88
	Gas Line	Φ mm	28.6	28.6	28.6
Water Piping	Water Inlet/Outlet Pipeline Diameter		DN32	DN32	DN32
	Thread of Connector *4		G1 1/4B	G1 1/4B	G1 1/4B
	Drain Pipe / Hole		Φ 18mm	Φ 18mm	Φ 18mm
Water Side Bearing Pressure Capacity		kgf/cm ²	20	20	20

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 27°C DB (80°F DB)
Water Inlet/Outlet Temperature: 30/35°C (86/95°F)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
15°C WB (43°F WB)
Outdoor Air Inlet Temperature: 20°C DB (68°F DB)
Water Inlet Temperature: 20°C (68°F)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. When unit is used out of the allowable range of water temperature, the unit will not start normally and will show water temperature alarm. In cooling operation, unit operates continuously in a range of 15~45°C.

4. It is the thread of connection joint for heat source inlet/outlet of chiller unit.

Model		AVWW-229U(E/7/8)SB	AVWW-250U(E/7/8)SB	AVWW-268U(E/7/8)SB	AVWW-290U(E/7/8)SB	
Power Supply		V/Hz	AC 3 φ, 380~415V/50Hz, 380V/60Hz, 220V/60Hz			
Cooling *1	Nominal Capacity	KW	67.2	72.8	78.4	84
		kBtu/h	229.3	248.5	267.6	286.7
	Power Input	kW	13.26	15.1	16.94	18.78
	EER	kW /kW	5.07	4.82	4.63	4.47
Heating *1	Nominal Capacity	KW	75.00	81.50	88	94.5
		kBtu/h	256	278.1	300.3	322.5
	Power Input	kW	12.6	14.21	15.82	17.43
	COP	kW /kW	5.95	5.74	5.56	5.42
Cooling / Heating Ave. COP		kW /kW	5.51	5.28	5.10	4.95
Outer Dimensions	Height	mm	1000	1000	1000	1000
	Width	mm	780+780+780	780+780+780	780+780+780	780+780+780
	Depth	mm	550	550	550	550
	Footprint	m ²	1.29	1.29	1.29	1.29
Net Weight(Gross Weight)		kg	160+160+160 (165+165+165)	160+160+160 (165+165+165)	160+160+160 (165+165+165)	160+160+160 (165+165+165)
Sound	Pressure Level *2	dB(A)	55/56	55/56	56/57	56/57
	Power	dB(A)	69/70	69/70	70/71	70/71
Cabinet Color		-	Ivory White			
Refrigerating Installation Compressor		-	Scroll Comp			
Crankcase Heater Capacity		W	40+40+40	40+40+40	40+40+40	40+40+40
Refrigerant	Type	-	R410A			
	Charge Amount	Kg	2.2+2.2+2.2	2.2+2.2+2.2	2.2+2.2+2.2	2.2+2.2+2.2
Design pressure (High/ Low)		MPa	4.15/2.21	4.15/2.21	4.15/2.21	4.15/2.21
Water Side Heat Exchanger	Water temp. (Cooling)*3	°C	10~45	10~45	10~45	10~45
	Water Flow Rate	l/min.	230.4	249.6	268.8	288
	Water Pressure Drop	kPa	18	21.3	24.5	27.7
Refrigerant Piping	Liquid Line	Φmm	19.05	19.05	19.05	19.05
	Gas Line	Φmm	28.6	Φ31.75	Φ31.75	Φ31.75
Water Piping	Water Inlet/Outlet Pipeline Diameter		DN32	DN32	DN32	DN32
	Thread of Connector *4		G1 1/4B	G1 1/4B	G1 1/4B	G1 1/4B
	Drain Pipe / Hole		Φ18	Φ18	Φ18	Φ18
Water Side Bearing Pressure Capacity		kgf/cm ²	20	20	20	20

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 27°C DB (80°F DB)
Water Inlet/Outlet Temperature: 30/35°C (86/95°F)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
15°C WB (43°F WB)
Outdoor Air Inlet Temperature: 20°C DB (68°F DB)
Water Inlet Temperature: 20°C (68°F)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

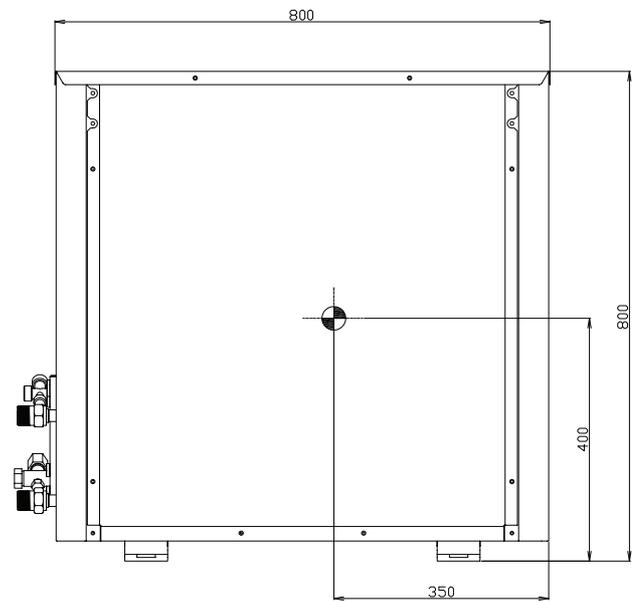
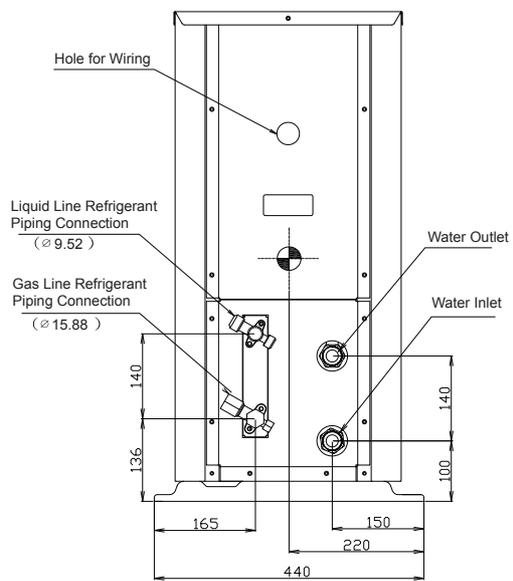
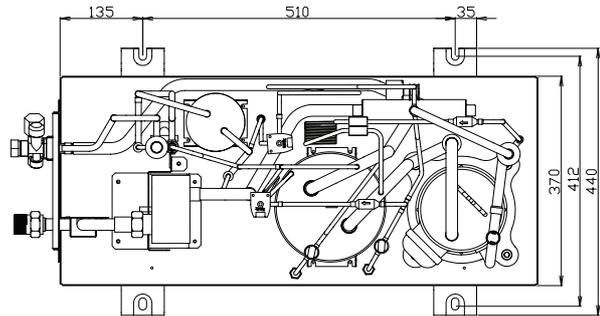
3. When unit is used out of the allowable range of water temperature, the unit will not start normally and will show water temperature alarm. In cooling operation, unit operates continuously in a range of 15~45°C.

4. It is the thread of connection joint for heat source inlet/outlet of chiller unit.

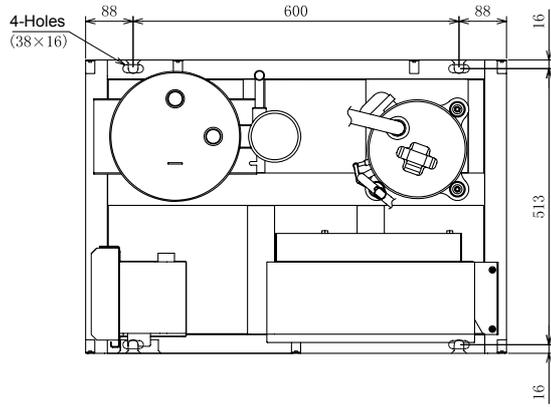
3. Dimensional Data

Model: AVWW-28~54U(C/2)SA

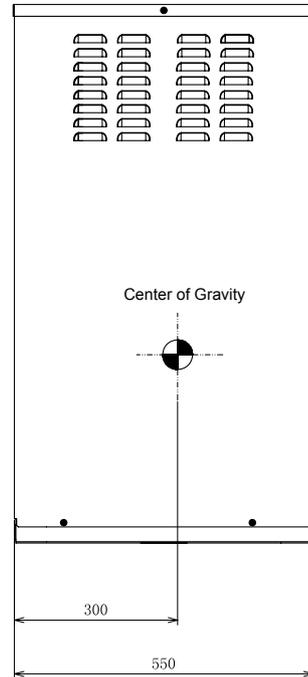
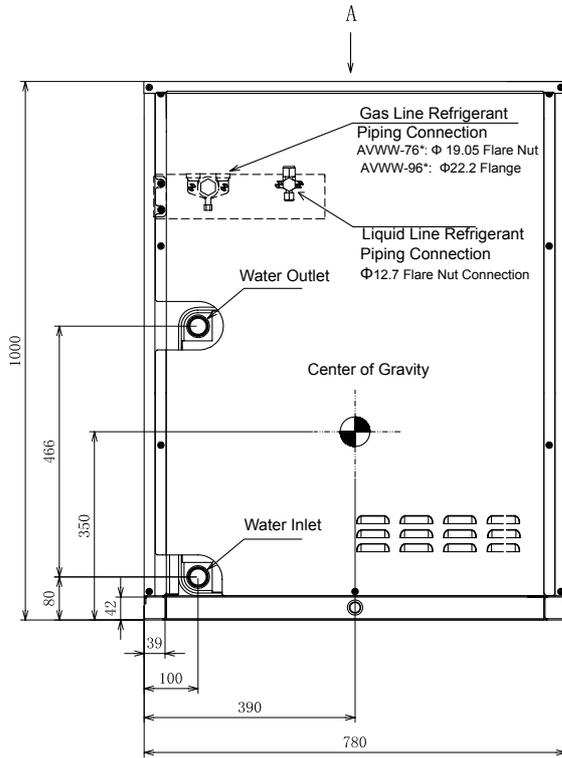
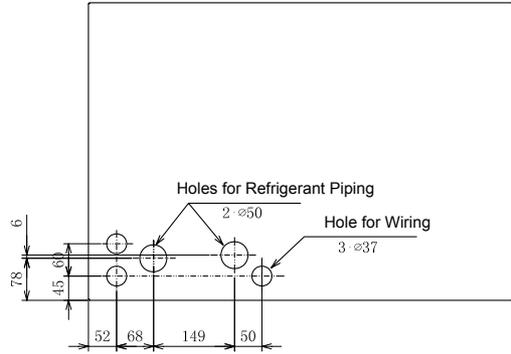
Unit: mm



Model: AVWW-76~96U(E/7/8)SB



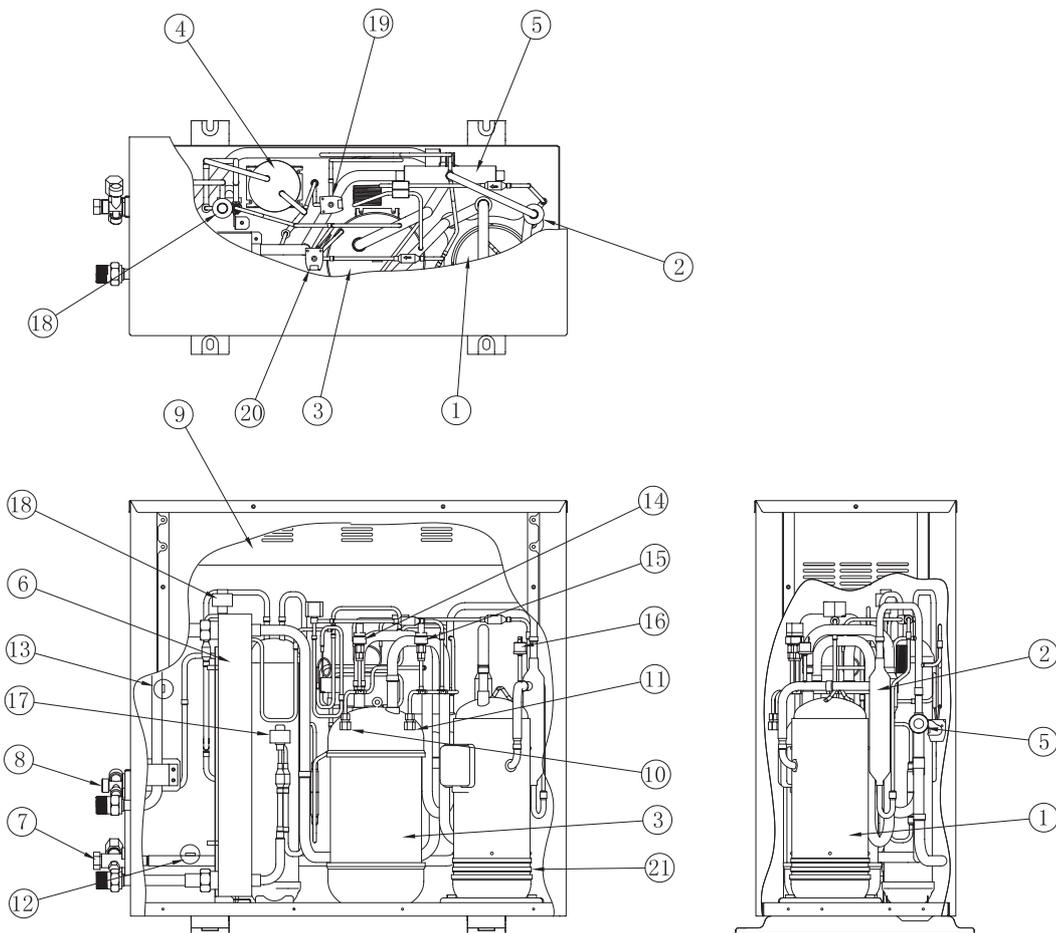
Viewed from A



3.1 Structure

3.1.1 Outdoor Unit

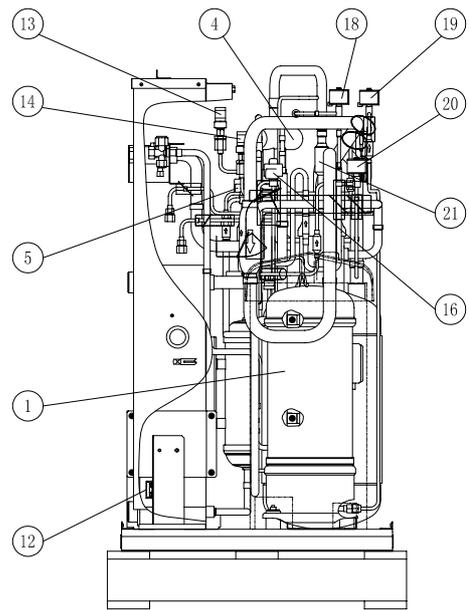
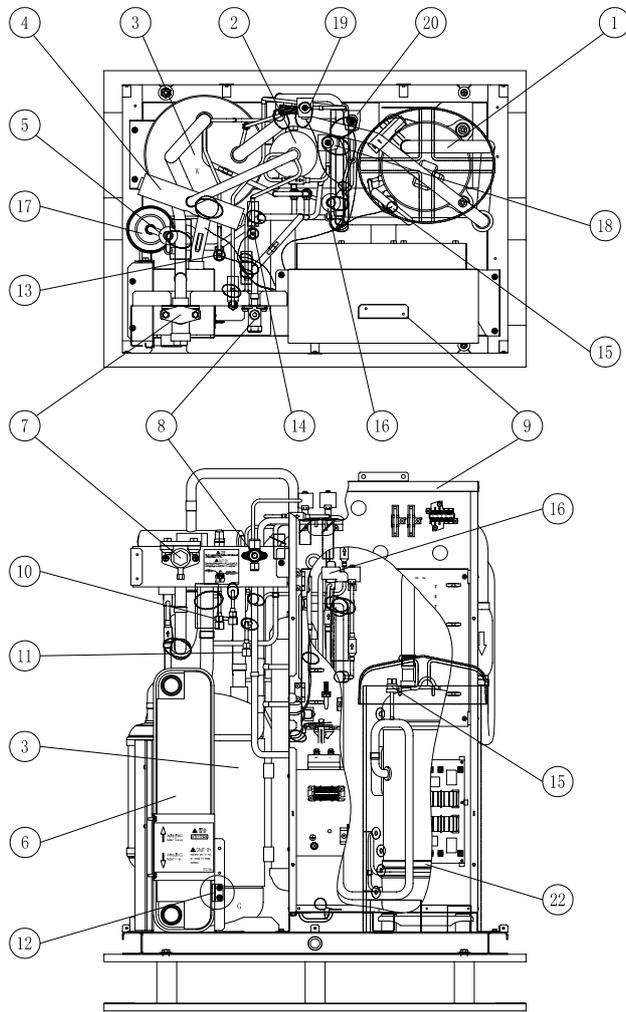
Model: AVWW-28~54U(C/2)SA



No.	Part Name
1	Compressor
2	Oil Separator (Except AVWW-28*)
3	Gas-liquid Separator
4	Accumulator
5	Reversing Valve
6	Plate Heat Exchanger
7	Gas Stop Valve
8	Liquid Stop Valve
9	Electrical Box
10	Check Joint (Low)
11	Check Joint (High)

No.	Part Name
12	Water Inlet Temperature Sensor
13	Water Outlet Temperature Sensor
14	Low Pressure Sensor
15	High Pressure Sensor
16	High Pressure Switch for Protection
17	EVO Electronic Expansion Valve
18	EVB Electronic Expansion Valve
19	Solenoid Valve SVC
20	Solenoid Valve SVA
21	Crankcase Heater

Model: AVWW-76~96U(E/7/8)SB



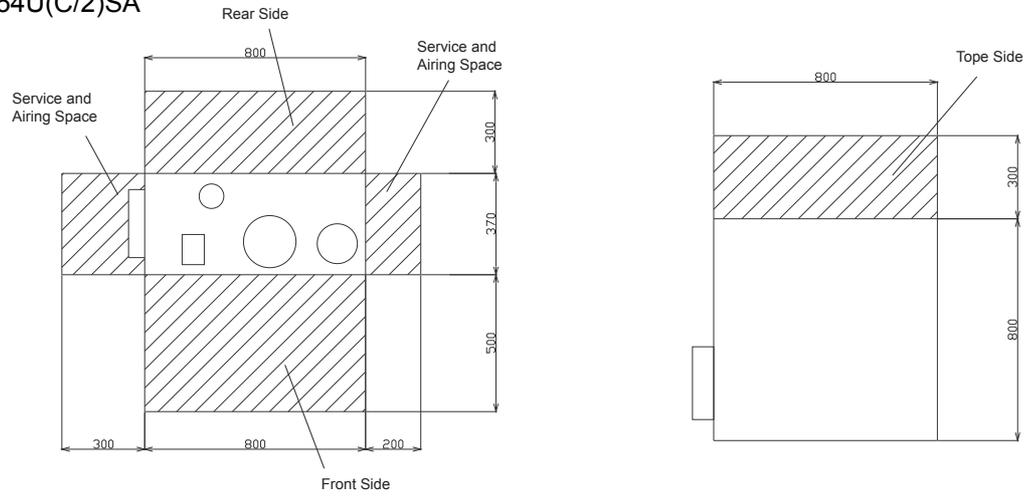
No.	Part Name
1	Compressor
2	Oil Separator (Except 3.0HP)
3	Gas-liquid Separator
4	Reversing Valve
5	EVO Electronic Expansion Valve
6	Plate Heat Exchanger
7	Gas Stop Valve
8	Liquid Stop Valve
9	Electrical Box
10	Check Joint (Low)
11	Check Joint (High)

No.	Part Name
12	Water Inlet Temperature Sensor
13	Low Pressure Sensor
14	High Pressure Sensor
15	High Pressure Switch for Protection
16	EVB Electronic Expansion Valve
17	Accumulator
18	Solenoid Valve SVC
19	Solenoid Valve SVF
20	Solenoid Valve SVA
21	Check Valve
22	Crankcase Heater

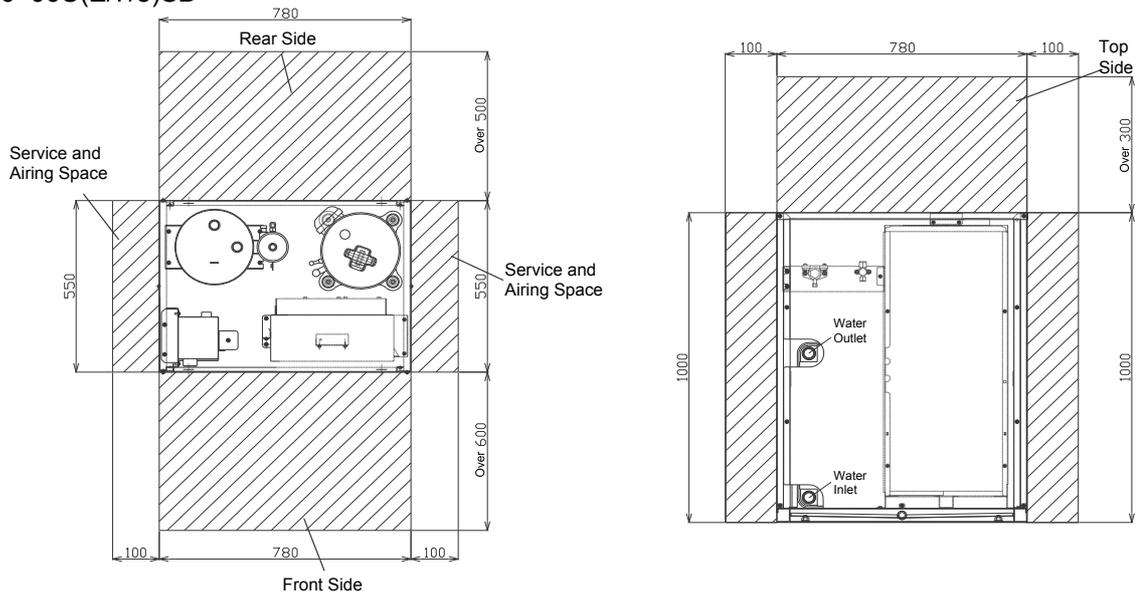
4. Service Space

4.1 Single Installation

AVWW-28~54U(C/2)SA

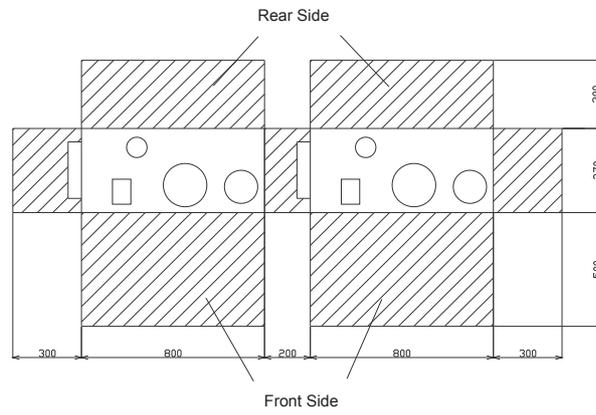


AVWW-76~96U(E/7/8)SB

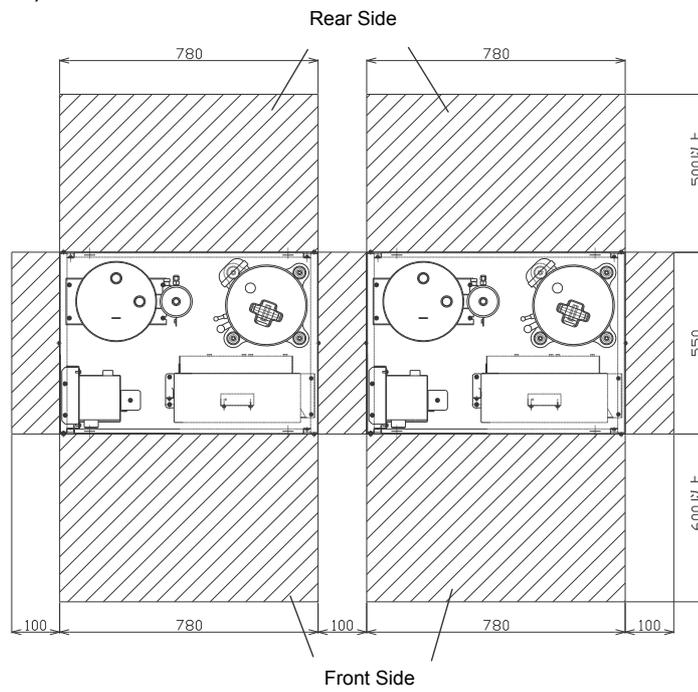


- Multiple Installation

AVWW-28~54U(C/2)SA



AVWW-76~96U(E/7/8)SB

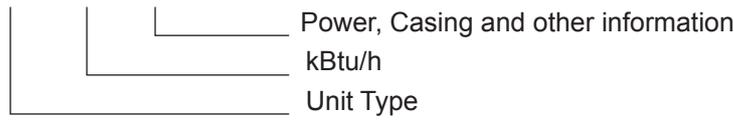


4.2 Selection Data

Selection Guide

(1) Meaning of Model Name of Indoor Unit

Example: AVD - 14 UXCSAL



Ceiling Ducted Type	AVD
Low-height Ceiling Ducted	AVE
Type Slim Ceiling Ducted Type	AVE
4-Way Cassette Type	AVC
2-Way Cassette Type	AVL
1-Way Cassette Type	AVY
Compact 4-Way Cassette Type	AVC
Wall Mounted Type	AVS
Ceiling & Floor Type	AW
Floor Concealed Type	AVH

NOTE:

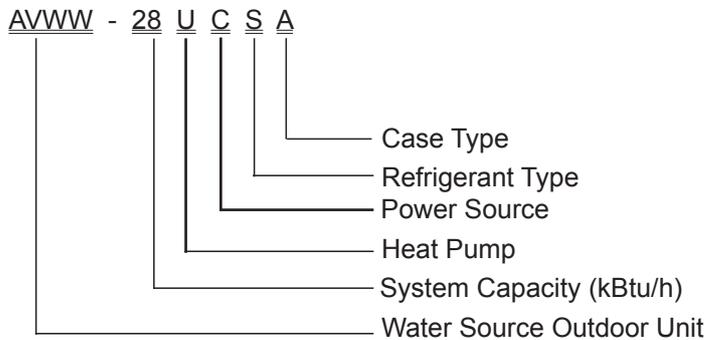
Select the indoor units and chiller unit so as the total indoor capacity is near to the chiller capacity.

(2) Nominal Capacity of Indoor Units

Horsepower(HP) Capacity		0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5
Cooling Capacity	kW	2.2	2.8	3.6	4.3	5.0	5.6	6.3	7.1
	kcal/h	1,900	2,400	3,100	3,700	4,300	4,800	5,400	6,100
	Btu/h	7,500	9,600	12,300	14,700	17,000	19,100	21,500	24,200
Heating Capacity	kW	2.5	3.3	4.2	4.9	5.6	6.5	7.5	8.5
	kcal/h	2,100	2,800	3,600	4,200	4,800	5,600	6,500	7,300
	Btu/h	8,500	11,100	14,300	16,700	19,100	22,200	25,600	29,000

Horsepower(HP) Capacity		3.0	3.3	4.0	5.0	6.0	8.0	10.0
Cooling Capacity	kW	8.4	9.0	11.2	14.2	16.0	22.4	28.0
	kcal/h	7,200	7,700	9,600	12,200	13,800	19,300	24,100
	Btu/h	28,700	31,700	38,000	48,400	54,600	76,400	95,500
Heating Capacity	kW	9.6	10.0	13.0	16.3	18.0	25.0	31.5
	kcal/h	8,300	8,600	11,200	14,000	15,500	21,500	27,100
	Btu/h	32,800	34,100	44,400	55,500	61,400	85,300	107,500

(3) Meaning of Model Name of Chiller Unit



(4) Nominal Capacity of Chiller Unit

Model		AVWW-28U(C/2)SA	AVWW-38U(C/2)SA	AVWW-48U(C/2)SA	AVWW-54U(C/2)SA
Horsepower (HP)		3	4	5	6
Cooling Capacity	kW	8.0	11.2	14.0	15.5
	kcal/h	6,900	9,600	12,000	13,300
	Btu/h	27,300	38,200	47,800	52,900
Heating Capacity	kW	9.0	12.5	16.0	18.0
	kcal/h	7,700	10,800	13,800	13,800
	Btu/h	30,700	42,700	54,600	61,400

Model		AVWW-76U(E/7/8)SB	AVWW-96U(E/7/8)SB
Horsepower (HP)		8	10
Cooling Capacity	kW	22.4	28.0
	kcal/h	19,300	24,100
	Btu/h	76,400	95,500
Heating Capacity	kW	25.0	31.5
	kcal/h	21,500	27,100
	Btu/h	85,300	107,500

Nominal Capacity of Chiller Unit is under the condition that the total indoor unit horsepower is same as chiller unit horsepower.

(5) Actual Maximum Chiller Unit Capacity

Maximum chiller unit capacity depends on connection capacity of indoor units, water inlet temperature, return air temperature, piping height difference and etc.

4.3 Capacity Table

4.3.1 Cooling Capacity

Outdoor Unit: 3HP (AVWW-28U(C/2)SA)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW
130	20	0.9(15)	7.2	1.48	8.18	1.68	8.7	1.78	8.78	1.90	9.68	2.02	10.6	2.13
		1.8(30)	7.3	1.45	8.28	1.61	8.8	1.68	8.99	1.80	9.84	1.90	10.7	2.01
		2.6(43.3)	7.4	1.41	8.39	1.57	8.9	1.64	9.31	1.72	10.05	1.85	10.8	1.98
	25	0.9(16)	7.4	1.71	7.97	1.88	8.3	1.97	8.46	2.12	9.52	2.24	10.6	2.36
		1.8(31)	7.4	1.63	8.12	1.79	8.5	1.86	8.78	1.90	9.68	2.09	10.6	2.27
		2.6(43.4)	7.5	1.59	8.15	1.76	8.5	1.84	8.89	1.80	9.84	2.00	10.8	2.20
	30	0.9(15)	7.4	1.90	8.12	2.07	8.5	2.16	9.10	2.12	9.79	2.36	10.5	2.59
		1.8(30)	7.5	1.82	8.15	1.95	8.5	2.01	9.20	2.08	9.89	2.24	10.6	2.39
		2.6(43.3)	7.7	1.77	8.25	1.92	8.6	1.99	9.42	2.03	10.05	2.18	10.8	2.33
	35	0.9(16)	6.8	1.98	7.76	2.23	8.3	2.36	8.25	2.43	9.26	2.67	10.3	2.90
		1.8(31)	6.8	1.88	7.76	2.15	8.3	2.27	8.46	2.33	9.47	2.48	10.5	2.62
		2.6(43.4)	7.2	1.97	8.04	2.13	8.5	2.21	8.68	2.27	9.58	2.41	10.5	2.54
120	20	0.9(15)	7.1	1.46	8.04	1.65	8.5	1.75	8.63	1.87	9.52	1.99	10.4	2.09
		1.8(30)	7.2	1.43	8.14	1.58	8.6	1.65	8.84	1.77	9.67	1.87	10.5	1.98
		2.6(43.3)	7.3	1.38	8.25	1.54	8.7	1.61	9.15	1.70	9.88	1.82	10.6	1.95
	25	0.9(16)	7.3	1.69	7.83	1.85	8.1	1.93	8.32	2.08	9.36	2.21	10.4	2.32
		1.8(31)	7.3	1.60	7.98	1.76	8.3	1.83	8.63	1.87	9.52	2.06	10.4	2.24
		2.6(43.4)	7.4	1.56	8.01	1.73	8.3	1.81	8.74	1.77	9.67	1.97	10.6	2.16
	30	0.9(15)	7.3	1.87	7.98	2.04	8.3	2.12	8.95	2.08	9.62	2.32	10.3	2.55
		1.8(30)	7.4	1.79	8.01	1.91	8.3	1.98	9.05	2.05	9.73	2.21	10.4	2.35
		2.6(43.3)	7.6	1.74	8.11	1.88	8.4	1.96	9.26	2.00	9.88	2.14	10.6	2.29
	35	0.9(16)	6.7	1.95	7.62	2.19	8.1	2.32	8.11	2.39	9.10	2.62	10.1	2.85
		1.8(31)	6.7	1.85	7.62	2.11	8.1	2.24	8.32	2.29	9.31	2.43	10.3	2.58
		2.6(43.4)	7.1	1.93	7.91	2.09	8.3	2.17	8.53	2.24	9.41	2.37	10.3	2.50
110	20	0.9(15)	6.9	1.42	7.87	1.62	8.3	1.71	8.45	1.83	9.31	1.94	10.2	2.05
		1.8(30)	7.0	1.39	7.97	1.55	8.4	1.62	8.65	1.73	9.47	1.83	10.3	1.93
		2.6(43.3)	7.1	1.35	8.07	1.51	8.5	1.58	8.96	1.66	9.67	1.78	10.4	1.90
	25	0.9(16)	7.1	1.65	7.66	1.81	7.9	1.89	8.14	2.04	9.16	2.16	10.2	2.27
		1.8(31)	7.1	1.57	7.81	1.72	8.1	1.79	8.45	1.83	9.31	2.02	10.2	2.19
		2.6(43.4)	7.2	1.53	7.84	1.69	8.1	1.77	8.55	1.73	9.47	1.92	10.4	2.12
	30	0.9(15)	7.1	1.83	7.81	1.99	8.1	2.08	8.75	2.04	9.42	2.27	10.1	2.49
		1.8(30)	7.2	1.75	7.84	1.87	8.1	1.93	8.86	2.01	9.52	2.16	10.2	2.30
		2.6(43.3)	7.4	1.70	7.94	1.84	8.2	1.91	9.06	1.95	9.67	2.10	10.4	2.24
	35	0.9(16)	6.5	1.90	7.46	2.15	7.9	2.27	7.94	2.34	8.91	2.56	9.9	2.79
		1.8(31)	6.5	1.81	7.46	2.07	7.9	2.19	8.14	2.24	9.11	2.38	10.1	2.52
		2.6(43.4)	6.9	1.89	7.74	2.05	8.1	2.13	8.35	2.19	9.21	2.32	10.1	2.44

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	0.9(15)	6.8	1.40	7.73	1.59	8.2	1.68	8.30	1.80	9.15	1.91	10.0	2.01
		1.8(30)	6.9	1.37	7.83	1.52	8.3	1.59	8.50	1.70	9.30	1.80	10.1	1.90
		2.6(43.3)	7.0	1.33	7.93	1.48	8.4	1.55	8.80	1.63	9.50	1.75	10.2	1.87
	25	0.9(16)	7.0	1.62	7.53	1.78	7.8	1.86	8.00	2.00	9.00	2.12	10.0	2.23
		1.8(31)	7.0	1.54	7.67	1.69	8.0	1.76	8.30	1.80	9.15	1.98	10.0	2.15
		2.6(43.4)	7.1	1.50	7.70	1.66	8.0	1.74	8.40	1.70	9.30	1.89	10.2	2.08
	30	0.9(15)	7.0	1.80	7.67	1.96	8.0	2.04	8.60	2.00	9.25	2.23	9.9	2.45
		1.8(30)	7.1	1.72	7.70	1.84	8.0	1.90	8.70	1.97	9.35	2.12	10.0	2.26
		2.6(43.3)	7.3	1.67	7.8	1.81	8.1	1.88	8.9	1.92	9.5	2.06	10.2	2.20
	35	0.9(16)	6.4	1.87	7.33	2.11	7.8	2.23	7.80	2.30	8.75	2.52	9.7	2.74
		1.8(31)	6.4	1.78	7.33	2.03	7.8	2.15	8.00	2.20	8.95	2.34	9.9	2.48
		2.6(43.4)	6.8	1.86	7.60	2.01	8.0	2.09	8.20	2.15	9.05	2.28	9.9	2.40
90	20	0.9(15)	6.1	1.26	6.97	1.43	7.4	1.52	7.50	1.62	8.25	1.72	9.0	1.81
		1.8(30)	6.2	1.24	7.06	1.37	7.5	1.43	7.70	1.53	8.39	1.62	9.1	1.71
		2.6(43.3)	6.3	1.20	7.15	1.33	7.6	1.40	8.00	1.47	8.57	1.58	9.2	1.69
	25	0.9(16)	6.3	1.46	6.79	1.61	7.0	1.68	7.21	1.80	8.12	1.91	9.0	2.01
		1.8(31)	6.3	1.39	6.92	1.52	7.2	1.59	7.48	1.62	8.25	1.79	9.0	1.94
		2.6(43.4)	6.4	1.35	6.94	1.50	7.2	1.57	7.58	1.53	8.39	1.70	9.2	1.88
	30	0.9(15)	6.3	1.62	6.92	1.77	7.2	1.84	7.76	1.80	8.34	2.01	8.9	2.21
		1.8(30)	6.4	1.55	6.94	1.66	7.2	1.71	7.85	1.78	8.43	1.91	9.0	2.04
		2.6(43.3)	6.6	1.51	7.03	1.63	7.3	1.70	8.03	1.73	8.57	1.86	9.2	1.98
	35	0.9(16)	5.8	1.69	6.61	1.90	7.0	2.01	7.03	2.07	7.89	2.27	8.7	2.47
		1.8(31)	5.8	1.61	6.61	1.83	7.0	1.94	7.21	1.98	8.07	2.11	8.9	2.24
		2.6(43.4)	6.1	1.68	6.85	1.81	7.2	1.88	7.39	1.94	8.16	2.06	8.9	2.16
80	20	0.9(15)	5.4	1.12	6.18	1.27	6.6	1.34	6.64	1.44	7.32	1.53	8.0	1.61
		1.8(30)	5.5	1.10	6.26	1.22	6.6	1.27	6.80	1.36	7.44	1.44	8.1	1.52
		2.6(43.3)	5.6	1.06	6.34	1.18	6.7	1.24	7.04	1.30	7.60	1.40	8.2	1.50
	25	0.9(16)	5.6	1.30	6.02	1.42	6.2	1.49	6.40	1.60	7.20	1.70	8.0	1.78
		1.8(31)	5.6	1.23	6.14	1.35	6.4	1.41	6.64	1.44	7.32	1.58	8.0	1.72
		2.6(43.4)	5.7	1.20	6.16	1.33	6.4	1.39	6.72	1.36	7.44	1.51	8.2	1.66
	30	0.9(15)	5.6	1.44	6.14	1.57	6.4	1.63	6.88	1.60	7.40	1.78	7.9	1.96
		1.8(30)	5.7	1.38	6.16	1.47	6.4	1.52	6.96	1.58	7.48	1.70	8.0	1.81
		2.6(43.3)	5.8	1.34	6.24	1.45	6.5	1.50	7.12	1.54	7.60	1.65	8.2	1.76
	35	0.9(16)	5.1	1.50	5.86	1.69	6.2	1.78	6.24	1.84	7.00	2.02	7.8	2.19
		1.8(31)	5.1	1.42	5.86	1.62	6.2	1.72	6.40	1.76	7.16	1.87	7.9	1.98
		2.6(43.4)	5.4	1.49	6.08	1.61	6.4	1.67	6.56	1.72	7.24	1.82	7.9	1.92

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	0.9(15)	4.8	0.98	5.41	1.11	5.7	1.18	5.81	1.26	6.41	1.34	7.0	1.41
		1.8(30)	4.8	0.96	5.48	1.06	5.8	1.11	5.95	1.19	6.51	1.26	7.1	1.33
		2.6(43.3)	4.9	0.93	5.55	1.04	5.9	1.09	6.16	1.14	6.65	1.23	7.1	1.31
	25	0.9(16)	4.9	1.13	5.27	1.25	5.5	1.30	5.60	1.40	6.30	1.48	7.0	1.56
		1.8(31)	4.9	1.08	5.37	1.18	5.6	1.23	5.81	1.26	6.41	1.39	7.0	1.51
		2.6(43.4)	5.0	1.05	5.39	1.16	5.6	1.22	5.88	1.19	6.51	1.32	7.1	1.46
	30	0.9(15)	4.9	1.26	5.37	1.37	5.6	1.43	6.02	1.40	6.48	1.56	6.9	1.72
		1.8(30)	5.0	1.20	5.39	1.29	5.6	1.33	6.09	1.38	6.55	1.48	7.0	1.58
		2.6(43.3)	5.1	1.17	5.46	1.27	5.7	1.32	6.23	1.34	6.65	1.44	7.1	1.54
	35	0.9(16)	4.5	1.31	5.13	1.48	5.5	1.56	5.46	1.61	6.13	1.76	6.8	1.92
		1.8(31)	4.5	1.25	5.13	1.42	5.5	1.51	5.60	1.54	6.27	1.64	6.9	1.74
		2.6(43.4)	4.8	1.30	5.32	1.41	5.6	1.46	5.74	1.51	6.34	1.60	6.9	1.68
60	20	0.9(15)	4.1	0.84	4.62	0.95	4.9	1.00	4.97	1.08	5.47	1.14	6.0	1.20
		1.8(30)	4.1	0.82	4.68	0.91	5.0	0.95	5.08	1.02	5.56	1.08	6.0	1.14
		2.6(43.3)	4.2	0.80	4.74	0.89	5.0	0.93	5.26	0.98	5.68	1.05	6.1	1.12
	25	0.9(16)	4.2	0.97	4.50	1.06	4.7	1.11	4.79	1.20	5.38	1.27	6.0	1.33
		1.8(31)	4.2	0.92	4.59	1.01	4.8	1.05	4.97	1.08	5.47	1.18	6.0	1.29
		2.6(43.4)	4.2	0.90	4.61	0.99	4.8	1.04	5.02	1.02	5.56	1.13	6.1	1.24
	30	0.9(15)	4.2	1.08	4.59	1.17	4.8	1.22	5.14	1.20	5.53	1.33	5.9	1.47
		1.8(30)	4.2	1.03	4.61	1.10	4.8	1.14	5.20	1.18	5.59	1.27	6.0	1.35
		2.6(43.3)	4.4	1.00	4.67	1.08	4.8	1.12	5.32	1.15	5.68	1.23	6.1	1.32
	35	0.9(16)	3.8	1.12	4.38	1.26	4.7	1.33	4.67	1.38	5.23	1.51	5.8	1.64
		1.8(31)	3.8	1.06	4.38	1.21	4.7	1.29	4.79	1.32	5.35	1.40	5.9	1.48
		2.6(43.4)	4.1	1.11	4.55	1.20	4.8	1.25	4.91	1.29	5.41	1.36	5.9	1.44
50	20	0.9(15)	3.4	0.70	3.87	0.80	4.1	0.84	4.15	0.90	4.58	0.96	5.0	1.01
		1.8(30)	3.5	0.69	3.92	0.76	4.2	0.80	4.25	0.85	4.65	0.90	5.1	0.95
		2.6(43.3)	3.5	0.67	3.97	0.74	4.2	0.78	4.40	0.82	4.75	0.88	5.1	0.94
	25	0.9(16)	3.5	0.81	3.77	0.89	3.9	0.93	4.00	1.00	4.50	1.06	5.0	1.12
		1.8(31)	3.5	0.77	3.84	0.85	4.0	0.88	4.15	0.90	4.58	0.99	5.0	1.08
		2.6(43.4)	3.6	0.75	3.85	0.83	4.0	0.87	4.20	0.85	4.65	0.95	5.1	1.04
	30	0.9(15)	3.5	0.90	3.84	0.98	4.0	1.02	4.30	1.00	4.63	1.12	5.0	1.23
		1.8(30)	3.6	0.86	3.85	0.92	4.0	0.95	4.35	0.99	4.68	1.06	5.0	1.13
		2.6(43.3)	3.7	0.84	3.90	0.91	4.1	0.94	4.45	0.96	4.75	1.03	5.1	1.10
	35	0.9(16)	3.2	0.94	3.67	1.06	3.9	1.12	3.90	1.15	4.38	1.26	4.9	1.37
		1.8(31)	3.2	0.89	3.67	1.02	3.9	1.08	4.00	1.10	4.48	1.17	5.0	1.24
		2.6(43.4)	3.4	0.93	3.80	1.01	4.0	1.05	4.10	1.08	4.53	1.14	5.0	1.20

Outdoor Unit: 4HP (AVWW-38U(C/2)SA)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	1.14(19)	10.1	2.08	11.46	2.35	12.2	2.49	8.38	1.70	11.60	2.34	14.8	2.98
		2.28(38)	10.2	2.02	11.56	2.24	12.3	2.36	8.44	1.62	11.70	2.21	14.9	2.81
		3.29(55)	10.4	1.97	11.75	2.19	12.5	2.31	8.58	1.58	11.85	2.18	15.1	2.77
	25	1.14(19)	10.4	2.40	11.16	2.65	11.5	2.76	7.97	1.89	11.35	2.59	14.7	3.30
		2.28(38)	10.5	2.27	11.37	2.50	11.9	2.60	8.17	1.79	11.49	2.49	14.8	3.18
		3.29(55)	10.5	2.22	11.38	2.45	11.9	2.58	8.17	1.77	11.61	2.42	15.0	3.08
	30	1.14(19)	10.3	2.67	11.35	2.90	11.9	3.03	8.19	2.07	11.43	2.86	14.7	3.63
		2.28(38)	10.5	2.55	11.40	2.73	11.9	2.75	8.17	1.93	11.49	2.63	14.8	3.34
		3.29(55)	10.5	2.47	11.43	2.58	12.0	2.63	8.25	1.81	11.64	2.53	14.9	3.26
	35	1.14(19)	9.4	2.77	11.06	3.12	11.9	3.30	8.17	2.26	11.27	3.16	14.4	4.06
		2.28(38)	9.5	2.63	11.05	3.00	11.9	3.18	8.15	2.19	11.36	2.93	14.6	3.67
		3.29(55)	10.1	2.76	11.26	2.98	11.9	3.09	8.17	2.12	11.44	2.84	14.7	3.56
120	20	1.14(19)	9.9	2.05	11.27	2.31	12.0	2.44	8.24	1.67	11.40	2.30	14.6	2.93
		2.28(38)	10.0	1.99	11.37	2.21	12.1	2.32	8.30	1.59	11.50	2.17	14.7	2.77
		3.29(55)	10.2	1.93	11.56	2.15	12.3	2.27	8.44	1.55	11.65	2.14	14.9	2.73
	25	1.14(19)	10.2	2.36	10.97	2.60	11.3	2.71	7.83	1.86	11.16	2.55	14.5	3.25
		2.28(38)	10.3	2.24	11.18	2.45	11.7	2.56	8.03	1.76	11.30	2.44	14.6	3.13
		3.29(55)	10.3	2.18	11.19	2.41	11.7	2.54	8.03	1.74	11.41	2.38	14.8	3.03
	30	1.14(19)	10.1	2.62	11.16	2.85	11.7	2.97	8.05	2.04	11.23	2.81	14.5	3.57
		2.28(38)	10.3	2.51	11.20	2.68	11.7	2.70	8.03	1.89	11.30	2.59	14.6	3.29
		3.29(55)	10.3	2.42	11.23	2.54	11.8	2.59	8.11	1.78	11.44	2.49	14.7	3.20
	35	1.14(19)	9.3	2.73	10.87	3.07	11.7	3.25	8.03	2.23	11.08	3.11	14.1	3.99
		2.28(38)	9.4	2.59	10.86	2.95	11.7	3.13	8.01	2.15	11.17	2.88	14.4	3.61
		3.29(55)	9.9	2.71	11.07	2.93	11.7	3.04	8.03	2.08	11.24	2.79	14.5	3.50
110	20	1.14(19)	9.7	2.01	11.02	2.26	11.7	2.39	8.06	1.64	11.16	2.25	14.2	2.87
		2.28(38)	9.8	1.94	11.13	2.16	11.8	2.27	8.12	1.56	11.26	2.13	14.4	2.71
		3.29(55)	10.0	1.89	11.31	2.11	12.0	2.22	8.25	1.52	11.40	2.10	14.6	2.67
	25	1.14(19)	10.0	2.31	10.74	2.54	11.1	2.66	7.66	1.82	10.92	2.49	14.1	3.18
		2.28(38)	10.1	2.19	10.94	2.40	11.4	2.50	7.86	1.72	11.05	2.39	14.2	3.06
		3.29(55)	10.1	2.14	10.95	2.36	11.4	2.48	7.86	1.70	11.17	2.33	14.5	2.96
	30	1.14(19)	9.9	2.56	10.92	2.79	11.4	2.91	7.88	1.99	10.99	2.75	14.1	3.49
		2.28(38)	10.1	2.45	10.96	2.63	11.4	2.65	7.86	1.85	11.05	2.53	14.2	3.22
		3.29(55)	10.1	2.37	10.99	2.48	11.5	2.53	7.94	1.74	11.20	2.43	14.4	3.13
	35	1.14(19)	9.1	2.67	10.64	3.00	11.4	3.18	7.86	2.18	10.84	3.04	13.8	3.91
		2.28(38)	9.2	2.53	10.63	2.89	11.4	3.06	7.84	2.11	10.93	2.82	14.0	3.53
		3.29(55)	9.7	2.66	10.83	2.87	11.4	2.97	7.86	2.04	11.00	2.73	14.1	3.42

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)												
			16°C		18°C		19°C		20°C		22°C		24°C		
		m ³ /h (l/min.)		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
				kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	1.14(19)	9.5	1.97	10.83	2.22	11.5	2.35	7.92	1.61	10.96	2.21	14.0	2.82	
		2.28(38)	9.6	1.91	10.93	2.12	11.6	2.23	7.98	1.53	11.06	2.09	14.1	2.66	
		3.29(55)	9.8	1.86	11.11	2.07	11.8	2.18	8.11	1.49	11.20	2.06	14.3	2.62	
	25	1.14(19)	9.8	2.27	10.55	2.50	10.9	2.61	7.53	1.79	10.73	2.45	13.9	3.12	
		2.28(38)	9.9	2.15	10.75	2.36	11.2	2.46	7.72	1.69	10.86	2.35	14.0	3.01	
		3.29(55)	9.9	2.10	10.76	2.32	11.2	2.44	7.72	1.67	10.97	2.29	14.2	2.91	
	30	1.14(19)	9.7	2.52	10.73	2.74	11.2	2.86	7.74	1.96	10.80	2.70	13.9	3.43	
		2.28(38)	9.9	2.41	10.77	2.58	11.2	2.60	7.72	1.82	10.86	2.49	14.0	3.16	
		3.29(55)	9.9	2.33	10.8	2.44	11.3	2.49	7.8	1.71	11.0	2.39	14.1	3.08	
	35	1.14(19)	8.9	2.62	10.45	2.95	11.2	3.12	7.72	2.14	10.65	2.99	13.6	3.84	
		2.28(38)	9.0	2.49	10.44	2.84	11.2	3.01	7.70	2.07	10.74	2.77	13.8	3.47	
		3.29(55)	9.5	2.61	10.64	2.82	11.2	2.92	7.72	2.00	10.81	2.68	13.9	3.36	
90	20	1.14(19)	8.6	1.78	9.77	2.00	10.4	2.12	7.14	1.45	9.88	1.99	12.6	2.54	
		2.28(38)	8.7	1.72	9.86	1.91	10.5	2.01	7.20	1.38	9.97	1.88	12.7	2.40	
		3.29(55)	8.8	1.68	10.02	1.87	10.6	1.97	7.31	1.34	10.10	1.86	12.9	2.36	
	25	1.14(19)	8.8	2.05	9.51	2.25	9.8	2.35	6.79	1.61	9.68	2.21	12.5	2.81	
		2.28(38)	8.9	1.94	9.69	2.13	10.1	2.22	6.96	1.52	9.79	2.12	12.6	2.71	
		3.29(55)	8.9	1.89	9.70	2.09	10.1	2.20	6.96	1.51	9.89	2.07	12.8	2.62	
	30	1.14(19)	8.7	2.27	9.68	2.47	10.1	2.58	6.98	1.77	9.74	2.43	12.5	3.09	
		2.28(38)	8.9	2.17	9.71	2.33	10.1	2.34	6.96	1.64	9.79	2.25	12.6	2.85	
		3.29(55)	8.9	2.10	9.74	2.20	10.2	2.25	7.03	1.54	9.92	2.16	12.7	2.78	
	35	1.14(19)	8.0	2.36	9.42	2.66	10.1	2.81	6.96	1.93	9.60	2.70	12.3	3.46	
		2.28(38)	8.1	2.25	9.41	2.56	10.1	2.71	6.94	1.87	9.69	2.50	12.4	3.13	
		3.29(55)	8.6	2.35	9.60	2.54	10.1	2.63	6.96	1.80	9.75	2.42	12.5	3.03	
80	20	1.14(19)	7.6	1.58	8.66	1.78	9.2	1.88	6.34	1.29	8.77	1.77	11.2	2.26	
		2.28(38)	7.7	1.53	8.74	1.70	9.3	1.78	6.38	1.22	8.85	1.67	11.3	2.13	
		3.29(55)	7.8	1.49	8.89	1.66	9.4	1.74	6.49	1.19	8.96	1.65	11.4	2.10	
	25	1.14(19)	7.8	1.82	8.44	2.00	8.7	2.09	6.02	1.43	8.58	1.96	11.1	2.50	
		2.28(38)	7.9	1.72	8.60	1.89	9.0	1.97	6.18	1.35	8.69	1.88	11.2	2.41	
		3.29(55)	7.9	1.68	8.61	1.86	9.0	1.95	6.18	1.34	8.78	1.83	11.4	2.33	
	30	1.14(19)	7.8	2.02	8.58	2.19	9.0	2.29	6.19	1.57	8.64	2.16	11.1	2.74	
		2.28(38)	7.9	1.93	8.62	2.06	9.0	2.08	6.18	1.46	8.69	1.99	11.2	2.53	
		3.29(55)	7.9	1.86	8.64	1.95	9.0	1.99	6.24	1.37	8.80	1.91	11.3	2.46	
	35	1.14(19)	7.1	2.10	8.36	2.36	9.0	2.50	6.18	1.71	8.52	2.39	10.9	3.07	
		2.28(38)	7.2	1.99	8.35	2.27	9.0	2.41	6.16	1.66	8.59	2.22	11.0	2.78	
		3.29(55)	7.6	2.09	8.51	2.26	9.0	2.34	6.18	1.60	8.65	2.14	11.1	2.69	

Combination (%)	Water Temp. (Inlet) °C	Flow rate m³/h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	1.14(19)	6.7	1.38	7.58	1.55	8.1	1.65	5.54	1.13	7.67	1.55	9.8	1.97
		2.28(38)	6.7	1.34	7.65	1.48	8.1	1.56	5.59	1.07	7.74	1.46	9.9	1.86
		3.29(55)	6.9	1.30	7.78	1.45	8.3	1.53	5.68	1.04	7.84	1.44	10.0	1.83
	25	1.14(19)	6.9	1.59	7.39	1.75	7.6	1.83	5.27	1.25	7.51	1.72	9.7	2.18
		2.28(38)	6.9	1.51	7.53	1.65	7.8	1.72	5.40	1.18	7.60	1.65	9.8	2.11
		3.29(55)	6.9	1.47	7.53	1.62	7.8	1.71	5.40	1.17	7.68	1.60	9.9	2.04
	30	1.14(19)	6.8	1.76	7.51	1.92	7.8	2.00	5.42	1.37	7.56	1.89	9.7	2.40
		2.28(38)	6.9	1.69	7.54	1.81	7.8	1.82	5.40	1.27	7.60	1.74	9.8	2.21
		3.29(55)	6.9	1.63	7.56	1.71	7.9	1.74	5.46	1.20	7.70	1.67	9.9	2.16
	35	1.14(19)	6.2	1.83	7.32	2.07	7.8	2.18	5.40	1.50	7.46	2.09	9.5	2.69
		2.28(38)	6.3	1.74	7.31	1.99	7.8	2.11	5.39	1.45	7.52	1.94	9.7	2.43
		3.29(55)	6.7	1.83	7.45	1.97	7.8	2.04	5.40	1.40	7.57	1.88	9.7	2.35
60	20	1.14(19)	5.7	1.18	6.48	1.33	6.9	1.41	4.74	0.96	6.56	1.32	8.4	1.69
		2.28(38)	5.7	1.14	6.54	1.27	6.9	1.33	4.77	0.92	6.62	1.25	8.4	1.59
		3.29(55)	5.9	1.11	6.65	1.24	7.1	1.30	4.85	0.89	6.70	1.23	8.6	1.57
	25	1.14(19)	5.9	1.36	6.31	1.50	6.5	1.56	4.50	1.07	6.42	1.47	8.3	1.87
		2.28(38)	5.9	1.29	6.43	1.41	6.7	1.47	4.62	1.01	6.50	1.41	8.4	1.80
		3.29(55)	5.9	1.26	6.44	1.39	6.7	1.46	4.62	1.00	6.56	1.37	8.5	1.74
	30	1.14(19)	5.8	1.51	6.42	1.64	6.7	1.71	4.63	1.17	6.46	1.62	8.3	2.05
		2.28(38)	5.9	1.44	6.44	1.54	6.7	1.56	4.62	1.09	6.50	1.49	8.4	1.89
		3.29(55)	5.9	1.39	6.46	1.46	6.8	1.49	4.67	1.02	6.58	1.43	8.4	1.84
	35	1.14(19)	5.3	1.57	6.25	1.76	6.7	1.87	4.62	1.28	6.37	1.79	8.1	2.30
		2.28(38)	5.4	1.49	6.25	1.70	6.7	1.80	4.61	1.24	6.42	1.66	8.3	2.08
		3.29(55)	5.7	1.56	6.36	1.69	6.7	1.75	4.62	1.20	6.47	1.60	8.3	2.01
50	20	1.14(19)	4.8	0.99	5.42	1.11	5.8	1.18	3.96	0.81	5.48	1.11	7.0	1.41
		2.28(38)	4.8	0.96	5.47	1.06	5.8	1.12	3.99	0.77	5.53	1.05	7.1	1.33
		3.29(55)	4.9	0.93	5.56	1.04	5.9	1.09	4.06	0.75	5.60	1.03	7.2	1.31
	25	1.14(19)	4.9	1.14	5.28	1.25	5.5	1.31	3.77	0.90	5.37	1.23	7.0	1.56
		2.28(38)	5.0	1.08	5.38	1.18	5.6	1.23	3.86	0.85	5.43	1.18	7.0	1.51
		3.29(55)	5.0	1.05	5.38	1.16	5.6	1.22	3.86	0.84	5.49	1.15	7.1	1.46
	30	1.14(19)	4.9	1.26	5.37	1.37	5.6	1.43	3.87	0.98	5.40	1.35	7.0	1.72
		2.28(38)	5.0	1.21	5.39	1.29	5.6	1.30	3.86	0.91	5.43	1.25	7.0	1.58
		3.29(55)	5.0	1.17	5.40	1.22	5.7	1.25	3.90	0.86	5.50	1.20	7.1	1.54
	35	1.14(19)	4.5	1.31	5.23	1.48	5.6	1.56	3.86	1.07	5.33	1.50	6.8	1.92
		2.28(38)	4.5	1.25	5.22	1.42	5.6	1.51	3.85	1.04	5.37	1.39	6.9	1.74
		3.29(55)	4.8	1.31	5.32	1.41	5.6	1.46	3.86	1.00	5.41	1.34	7.0	1.68

Outdoor Unit: 5HP (AVWW-48U(C/2)SA)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	1.44(24)	12.6	2.67	14.32	3.02	15.2	3.18	10.47	2.18	14.50	3.00	18.5	3.82
		2.88(48)	12.8	2.59	14.46	2.88	15.3	3.03	10.56	2.07	14.63	2.84	18.7	3.61
		4.32(72)	13.0	2.53	14.69	2.81	15.6	2.95	10.73	2.02	14.80	2.79	18.9	3.56
	25	1.44(24)	13.0	3.08	13.96	3.39	14.5	3.53	9.96	2.42	14.19	3.33	18.4	4.23
		2.88(48)	13.0	2.92	14.22	3.21	14.8	3.34	10.22	2.29	14.37	3.18	18.5	4.09
		4.32(72)	13.1	2.85	14.23	3.15	14.8	3.31	10.22	2.26	14.51	3.11	18.8	3.95
	30	1.44(24)	12.9	3.42	14.19	3.72	14.8	3.87	10.24	2.66	14.28	3.66	18.3	4.66
		2.88(48)	13.1	3.27	14.24	3.50	14.8	3.61	10.22	2.48	14.37	3.38	18.5	4.29
		4.32(72)	13.1	3.16	14.28	3.31	14.9	3.38	10.26	2.32	14.50	3.25	18.7	4.18
	35	1.44(24)	11.9	3.56	13.82	4.01	14.8	4.23	10.22	2.90	14.09	4.05	18.0	5.21
		2.88(48)	12.0	3.38	13.82	3.85	14.7	4.09	10.18	2.80	14.21	3.76	18.2	4.71
		4.32(72)	12.6	3.53	14.07	3.82	14.8	3.97	10.22	2.72	14.29	3.63	18.4	4.55
120	20	1.44(24)	12.4	2.62	14.07	2.96	15.0	3.13	10.30	2.14	14.25	2.95	18.2	3.76
		2.88(48)	12.6	2.55	14.22	2.83	15.1	2.97	10.38	2.04	14.39	2.79	18.4	3.55
		4.32(72)	12.8	2.49	14.44	2.77	15.3	2.90	10.55	1.99	14.55	2.75	18.6	3.50
	25	1.44(24)	12.8	3.03	13.72	3.33	14.3	3.47	9.79	2.38	13.95	3.28	18.1	4.16
		2.88(48)	12.8	2.87	13.98	3.15	14.6	3.29	10.05	2.25	14.13	3.13	18.2	4.03
		4.32(72)	12.9	2.80	13.99	3.10	14.6	3.26	10.05	2.23	14.26	3.06	18.5	3.88
	30	1.44(24)	12.7	3.36	13.95	3.66	14.6	3.81	10.07	2.61	14.04	3.60	18.0	4.58
		2.88(48)	12.9	3.21	14.00	3.44	14.6	3.55	10.05	2.43	14.13	3.32	18.2	4.21
		4.32(72)	12.9	3.11	14.04	3.26	14.7	3.32	10.09	2.28	14.25	3.19	18.4	4.11
	35	1.44(24)	11.7	3.50	13.59	3.94	14.6	4.16	10.05	2.85	13.86	3.98	17.7	5.12
		2.88(48)	11.8	3.32	13.59	3.79	14.5	4.03	10.01	2.76	13.97	3.69	17.9	4.63
		4.32(72)	12.4	3.47	13.83	3.76	14.6	3.90	10.05	2.67	14.05	3.57	18.1	4.47
110	20	1.44(24)	12.1	2.56	13.77	2.90	14.7	3.06	10.08	2.10	13.94	2.89	17.8	3.67
		2.88(48)	12.3	2.49	13.91	2.77	14.8	2.91	10.16	1.99	14.08	2.73	18.0	3.47
		4.32(72)	12.5	2.43	14.13	2.71	15.0	2.84	10.32	1.94	14.24	2.69	18.2	3.42
	25	1.44(24)	12.5	2.96	13.43	3.26	13.9	3.40	9.58	2.33	13.65	3.21	17.7	4.07
		2.88(48)	12.5	2.81	13.68	3.08	14.2	3.22	9.83	2.20	13.82	3.06	17.8	3.94
		4.32(72)	12.6	2.74	13.69	3.03	14.2	3.19	9.83	2.18	13.95	2.99	18.1	3.80
	30	1.44(24)	12.4	3.29	13.65	3.58	14.2	3.73	9.85	2.55	13.74	3.52	17.6	4.48
		2.88(48)	12.6	3.15	13.70	3.37	14.2	3.47	9.83	2.38	13.82	3.25	17.8	4.12
		4.32(72)	12.6	3.04	13.74	3.19	14.4	3.25	9.87	2.23	13.94	3.12	18.0	4.02
	35	1.44(24)	11.4	3.42	13.29	3.86	14.2	4.07	9.83	2.79	13.56	3.90	17.3	5.01
		2.88(48)	11.5	3.25	13.29	3.70	14.1	3.94	9.79	2.70	13.67	3.61	17.5	4.53
		4.32(72)	12.1	3.40	13.54	3.67	14.2	3.82	9.83	2.62	13.75	3.49	17.7	4.38

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	1.44(24)	11.9	2.52	13.53	2.85	14.4	3.01	9.90	2.06	13.70	2.84	17.5	3.61
		2.88(48)	12.1	2.45	13.67	2.72	14.5	2.86	9.98	1.96	13.83	2.68	17.7	3.41
		4.32(72)	12.3	2.39	13.88	2.66	14.7	2.79	10.14	1.91	13.99	2.64	17.9	3.36
	25	1.44(24)	12.3	2.91	13.19	3.20	13.7	3.34	9.41	2.29	13.41	3.15	17.4	4.00
		2.88(48)	12.3	2.76	13.44	3.03	14.0	3.16	9.66	2.16	13.58	3.01	17.5	3.87
		4.32(72)	12.4	2.69	13.45	2.98	14.0	3.13	9.66	2.14	13.71	2.94	17.8	3.73
	30	1.44(24)	12.2	3.23	13.41	3.52	14.0	3.66	9.68	2.51	13.50	3.46	17.3	4.40
		2.88(48)	12.4	3.09	13.46	3.31	14.0	3.41	9.66	2.34	13.58	3.19	17.5	4.05
		4.32(72)	12.4	2.99	13.5	3.13	14.1	3.19	9.7	2.19	13.7	3.07	17.7	3.95
	35	1.44(24)	11.2	3.36	13.06	3.79	14.0	4.00	9.66	2.74	13.32	3.83	17.0	4.92
		2.88(48)	11.3	3.19	13.06	3.64	13.9	3.87	9.62	2.65	13.43	3.55	17.2	4.45
		4.32(72)	11.9	3.34	13.30	3.61	14.0	3.75	9.66	2.57	13.51	3.43	17.4	4.30
90	20	1.44(24)	10.7	2.27	12.20	2.57	13.0	2.71	8.93	1.86	12.35	2.56	15.8	3.26
		2.88(48)	10.9	2.21	12.33	2.45	13.1	2.58	9.00	1.77	12.47	2.42	16.0	3.08
		4.32(72)	11.1	2.16	12.52	2.40	13.3	2.52	9.14	1.72	12.62	2.38	16.1	3.03
	25	1.44(24)	11.1	2.62	11.89	2.89	12.4	3.01	8.49	2.07	12.09	2.84	15.7	3.61
		2.88(48)	11.1	2.49	12.12	2.73	12.6	2.85	8.71	1.95	12.25	2.71	15.8	3.49
		4.32(72)	11.2	2.43	12.13	2.69	12.6	2.82	8.71	1.93	12.36	2.65	16.1	3.36
	30	1.44(24)	11.0	2.91	12.09	3.17	12.6	3.30	8.73	2.26	12.17	3.12	15.6	3.97
		2.88(48)	11.2	2.79	12.14	2.98	12.6	3.08	8.71	2.11	12.25	2.88	15.8	3.65
		4.32(72)	11.2	2.70	12.17	2.82	12.7	2.88	8.75	1.97	12.35	2.77	16.0	3.56
	35	1.44(24)	10.1	3.03	11.78	3.42	12.6	3.61	8.71	2.47	12.01	3.45	15.3	4.44
		2.88(48)	10.2	2.88	11.78	3.28	12.5	3.49	8.68	2.39	12.11	3.20	15.5	4.01
		4.32(72)	10.7	3.01	11.99	3.26	12.6	3.38	8.71	2.32	12.18	3.09	15.7	3.88
80	20	1.44(24)	9.5	2.02	10.82	2.28	11.5	2.41	7.92	1.65	10.96	2.27	14.0	2.89
		2.88(48)	9.7	1.96	10.94	2.18	11.6	2.29	7.98	1.57	11.06	2.14	14.2	2.73
		4.32(72)	9.8	1.91	11.10	2.13	11.8	2.23	8.11	1.53	11.19	2.11	14.3	2.69
	25	1.44(24)	9.8	2.33	10.55	2.56	11.0	2.67	7.53	1.83	10.73	2.52	13.9	3.20
		2.88(48)	9.8	2.21	10.75	2.42	11.2	2.53	7.73	1.73	10.86	2.41	14.0	3.10
		4.32(72)	9.9	2.15	10.76	2.38	11.2	2.50	7.73	1.71	10.97	2.35	14.2	2.98
	30	1.44(24)	9.8	2.58	10.73	2.82	11.2	2.93	7.74	2.01	10.80	2.77	13.8	3.52
		2.88(48)	9.9	2.47	10.77	2.65	11.2	2.73	7.73	1.87	10.86	2.55	14.0	3.24
		4.32(72)	9.9	2.39	10.80	2.50	11.3	2.55	7.76	1.75	10.96	2.46	14.2	3.16
	35	1.44(24)	9.0	2.69	10.45	3.03	11.2	3.20	7.73	2.19	10.66	3.06	13.6	3.94
		2.88(48)	9.0	2.55	10.45	2.91	11.1	3.10	7.70	2.12	10.74	2.84	13.8	3.56
		4.32(72)	9.5	2.67	10.64	2.89	11.2	3.00	7.73	2.06	10.81	2.74	13.9	3.44

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	1.44(24)	8.3	1.76	9.47	2.00	10.1	2.11	6.93	1.44	9.59	1.99	12.3	2.53
		2.88(48)	8.5	1.72	9.57	1.90	10.2	2.00	6.99	1.37	9.68	1.88	12.4	2.39
		4.32(72)	8.6	1.67	9.72	1.86	10.3	1.95	7.10	1.34	9.79	1.85	12.5	2.35
	25	1.44(24)	8.6	2.04	9.23	2.24	9.6	2.34	6.59	1.60	9.39	2.21	12.2	2.80
		2.88(48)	8.6	1.93	9.41	2.12	9.8	2.21	6.76	1.51	9.51	2.11	12.3	2.71
		4.32(72)	8.7	1.88	9.42	2.09	9.8	2.19	6.76	1.50	9.60	2.06	12.5	2.61
	30	1.44(24)	8.5	2.26	9.39	2.46	9.8	2.56	6.78	1.76	9.45	2.42	12.1	3.08
		2.88(48)	8.7	2.16	9.42	2.32	9.8	2.39	6.76	1.64	9.51	2.23	12.3	2.84
		4.32(72)	8.7	2.09	9.45	2.19	9.9	2.23	6.79	1.53	9.59	2.15	12.4	2.77
	35	1.44(24)	7.8	2.35	9.14	2.65	9.8	2.80	6.76	1.92	9.32	2.68	11.9	3.44
		2.88(48)	7.9	2.23	9.14	2.55	9.7	2.71	6.73	1.86	9.40	2.49	12.0	3.12
		4.32(72)	8.3	2.34	9.31	2.53	9.8	2.63	6.76	1.80	9.46	2.40	12.2	3.01
60	20	1.44(24)	7.1	1.51	8.09	1.70	8.6	1.80	5.92	1.23	8.20	1.70	10.5	2.16
		2.88(48)	7.2	1.47	8.18	1.63	8.7	1.71	5.97	1.17	8.27	1.60	10.6	2.04
		4.32(72)	7.4	1.43	8.30	1.59	8.8	1.67	6.07	1.14	8.37	1.58	10.7	2.01
	25	1.44(24)	7.4	1.74	7.89	1.91	8.2	2.00	5.63	1.37	8.02	1.88	10.4	2.39
		2.88(48)	7.4	1.65	8.04	1.81	8.4	1.89	5.78	1.29	8.12	1.80	10.5	2.32
		4.32(72)	7.4	1.61	8.05	1.78	8.4	1.87	5.78	1.28	8.20	1.76	10.6	2.23
	30	1.44(24)	7.3	1.93	8.02	2.11	8.4	2.19	5.79	1.50	8.08	2.07	10.3	2.63
		2.88(48)	7.4	1.85	8.05	1.98	8.4	2.04	5.78	1.40	8.12	1.91	10.5	2.42
		4.32(72)	7.4	1.79	8.08	1.87	8.4	1.91	5.80	1.31	8.20	1.84	10.6	2.36
	35	1.44(24)	6.7	2.01	7.81	2.27	8.4	2.39	5.78	1.64	7.97	2.29	10.2	2.94
		2.88(48)	6.8	1.91	7.81	2.18	8.3	2.32	5.75	1.59	8.03	2.12	10.3	2.66
		4.32(72)	7.1	2.00	7.96	2.16	8.4	2.24	5.78	1.54	8.08	2.05	10.4	2.57
50	20	1.44(24)	6.0	1.26	6.77	1.43	7.2	1.51	4.95	1.03	6.85	1.42	8.8	1.81
		2.88(48)	6.1	1.23	6.84	1.36	7.3	1.43	4.99	0.98	6.92	1.34	8.9	1.71
		4.32(72)	6.2	1.20	6.94	1.33	7.4	1.40	5.07	0.96	7.00	1.32	9.0	1.68
	25	1.44(24)	6.2	1.46	6.60	1.60	6.9	1.67	4.71	1.15	6.71	1.58	8.7	2.00
		2.88(48)	6.2	1.38	6.72	1.52	7.0	1.58	4.83	1.08	6.79	1.51	8.8	1.94
		4.32(72)	6.2	1.35	6.73	1.49	7.0	1.57	4.83	1.07	6.86	1.47	8.9	1.87
	30	1.44(24)	6.1	1.62	6.71	1.76	7.0	1.83	4.84	1.26	6.75	1.73	8.7	2.20
		2.88(48)	6.2	1.55	6.73	1.66	7.0	1.71	4.83	1.17	6.79	1.60	8.8	2.03
		4.32(72)	6.2	1.50	6.75	1.57	7.1	1.60	4.85	1.10	6.85	1.54	8.9	1.98
	35	1.44(24)	5.6	1.68	6.53	1.90	7.0	2.00	4.83	1.37	6.66	1.92	8.5	2.46
		2.88(48)	5.7	1.60	6.53	1.82	7.0	1.94	4.81	1.33	6.72	1.78	8.6	2.23
		4.32(72)	6.0	1.67	6.65	1.81	7.0	1.88	4.83	1.29	6.76	1.72	8.7	2.15

Outdoor Unit: 6HP (AVWW-54U(C/2)SA)

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	1.59(26.5)	14.0	3.04	15.85	3.43	16.8	3.62	11.60	2.48	16.05	3.42	20.5	4.35
		3.18(53)	14.1	2.95	16.01	3.28	16.9	3.44	11.69	2.36	16.20	3.23	20.7	4.11
		4.77(79.5)	14.4	2.88	16.26	3.20	17.2	3.35	11.87	2.30	16.39	3.17	20.9	4.04
	25	1.59(26.5)	14.4	3.50	15.45	3.85	16.0	4.02	11.02	2.76	15.71	3.79	20.4	4.81
		3.18(53)	14.4	3.32	15.74	3.64	16.4	3.80	11.31	2.60	15.90	3.63	20.5	4.66
		4.77(79.5)	14.5	3.24	15.75	3.59	16.4	3.77	11.31	2.58	16.06	3.53	20.8	4.49
	30	1.59(26.5)	14.3	3.88	15.71	4.23	16.4	4.41	11.34	3.02	15.82	4.16	20.3	5.30
		3.18(53)	14.5	3.72	15.78	3.98	16.4	4.11	11.31	2.81	15.90	3.84	20.5	4.88
		4.77(79.5)	14.6	3.60	15.87	3.77	16.5	3.84	11.32	2.63	16.08	3.69	20.7	4.75
	35	1.59(26.5)	13.1	4.04	15.30	4.56	16.4	4.81	11.31	3.30	15.60	4.61	19.9	5.93
		3.18(53)	13.2	3.84	15.29	4.38	16.3	4.66	11.27	3.18	15.73	4.27	20.2	5.36
		4.77(79.5)	14.0	4.02	15.58	4.35	16.4	4.51	11.31	3.09	15.82	4.14	20.3	5.17
120	20	1.59(26.5)	13.7	2.99	15.58	3.37	16.5	3.56	11.40	2.43	15.78	3.36	20.2	4.28
		3.18(53)	13.8	2.90	15.74	3.22	16.6	3.38	11.49	2.32	15.93	3.17	20.4	4.04
		4.77(79.5)	14.1	2.83	15.99	3.14	17.0	3.30	11.67	2.26	16.11	3.12	20.6	3.97
	25	1.59(26.5)	14.1	3.44	15.19	3.79	15.7	3.95	10.84	2.71	15.45	3.72	20.1	4.73
		3.18(53)	14.1	3.27	15.48	3.58	16.1	3.73	11.12	2.56	15.63	3.57	20.2	4.58
		4.77(79.5)	14.3	3.18	15.49	3.53	16.1	3.70	11.12	2.54	15.79	3.47	20.5	4.41
	30	1.59(26.5)	14.0	3.82	15.45	4.16	16.1	4.34	11.15	2.96	15.55	4.09	20.0	5.21
		3.18(53)	14.3	3.66	15.51	3.91	16.1	4.04	11.12	2.77	15.63	3.78	20.2	4.80
		4.77(79.5)	14.4	3.54	15.60	3.70	16.2	3.78	11.13	2.59	15.81	3.63	20.4	4.67
	35	1.59(26.5)	12.9	3.97	15.04	4.48	16.1	4.73	11.12	3.25	15.33	4.54	19.6	5.83
		3.18(53)	13.0	3.78	15.03	4.31	16.0	4.58	11.08	3.13	15.47	4.20	19.9	5.27
		4.77(79.5)	13.7	3.95	15.32	4.28	16.1	4.43	11.12	3.04	15.55	4.07	20.0	5.09
110	20	1.59(26.5)	13.4	2.92	15.25	3.30	16.2	3.48	11.16	2.38	15.44	3.29	19.7	4.18
		3.18(53)	13.5	2.84	15.40	3.16	16.3	3.31	11.25	2.27	15.58	3.10	19.9	3.95
		4.77(79.5)	13.8	2.77	15.64	3.07	16.6	3.23	11.42	2.21	15.77	3.05	20.2	3.89
	25	1.59(26.5)	13.8	3.37	14.86	3.70	15.4	3.87	10.61	2.66	15.12	3.64	19.6	4.63
		3.18(53)	13.8	3.20	15.15	3.50	15.8	3.65	10.88	2.50	15.30	3.49	19.7	4.48
		4.77(79.5)	13.9	3.11	15.16	3.45	15.8	3.62	10.88	2.48	15.45	3.40	20.1	4.32
	30	1.59(26.5)	13.7	3.74	15.12	4.07	15.8	4.24	10.91	2.90	15.22	4.00	19.5	5.10
		3.18(53)	13.9	3.58	15.18	3.83	15.8	3.95	10.88	2.71	15.30	3.69	19.7	4.69
		4.77(79.5)	14.0	3.46	15.27	3.62	15.9	3.69	10.89	2.53	15.47	3.55	19.9	4.57
	35	1.59(26.5)	12.6	3.89	14.72	4.39	15.8	4.63	10.88	3.18	15.00	4.44	19.1	5.70
		3.18(53)	12.7	3.69	14.71	4.21	15.7	4.48	10.84	3.06	15.14	4.11	19.4	5.16
		4.77(79.5)	13.4	3.87	14.99	4.18	15.8	4.34	10.88	2.97	15.22	3.98	19.5	4.98

Combination (%)	Water Temp. (Inlet) °C	Flow rate m³/h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	1.59(26.5)	13.2	2.87	14.98	3.24	15.9	3.42	10.96	2.34	15.17	3.23	19.4	4.11
		3.18(53)	13.3	2.79	15.13	3.10	16.0	3.25	11.05	2.23	15.31	3.05	19.6	3.88
		4.77(79.5)	13.6	2.72	15.37	3.02	16.3	3.17	11.22	2.17	15.49	3.00	19.8	3.82
	25	1.59(26.5)	13.6	3.31	14.60	3.64	15.1	3.80	10.42	2.61	14.85	3.58	19.3	4.55
		3.18(53)	13.6	3.14	14.88	3.44	15.5	3.59	10.69	2.46	15.03	3.43	19.4	4.40
		4.77(79.5)	13.7	3.06	14.89	3.39	15.5	3.56	10.69	2.44	15.18	3.34	19.7	4.24
	30	1.59(26.5)	13.5	3.67	14.85	4.00	15.5	4.17	10.72	2.85	14.95	3.93	19.2	5.01
		3.18(53)	13.7	3.52	14.91	3.76	15.5	3.88	10.69	2.66	15.03	3.63	19.4	4.61
		4.77(79.5)	13.8	3.40	15.0	3.56	15.6	3.63	10.7	2.49	15.2	3.49	19.6	4.49
	35	1.59(26.5)	12.4	3.82	14.46	4.31	15.5	4.55	10.69	3.12	14.74	4.36	18.8	5.60
		3.18(53)	12.5	3.63	14.45	4.14	15.4	4.40	10.65	3.01	14.87	4.04	19.1	5.07
		4.77(79.5)	13.2	3.80	14.73	4.11	15.5	4.26	10.69	2.92	14.95	3.91	19.2	4.89
90	20	1.59(26.5)	11.9	2.59	13.51	2.92	14.3	3.08	9.88	2.11	13.68	2.91	17.5	3.71
		3.18(53)	12.0	2.52	13.64	2.80	14.4	2.93	9.96	2.01	13.81	2.75	17.7	3.50
		4.77(79.5)	12.3	2.45	13.86	2.72	14.7	2.86	10.12	1.96	13.97	2.71	17.9	3.44
	25	1.59(26.5)	12.3	2.98	13.17	3.28	13.6	3.43	9.40	2.35	13.39	3.23	17.4	4.10
		3.18(53)	12.3	2.83	13.42	3.10	14.0	3.24	9.64	2.22	13.55	3.09	17.5	3.97
		4.77(79.5)	12.4	2.76	13.43	3.06	14.0	3.21	9.64	2.20	13.69	3.01	17.8	3.82
	30	1.59(26.5)	12.2	3.31	13.39	3.61	14.0	3.76	9.67	2.57	13.48	3.54	17.3	4.52
		3.18(53)	12.4	3.17	13.45	3.39	14.0	3.50	9.64	2.40	13.55	3.27	17.5	4.16
		4.77(79.5)	12.4	3.07	13.53	3.21	14.1	3.27	9.65	2.25	13.71	3.15	17.7	4.05
	35	1.59(26.5)	11.2	3.44	13.04	3.89	14.0	4.10	9.64	2.81	13.29	3.93	17.0	5.05
		3.18(53)	11.3	3.27	13.03	3.73	13.9	3.97	9.60	2.71	13.41	3.64	17.2	4.57
		4.77(79.5)	11.9	3.43	13.28	3.71	14.0	3.84	9.64	2.63	13.48	3.53	17.3	4.41
80	20	1.59(26.5)	10.6	2.30	11.98	2.59	12.7	2.74	8.77	1.87	12.14	2.58	15.5	3.29
		3.18(53)	10.6	2.23	12.10	2.48	12.8	2.60	8.84	1.78	12.25	2.44	15.7	3.10
		4.77(79.5)	10.9	2.18	12.30	2.42	13.0	2.54	8.98	1.74	12.39	2.40	15.8	3.06
	25	1.59(26.5)	10.9	2.65	11.68	2.91	12.1	3.04	8.34	2.09	11.88	2.86	15.4	3.64
		3.18(53)	10.9	2.51	11.90	2.75	12.4	2.87	8.55	1.97	12.02	2.74	15.5	3.52
		4.77(79.5)	11.0	2.45	11.91	2.71	12.4	2.85	8.55	1.95	12.14	2.67	15.8	3.39
	30	1.59(26.5)	10.8	2.94	11.88	3.20	12.4	3.34	8.58	2.28	11.96	3.14	15.4	4.01
		3.18(53)	11.0	2.82	11.93	3.01	12.4	3.10	8.55	2.13	12.02	2.90	15.5	3.69
		4.77(79.5)	11.0	2.72	12.00	2.85	12.5	2.90	8.56	1.99	12.16	2.79	15.7	3.59
	35	1.59(26.5)	9.9	3.06	11.57	3.45	12.4	3.64	8.55	2.50	11.79	3.49	15.0	4.48
		3.18(53)	10.0	2.90	11.56	3.31	12.3	3.52	8.52	2.41	11.90	3.23	15.3	4.06
		4.77(79.5)	10.6	3.04	11.78	3.29	12.4	3.41	8.55	2.34	11.96	3.13	15.4	3.91

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	1.59(26.5)	9.2	2.01	10.49	2.27	11.1	2.39	7.67	1.64	10.62	2.26	13.6	2.88
		3.18(53)	9.3	1.95	10.59	2.17	11.2	2.28	7.74	1.56	10.72	2.14	13.7	2.72
		4.77(79.5)	9.5	1.90	10.76	2.11	11.4	2.22	7.85	1.52	10.84	2.10	13.9	2.67
	25	1.59(26.5)	9.5	2.32	10.22	2.55	10.6	2.66	7.29	1.83	10.40	2.51	13.5	3.19
		3.18(53)	9.5	2.20	10.42	2.41	10.9	2.51	7.48	1.72	10.52	2.40	13.6	3.08
		4.77(79.5)	9.6	2.14	10.42	2.37	10.9	2.49	7.48	1.71	10.63	2.34	13.8	2.97
	30	1.59(26.5)	9.5	2.57	10.40	2.80	10.9	2.92	7.50	2.00	10.47	2.75	13.4	3.51
		3.18(53)	9.6	2.46	10.44	2.63	10.9	2.72	7.48	1.86	10.52	2.54	13.6	3.23
		4.77(79.5)	9.7	2.38	10.50	2.49	10.9	2.54	7.49	1.74	10.64	2.44	13.7	3.14
	35	1.59(26.5)	8.7	2.67	10.12	3.02	10.9	3.19	7.48	2.18	10.32	3.05	13.2	3.92
		3.18(53)	8.8	2.54	10.12	2.90	10.8	3.08	7.46	2.11	10.41	2.83	13.4	3.55
		4.77(79.5)	9.2	2.66	10.31	2.88	10.9	2.98	7.48	2.04	10.47	2.74	13.4	3.42
60	20	1.59(26.5)	7.9	1.72	8.96	1.94	9.5	2.05	6.56	1.40	9.07	1.93	11.6	2.46
		3.18(53)	8.0	1.67	9.05	1.85	9.6	1.94	6.61	1.33	9.16	1.82	11.7	2.32
		4.77(79.5)	8.1	1.63	9.19	1.81	9.8	1.90	6.71	1.30	9.27	1.79	11.8	2.29
	25	1.59(26.5)	8.1	1.98	8.73	2.18	9.0	2.27	6.23	1.56	8.88	2.14	11.5	2.72
		3.18(53)	8.1	1.88	8.90	2.06	9.3	2.15	6.39	1.47	8.99	2.05	11.6	2.63
		4.77(79.5)	8.2	1.83	8.91	2.03	9.3	2.13	6.39	1.46	9.08	2.00	11.8	2.54
	30	1.59(26.5)	8.1	2.20	8.88	2.39	9.3	2.49	6.41	1.70	8.94	2.35	11.5	3.00
		3.18(53)	8.2	2.11	8.92	2.25	9.3	2.32	6.39	1.59	8.99	2.17	11.6	2.76
		4.77(79.5)	8.3	2.03	8.97	2.13	9.3	2.17	6.40	1.49	9.09	2.09	11.7	2.69
	35	1.59(26.5)	7.4	2.29	8.65	2.58	9.3	2.72	6.39	1.87	8.82	2.61	11.2	3.35
		3.18(53)	7.5	2.17	8.64	2.48	9.2	2.63	6.37	1.80	8.90	2.42	11.4	3.03
		4.77(79.5)	7.9	2.27	8.81	2.46	9.3	2.55	6.39	1.75	8.94	2.34	11.5	2.93
50	20	1.59(26.5)	6.6	1.44	7.49	1.62	8.0	1.71	5.48	1.17	7.59	1.62	9.7	2.06
		3.18(53)	6.7	1.40	7.57	1.55	8.0	1.63	5.53	1.12	7.66	1.53	9.8	1.94
		4.77(79.5)	6.8	1.36	7.69	1.51	8.2	1.59	5.61	1.09	7.75	1.50	9.9	1.91
	25	1.59(26.5)	6.8	1.66	7.30	1.82	7.6	1.90	5.21	1.31	7.43	1.79	9.7	2.28
		3.18(53)	6.8	1.57	7.44	1.72	7.8	1.80	5.35	1.23	7.52	1.72	9.7	2.20
		4.77(79.5)	6.9	1.53	7.45	1.70	7.8	1.78	5.35	1.22	7.59	1.67	9.9	2.12
	30	1.59(26.5)	6.8	1.84	7.43	2.00	7.8	2.09	5.36	1.43	7.48	1.97	9.6	2.51
		3.18(53)	6.9	1.76	7.46	1.88	7.8	1.94	5.35	1.33	7.52	1.82	9.7	2.31
		4.77(79.5)	6.9	1.70	7.50	1.78	7.8	1.82	5.35	1.25	7.60	1.75	9.8	2.25
	35	1.59(26.5)	6.2	1.91	7.23	2.16	7.8	2.28	5.35	1.56	7.37	2.18	9.4	2.80
		3.18(53)	6.3	1.82	7.23	2.07	7.7	2.20	5.33	1.51	7.44	2.02	9.6	2.54
		4.77(79.5)	6.6	1.90	7.37	2.06	7.8	2.13	5.35	1.46	7.48	1.96	9.6	2.45

Outdoor Unit: 8HP (AVWW-76U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate m³/h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	3(50)	20.7	3.10	22.56	3.61	24.3	3.97	24.64	4.03	25.07	4.11	25.3	4.18
		4.61(76.8)	21.0	2.95	22.75	3.43	24.5	3.77	24.84	3.83	25.29	3.90	25.5	3.97
		8(133.3)	21.3	2.88	23.11	3.35	24.9	3.69	25.24	3.74	25.68	3.81	25.9	3.88
	25	3(50)	19.7	3.45	21.46	4.01	23.1	4.41	23.44	4.48	23.85	4.57	24.1	4.65
		4.61(76.8)	20.2	3.27	22.01	3.80	23.7	4.16	24.04	4.23	24.46	4.32	24.8	4.40
		8(133.3)	20.2	3.23	22.01	3.76	23.7	4.12	24.04	4.19	24.46	4.27	24.8	4.35
	30	3(50)	20.3	3.79	22.06	4.40	23.8	4.84	24.09	4.91	24.52	5.01	24.8	5.10
		4.61(76.8)	20.2	3.52	22.01	4.09	23.7	4.50	24.04	4.57	24.46	4.66	24.8	4.74
		8(133.3)	20.3	3.30	22.11	3.84	23.8	4.21	24.12	4.28	24.55	4.36	24.9	4.44
	35	3(50)	20.2	4.13	22.01	4.80	23.7	5.27	24.04	5.36	24.46	5.47	24.8	5.57
		4.61(76.8)	20.1	3.99	21.92	4.64	23.6	5.10	23.94	5.18	24.37	5.28	24.7	5.38
		8(133.3)	20.2	3.87	22.01	4.50	23.7	4.95	24.04	5.02	24.46	5.12	24.8	5.21
120	20	3(50)	20.4	3.09	22.17	3.59	23.9	3.95	24.22	4.01	24.64	4.09	24.9	4.16
		4.61(76.8)	20.6	2.93	22.36	3.41	24.1	3.74	24.42	3.81	24.86	3.88	25.1	3.95
		8(133.3)	20.9	2.86	22.71	3.33	24.4	3.66	24.80	3.71	25.24	3.78	25.5	3.86
	25	3(50)	19.3	3.43	21.09	3.99	22.7	4.38	23.04	4.45	23.44	4.54	23.7	4.62
		4.61(76.8)	19.9	3.25	21.63	3.77	23.3	4.14	23.63	4.21	24.04	4.29	24.3	4.37
		8(133.3)	19.9	3.21	21.63	3.73	23.3	4.10	23.63	4.17	24.04	4.24	24.3	4.32
	30	3(50)	20.0	3.76	21.68	4.37	23.4	4.81	23.68	4.88	24.10	4.98	24.3	5.07
		4.61(76.8)	19.9	3.50	21.63	4.07	23.3	4.47	23.63	4.54	24.04	4.63	24.3	4.72
		8(133.3)	20.0	3.28	21.74	3.82	23.4	4.19	23.71	4.25	24.13	4.33	24.4	4.41
	35	3(50)	19.9	4.11	21.63	4.78	23.3	5.24	23.63	5.33	24.04	5.43	24.3	5.54
		4.61(76.8)	19.8	3.97	21.55	4.61	23.2	5.07	23.54	5.15	23.95	5.25	24.2	5.34
		8(133.3)	19.9	3.85	21.63	4.47	23.3	4.92	23.63	4.99	24.04	5.09	24.3	5.18
110	20	3(50)	20.0	3.07	21.75	3.57	23.5	3.92	23.76	3.98	24.16	4.06	24.4	4.13
		4.61(76.8)	20.2	2.92	21.93	3.39	23.7	3.72	23.95	3.78	24.38	3.85	24.6	3.92
		8(133.3)	20.5	2.85	22.28	3.31	24.0	3.64	24.33	3.69	24.76	3.76	25.0	3.83
	25	3(50)	19.0	3.41	20.69	3.96	22.2	4.36	22.59	4.43	22.99	4.52	23.3	4.60
		4.61(76.8)	19.5	3.23	21.22	3.75	22.8	4.11	23.17	4.18	23.58	4.27	23.9	4.35
		8(133.3)	19.5	3.19	21.22	3.71	22.8	4.07	23.17	4.14	23.58	4.22	23.9	4.30
	30	3(50)	19.6	3.74	21.27	4.35	23.0	4.78	23.23	4.85	23.63	4.95	23.9	5.04
		4.61(76.8)	19.5	3.48	21.22	4.04	22.8	4.45	23.17	4.52	23.58	4.61	23.9	4.69
		8(133.3)	19.6	3.26	21.32	3.79	23.0	4.16	23.26	4.23	23.66	4.31	24.0	4.39
	35	3(50)	19.5	4.08	21.22	4.75	22.8	5.21	23.17	5.30	23.58	5.40	23.9	5.50
		4.61(76.8)	19.4	3.94	21.13	4.59	22.7	5.04	23.08	5.12	23.49	5.22	23.8	5.31
		8(133.3)	19.5	3.82	21.22	4.45	22.8	4.89	23.17	4.96	23.58	5.06	23.9	5.15

Combination (%)	Water Temp. (Inlet) °C	Flow rate m³/h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	3(50)	19.6	3.05	21.32	3.55	23.0	3.90	23.29	3.96	23.69	4.04	23.9	4.11
		4.61(76.8)	19.8	2.90	21.50	3.37	23.2	3.70	23.48	3.76	23.90	3.83	24.1	3.90
		8(133.3)	20.1	2.83	21.84	3.29	23.5	3.62	23.85	3.67	24.27	3.74	24.5	3.81
	25	3(50)	18.6	3.39	20.28	3.94	21.8	4.33	22.15	4.40	22.54	4.49	22.8	4.57
		4.61(76.8)	19.1	3.21	20.80	3.73	22.4	4.09	22.72	4.16	23.12	4.24	23.4	4.32
		8(133.3)	19.1	3.17	20.80	3.69	22.4	4.05	22.72	4.12	23.12	4.19	23.4	4.27
	30	3(50)	19.2	3.72	20.85	4.32	22.5	4.75	22.77	4.82	23.17	4.92	23.4	5.01
		4.61(76.8)	19.1	3.46	20.80	4.02	22.4	4.42	22.72	4.49	23.12	4.58	23.4	4.66
		8(133.3)	19.2	3.24	20.9	3.77	22.5	4.14	22.8	4.20	23.2	4.28	23.5	4.36
	35	3(50)	19.1	4.06	20.80	4.72	22.4	5.18	22.72	5.27	23.12	5.37	23.4	5.47
		4.61(76.8)	19.0	3.92	20.72	4.56	22.3	5.01	22.63	5.09	23.03	5.19	23.3	5.28
		8(133.3)	19.1	3.80	20.80	4.42	22.4	4.86	22.72	4.93	23.12	5.03	23.4	5.12
90	20	3(50)	17.6	2.70	19.19	3.14	20.7	3.45	20.96	3.50	21.32	3.57	21.5	3.64
		4.61(76.8)	17.8	2.57	19.35	2.98	20.9	3.27	21.13	3.33	21.51	3.39	21.7	3.45
		8(133.3)	18.1	2.50	19.66	2.91	21.2	3.20	21.47	3.25	21.84	3.31	22.1	3.37
	25	3(50)	16.7	3.00	18.25	3.49	19.6	3.83	19.94	3.89	20.29	3.97	20.5	4.04
		4.61(76.8)	17.2	2.84	18.72	3.30	20.2	3.62	20.45	3.68	20.81	3.75	21.1	3.82
		8(133.3)	17.2	2.80	18.72	3.26	20.2	3.58	20.45	3.64	20.81	3.71	21.1	3.78
	30	3(50)	17.3	3.29	18.77	3.82	20.3	4.20	20.49	4.26	20.85	4.35	21.1	4.43
		4.61(76.8)	17.2	3.06	18.72	3.56	20.2	3.91	20.45	3.97	20.81	4.05	21.1	4.12
		8(133.3)	17.3	2.87	18.81	3.33	20.3	3.66	20.52	3.72	20.88	3.79	21.2	3.86
	35	3(50)	17.2	3.59	18.72	4.18	20.2	4.58	20.45	4.66	20.81	4.75	21.1	4.84
		4.61(76.8)	17.1	3.47	18.65	4.03	20.1	4.43	20.37	4.50	20.73	4.59	21.0	4.67
		8(133.3)	17.2	3.36	18.72	3.91	20.2	4.30	20.45	4.36	20.81	4.45	21.1	4.53
80	20	3(50)	15.7	2.40	17.06	2.79	18.4	3.07	18.63	3.12	18.95	3.18	19.1	3.24
		4.61(76.8)	15.8	2.28	17.20	2.65	18.6	2.91	18.78	2.96	19.12	3.02	19.3	3.07
		8(133.3)	16.1	2.23	17.47	2.59	18.8	2.85	19.08	2.89	19.42	2.94	19.6	3.00
	25	3(50)	14.9	2.67	16.22	3.10	17.4	3.41	17.72	3.46	18.03	3.53	18.2	3.60
		4.61(76.8)	15.3	2.53	16.64	2.94	17.9	3.22	18.18	3.28	18.50	3.34	18.7	3.40
		8(133.3)	15.3	2.50	16.64	2.91	17.9	3.19	18.18	3.24	18.50	3.30	18.7	3.36
	30	3(50)	15.4	2.93	16.68	3.40	18.0	3.74	18.22	3.79	18.54	3.87	18.7	3.94
		4.61(76.8)	15.3	2.72	16.64	3.16	17.9	3.48	18.18	3.53	18.50	3.61	18.7	3.67
		8(133.3)	15.4	2.55	16.72	2.97	18.0	3.26	18.24	3.31	18.56	3.37	18.8	3.43
	35	3(50)	15.3	3.20	16.64	3.72	17.9	4.08	18.18	4.15	18.50	4.23	18.7	4.31
		4.61(76.8)	15.2	3.09	16.58	3.59	17.8	3.94	18.10	4.01	18.42	4.09	18.6	4.16
		8(133.3)	15.3	2.99	16.64	3.48	17.9	3.83	18.18	3.88	18.50	3.96	18.7	4.03

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	3(50)	13.7	2.08	14.92	2.42	16.1	2.66	16.30	2.70	16.58	2.76	16.7	2.81
		4.61(76.8)	13.9	1.98	15.05	2.30	16.2	2.53	16.44	2.57	16.73	2.62	16.9	2.66
		8(133.3)	14.1	1.93	15.29	2.25	16.5	2.47	16.70	2.51	16.99	2.55	17.2	2.60
	25	3(50)	13.0	2.32	14.20	2.69	15.3	2.96	15.51	3.01	15.78	3.07	16.0	3.12
		4.61(76.8)	13.4	2.19	14.56	2.55	15.7	2.79	15.90	2.84	16.18	2.90	16.4	2.95
		8(133.3)	13.4	2.17	14.56	2.52	15.7	2.77	15.90	2.81	16.18	2.86	16.4	2.92
	30	3(50)	13.4	2.54	14.60	2.95	15.8	3.24	15.94	3.29	16.22	3.36	16.4	3.42
		4.61(76.8)	13.4	2.36	14.56	2.75	15.7	3.02	15.90	3.07	16.18	3.13	16.4	3.18
		8(133.3)	13.4	2.21	14.63	2.57	15.8	2.83	15.96	2.87	16.24	2.92	16.5	2.98
	35	3(50)	13.4	2.77	14.56	3.22	15.7	3.54	15.90	3.60	16.18	3.67	16.4	3.74
		4.61(76.8)	13.3	2.68	14.50	3.11	15.6	3.42	15.84	3.48	16.12	3.54	16.3	3.61
		8(133.3)	13.4	2.60	14.56	3.02	15.7	3.32	15.90	3.37	16.18	3.44	16.4	3.50
60	20	3(50)	11.8	1.77	12.79	2.06	13.8	2.26	13.97	2.29	14.21	2.34	14.3	2.38
		4.61(76.8)	11.9	1.68	12.90	1.95	13.9	2.14	14.09	2.18	14.34	2.22	14.5	2.26
		8(133.3)	12.1	1.64	13.10	1.91	14.1	2.10	14.31	2.13	14.56	2.17	14.7	2.21
	25	3(50)	11.2	1.96	12.17	2.28	13.1	2.51	13.29	2.55	13.52	2.60	13.7	2.65
		4.61(76.8)	11.5	1.86	12.48	2.16	13.4	2.37	13.63	2.41	13.87	2.46	14.0	2.50
		8(133.3)	11.5	1.84	12.48	2.14	13.4	2.35	13.63	2.39	13.87	2.43	14.0	2.47
	30	3(50)	11.5	2.15	12.51	2.50	13.5	2.75	13.66	2.79	13.90	2.85	14.0	2.90
		4.61(76.8)	11.5	2.00	12.48	2.33	13.4	2.56	13.63	2.60	13.87	2.65	14.0	2.70
		8(133.3)	11.5	1.88	12.54	2.18	13.5	2.40	13.68	2.43	13.92	2.48	14.1	2.53
	35	3(50)	11.5	2.35	12.48	2.73	13.4	3.00	13.63	3.05	13.87	3.11	14.0	3.17
		4.61(76.8)	11.4	2.27	12.43	2.64	13.4	2.90	13.58	2.95	13.82	3.01	14.0	3.06
		8(133.3)	11.5	2.20	12.48	2.56	13.4	2.81	13.63	2.86	13.87	2.91	14.0	2.97
50	20	3(50)	9.8	1.45	10.66	1.69	11.5	1.85	11.65	1.88	11.85	1.92	12.0	1.95
		4.61(76.8)	9.9	1.38	10.75	1.60	11.6	1.76	11.74	1.79	11.95	1.82	12.1	1.85
		8(133.3)	10.1	1.34	10.92	1.56	11.8	1.72	11.93	1.74	12.14	1.78	12.3	1.81
	25	3(50)	9.3	1.61	10.14	1.87	10.9	2.06	11.08	2.09	11.27	2.13	11.4	2.17
		4.61(76.8)	9.6	1.52	10.40	1.77	11.2	1.94	11.36	1.98	11.56	2.01	11.7	2.05
		8(133.3)	9.6	1.51	10.40	1.75	11.2	1.92	11.36	1.96	11.56	1.99	11.7	2.03
	30	3(50)	9.6	1.77	10.43	2.05	11.3	2.26	11.39	2.29	11.59	2.34	11.7	2.38
		4.61(76.8)	9.6	1.64	10.40	1.91	11.2	2.10	11.36	2.13	11.56	2.18	11.7	2.21
		8(133.3)	9.6	1.54	10.45	1.79	11.3	1.97	11.40	2.00	11.60	2.03	11.8	2.07
	35	3(50)	9.6	1.93	10.40	2.24	11.2	2.46	11.36	2.50	11.56	2.55	11.7	2.60
		4.61(76.8)	9.5	1.86	10.36	2.17	11.2	2.38	11.32	2.42	11.52	2.47	11.7	2.51
		8(133.3)	9.6	1.81	10.40	2.10	11.2	2.31	11.36	2.34	11.56	2.39	11.7	2.43

Outdoor Unit: 10HP (AVWW-96U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate		Ti (Indoor Unit Temp.)											
		m ³ /h (l/min.)	16°C		18°C		19°C		20°C		22°C		24°C		
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	2.88(48)	26.2	4.67	28.55	5.22	30.8	5.73	31.19	5.82	31.74	5.94	32.8	6.13	
		5.76(96)	26.5	4.46	28.80	4.95	31.0	5.45	31.45	5.53	32.01	5.64	31.9	5.92	
		8.64(144)	26.9	4.05	29.25	4.84	31.5	5.32	31.95	5.40	32.51	5.50	31.6	5.81	
	25	2.88(48)	25.0	5.19	27.16	5.80	29.3	6.37	29.67	6.48	30.19	6.60	31.0	6.65	
		5.76(96)	25.6	4.98	27.86	5.48	30.0	6.02	30.43	6.12	30.96	6.23	31.8	6.33	
		8.64(144)	25.6	4.67	27.86	5.42	30.0	5.96	30.43	6.05	30.96	6.17	31.9	6.23	
	30	2.88(48)	25.7	5.50	27.93	6.35	30.1	6.98	30.50	7.09	31.04	7.23	30.2	7.27	
		5.76(96)	25.6	5.09	27.86	5.92	30.0	6.50	30.43	6.61	30.96	6.73	31.3	6.85	
		8.64(144)	25.7	4.57	28.00	5.54	30.2	6.09	30.58	6.18	31.12	6.30	31.8	6.81	
	35	2.88(48)	25.6	5.92	27.86	6.94	30.0	7.62	30.43	7.74	30.96	7.89	29.1	7.99	
		5.76(96)	25.5	5.71	27.75	6.70	29.9	7.37	30.31	7.48	30.85	7.63	29.6	7.48	
		8.64(144)	25.6	5.50	27.86	6.50	30.0	7.14	30.43	7.26	30.96	7.39	29.8	7.43	
120	20	2.88(48)	25.7	4.62	27.92	5.15	30.1	5.66	30.50	5.75	31.03	5.86	32.1	6.05	
		5.76(96)	25.9	4.41	28.16	4.89	30.3	5.38	30.76	5.46	31.30	5.57	31.2	5.85	
		8.64(144)	26.3	4.00	28.60	4.78	30.8	5.25	31.24	5.34	31.79	5.44	30.9	5.74	
	25	2.88(48)	24.4	5.13	26.56	5.73	28.6	6.30	29.01	6.40	29.52	6.52	30.3	6.56	
		5.76(96)	25.0	4.92	27.24	5.41	29.3	5.95	29.76	6.04	30.28	6.16	31.1	6.26	
		8.64(144)	25.0	4.62	27.24	5.36	29.3	5.89	29.76	5.98	30.28	6.09	31.2	6.15	
	30	2.88(48)	25.1	5.44	27.31	6.28	29.4	6.90	29.83	7.01	30.35	7.14	29.5	7.18	
		5.76(96)	25.0	5.03	27.24	5.85	29.3	6.42	29.76	6.53	30.28	6.65	30.6	6.77	
		8.64(144)	25.2	4.51	27.38	5.47	29.5	6.01	29.90	6.11	30.43	6.22	31.1	6.73	
	35	2.88(48)	25.0	5.85	27.24	6.85	29.3	7.53	29.76	7.65	30.28	7.80	28.5	7.90	
		5.76(96)	24.9	5.64	27.14	6.62	29.2	7.28	29.64	7.39	30.16	7.53	28.9	7.39	
		8.64(144)	25.0	5.44	27.24	6.42	29.3	7.06	29.76	7.17	30.28	7.30	29.1	7.34	
110	20	2.88(48)	25.1	4.56	27.28	5.09	29.4	5.59	29.80	5.68	30.33	5.79	31.3	5.97	
		5.76(96)	25.3	4.35	27.52	4.83	29.6	5.31	30.06	5.40	30.59	5.50	30.5	5.77	
		8.64(144)	25.7	3.95	27.95	4.72	30.1	5.19	30.53	5.27	31.07	5.37	30.2	5.67	
	25	2.88(48)	23.9	5.06	25.95	5.66	28.0	6.22	28.35	6.32	28.85	6.44	29.6	6.48	
		5.76(96)	24.5	4.86	26.62	5.34	28.7	5.87	29.08	5.97	29.59	6.08	30.4	6.18	
		8.64(144)	24.5	4.56	26.62	5.29	28.7	5.81	29.08	5.90	29.59	6.02	30.5	6.08	
	30	2.88(48)	24.5	5.37	26.69	6.20	28.7	6.81	29.15	6.92	29.66	7.05	28.9	7.09	
		5.76(96)	24.5	4.96	26.62	5.77	28.7	6.34	29.08	6.44	29.59	6.56	29.9	6.68	
		8.64(144)	24.6	4.46	26.75	5.40	28.8	5.94	29.22	6.03	29.73	6.14	30.4	6.64	
	35	2.88(48)	24.5	5.77	26.62	6.77	28.7	7.44	29.08	7.55	29.59	7.70	27.9	7.80	
		5.76(96)	24.4	5.57	26.52	6.54	28.6	7.19	28.97	7.30	29.48	7.44	28.3	7.29	
		8.64(144)	24.5	5.37	26.62	6.34	28.7	6.97	29.08	7.08	29.59	7.21	28.5	7.25	

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	2.88(48)	24.5	4.50	26.65	5.02	28.7	5.52	29.11	5.61	29.62	5.72	30.6	5.90
		5.76(96)	24.7	4.30	26.88	4.77	28.9	5.24	29.36	5.33	29.87	5.43	29.8	5.70
		8.64(144)	25.1	3.90	27.30	4.66	29.4	5.12	29.82	5.20	30.34	5.30	29.5	5.60
	25	2.88(48)	23.3	5.00	25.35	5.59	27.3	6.14	27.69	6.24	28.17	6.35	28.9	6.40
		5.76(96)	23.9	4.80	26.00	5.28	28.0	5.80	28.40	5.89	28.90	6.00	29.7	6.10
		8.64(144)	23.9	4.50	26.00	5.22	28.0	5.74	28.40	5.83	28.90	5.94	29.8	6.00
	30	2.88(48)	24.0	5.30	26.06	6.12	28.1	6.72	28.47	6.83	28.97	6.96	28.2	7.00
		5.76(96)	23.9	4.90	26.00	5.70	28.0	6.26	28.40	6.36	28.90	6.48	29.2	6.60
		8.64(144)	24.0	4.40	26.1	5.33	28.1	5.86	28.5	5.95	29.0	6.07	29.7	6.56
	35	2.88(48)	23.9	5.70	26.00	6.68	28.0	7.34	28.40	7.46	28.90	7.60	27.2	7.70
		5.76(96)	23.8	5.50	25.90	6.46	27.9	7.10	28.29	7.21	28.79	7.34	27.6	7.20
		8.64(144)	23.9	5.30	26.00	6.26	28.0	6.88	28.40	6.99	28.90	7.12	27.8	7.16
90	20	2.88(48)	22.0	3.92	23.98	4.37	25.8	4.81	26.20	4.88	26.66	4.98	27.5	5.14
		5.76(96)	22.2	3.74	24.19	4.15	26.1	4.57	26.42	4.64	26.88	4.73	26.8	4.96
		8.64(144)	22.6	3.40	24.57	4.06	26.5	4.46	26.84	4.53	27.31	4.62	26.6	4.88
	25	2.88(48)	21.0	4.35	22.81	4.86	24.6	5.34	24.92	5.43	25.36	5.53	26.0	5.57
		5.76(96)	21.5	4.18	23.40	4.59	25.2	5.05	25.56	5.13	26.01	5.23	26.7	5.31
		8.64(144)	21.5	3.92	23.40	4.55	25.2	5.00	25.56	5.07	26.01	5.17	26.8	5.22
	30	2.88(48)	21.6	4.61	23.46	5.33	25.3	5.85	25.62	5.95	26.07	6.06	25.4	6.09
		5.76(96)	21.5	4.27	23.40	4.96	25.2	5.45	25.56	5.54	26.01	5.64	26.3	5.75
		8.64(144)	21.6	3.83	23.52	4.64	25.3	5.10	25.69	5.18	26.14	5.28	26.7	5.71
	35	2.88(48)	21.5	4.96	23.40	5.82	25.2	6.39	25.56	6.49	26.01	6.62	24.5	6.70
		5.76(96)	21.4	4.79	23.31	5.62	25.1	6.18	25.46	6.28	25.91	6.39	24.8	6.27
		8.64(144)	21.5	4.61	23.40	5.45	25.2	5.99	25.56	6.08	26.01	6.20	25.0	6.23
80	20	2.88(48)	19.6	3.34	21.32	3.73	23.0	4.10	23.29	4.17	23.69	4.25	24.5	4.38
		5.76(96)	19.8	3.19	21.50	3.54	23.2	3.90	23.48	3.96	23.90	4.03	23.8	4.23
		8.64(144)	20.1	2.90	21.84	3.46	23.5	3.80	23.85	3.86	24.27	3.94	23.6	4.16
	25	2.88(48)	18.6	3.71	20.28	4.15	21.8	4.56	22.15	4.63	22.54	4.72	23.1	4.75
		5.76(96)	19.1	3.57	20.80	3.92	22.4	4.31	22.72	4.38	23.12	4.46	23.8	4.53
		8.64(144)	19.1	3.34	20.80	3.88	22.4	4.26	22.72	4.33	23.12	4.41	23.8	4.46
	30	2.88(48)	19.2	3.94	20.85	4.55	22.5	5.00	22.77	5.07	23.17	5.17	22.6	5.20
		5.76(96)	19.1	3.64	20.80	4.23	22.4	4.65	22.72	4.73	23.12	4.82	23.4	4.90
		8.64(144)	19.2	3.27	20.90	3.96	22.5	4.35	22.83	4.42	23.23	4.51	23.8	4.87
	35	2.88(48)	19.1	4.23	20.80	4.96	22.4	5.45	22.72	5.54	23.12	5.65	21.8	5.72
		5.76(96)	19.0	4.09	20.72	4.80	22.3	5.27	22.63	5.35	23.03	5.46	22.1	5.35
		8.64(144)	19.1	3.94	20.80	4.65	22.4	5.11	22.72	5.19	23.12	5.29	22.2	5.32

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m ³ /h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	2.88(48)	17.1	2.78	18.65	3.11	20.1	3.41	20.38	3.47	20.73	3.53	21.4	3.65
		5.76(96)	17.3	2.66	18.81	2.95	20.3	3.24	20.55	3.29	20.91	3.36	20.9	3.52
		8.64(144)	17.6	2.41	19.11	2.88	20.6	3.17	20.87	3.22	21.24	3.28	20.7	3.46
	25	2.88(48)	16.3	3.09	17.74	3.45	19.1	3.79	19.38	3.86	19.72	3.93	20.2	3.96
		5.76(96)	16.7	2.97	18.20	3.26	19.6	3.59	19.88	3.64	20.23	3.71	20.8	3.77
		8.64(144)	16.7	2.78	18.20	3.23	19.6	3.55	19.88	3.60	20.23	3.67	20.9	3.71
	30	2.88(48)	16.8	3.28	18.24	3.78	19.6	4.16	19.93	4.22	20.28	4.30	19.7	4.33
		5.76(96)	16.7	3.03	18.20	3.52	19.6	3.87	19.88	3.93	20.23	4.01	20.4	4.08
		8.64(144)	16.8	2.72	18.29	3.30	19.7	3.62	19.98	3.68	20.33	3.75	20.8	4.06
	35	2.88(48)	16.7	3.52	18.20	4.13	19.6	4.54	19.88	4.61	20.23	4.70	19.0	4.76
		5.76(96)	16.7	3.40	18.13	3.99	19.5	4.39	19.80	4.46	20.15	4.54	19.3	4.45
		8.64(144)	16.7	3.28	18.20	3.87	19.6	4.25	19.88	4.32	20.23	4.40	19.5	4.43
60	20	2.88(48)	14.7	2.24	15.99	2.50	17.2	2.75	17.46	2.80	17.77	2.85	18.4	2.94
		5.76(96)	14.8	2.14	16.13	2.38	17.4	2.61	17.61	2.66	17.92	2.71	17.9	2.84
		8.64(144)	15.1	1.94	16.38	2.32	17.6	2.55	17.89	2.59	18.20	2.64	17.7	2.79
	25	2.88(48)	14.0	2.49	15.21	2.78	16.4	3.06	16.61	3.11	16.90	3.17	17.3	3.19
		5.76(96)	14.3	2.39	15.60	2.63	16.8	2.89	17.04	2.94	17.34	2.99	17.8	3.04
		8.64(144)	14.3	2.24	15.60	2.60	16.8	2.86	17.04	2.91	17.34	2.96	17.9	2.99
	30	2.88(48)	14.4	2.64	15.64	3.05	16.8	3.35	17.08	3.40	17.38	3.47	16.9	3.49
		5.76(96)	14.3	2.44	15.60	2.84	16.8	3.12	17.04	3.17	17.34	3.23	17.5	3.29
		8.64(144)	14.4	2.19	15.68	2.66	16.9	2.92	17.12	2.97	17.42	3.02	17.8	3.27
	35	2.88(48)	14.3	2.84	15.60	3.33	16.8	3.66	17.04	3.72	17.34	3.79	16.3	3.84
		5.76(96)	14.3	2.74	15.54	3.22	16.7	3.54	16.97	3.59	17.27	3.66	16.6	3.59
		8.64(144)	14.3	2.64	15.60	3.12	16.8	3.43	17.04	3.48	17.34	3.55	16.7	3.57
50	20	2.88(48)	12.2	1.89	13.32	2.11	14.4	2.32	14.55	2.36	14.81	2.40	15.3	2.48
		5.76(96)	12.4	1.81	13.44	2.01	14.5	2.20	14.68	2.24	14.94	2.28	14.9	2.40
		8.64(144)	12.5	1.64	13.65	1.96	14.7	2.15	14.91	2.19	15.17	2.23	14.8	2.35
	25	2.88(48)	11.7	2.10	12.67	2.35	13.7	2.58	13.84	2.62	14.09	2.67	14.5	2.69
		5.76(96)	12.0	2.02	13.00	2.22	14.0	2.44	14.20	2.48	14.45	2.52	14.9	2.56
		8.64(144)	12.0	1.89	13.00	2.19	14.0	2.41	14.20	2.45	14.45	2.50	14.9	2.52
	30	2.88(48)	12.0	2.23	13.03	2.57	14.0	2.83	14.23	2.87	14.48	2.93	14.1	2.94
		5.76(96)	12.0	2.06	13.00	2.39	14.0	2.63	14.20	2.67	14.45	2.72	14.6	2.77
		8.64(144)	12.0	1.85	13.06	2.24	14.1	2.46	14.27	2.50	14.52	2.55	14.9	2.76
	35	2.88(48)	12.0	2.40	13.00	2.81	14.0	3.09	14.20	3.13	14.45	3.19	13.6	3.24
		5.76(96)	11.9	2.31	12.95	2.71	13.9	2.98	14.15	3.03	14.39	3.09	13.8	3.03
		8.64(144)	12.0	2.23	13.00	2.63	14.0	2.89	14.20	2.94	14.45	2.99	13.9	3.01

Outdoor Unit: 16HP (AVWW-154U(E/7/8)SB)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	4.6(76.8)	42.2	6.34	45.89	7.37	49.4	8.10	50.12	8.22	51.00	8.38	51.5	8.54
		9.22(153.7)	42.5	6.02	46.28	7.00	49.8	7.69	50.55	7.81	51.44	7.96	52.0	8.11
		13.8(230.5)	43.2	5.88	47.01	6.83	50.6	7.51	51.35	7.63	52.25	7.77	52.8	7.92
	25	4.6(76.8)	40.1	7.05	43.65	8.19	47.0	9.00	47.68	9.14	48.52	9.32	49.0	9.49
		9.22(153.7)	41.2	6.66	44.77	7.74	48.2	8.50	48.90	8.64	49.76	8.80	50.3	8.97
		13.8(230.5)	41.2	6.59	44.77	7.66	48.2	8.41	48.90	8.55	49.76	8.71	50.3	8.87
	30	4.6(76.8)	41.3	7.72	44.88	8.97	48.3	9.86	49.02	10.02	49.88	10.21	50.4	10.40
		9.22(153.7)	41.2	7.19	44.77	8.36	48.2	9.18	48.90	9.33	49.76	9.50	50.3	9.68
		13.8(230.5)	41.4	6.73	44.99	7.82	48.5	8.59	49.15	8.73	50.01	8.90	50.5	9.06
	35	4.6(76.8)	41.2	8.43	44.77	9.80	48.2	10.76	48.90	10.94	49.76	11.14	50.3	11.35
		9.22(153.7)	41.0	8.14	44.60	9.47	48.0	10.40	48.72	10.57	49.57	10.77	50.1	10.97
		13.8(230.5)	41.2	7.90	44.77	9.18	48.2	10.09	48.90	10.25	49.76	10.44	50.3	10.63
120	20	4.6(76.8)	41.3	6.26	44.87	7.28	48.3	8.00	49.02	8.13	49.88	8.28	50.4	8.43
		9.22(153.7)	41.6	5.95	45.26	6.91	48.7	7.60	49.43	7.72	50.30	7.86	50.8	8.01
		13.8(230.5)	42.3	5.81	45.97	6.75	49.5	7.42	50.21	7.54	51.09	7.68	51.6	7.82
	25	4.6(76.8)	39.2	6.96	42.69	8.09	46.0	8.89	46.63	9.03	47.44	9.20	47.9	9.37
		9.22(153.7)	40.2	6.58	43.78	7.64	47.2	8.40	47.82	8.53	48.66	8.70	49.2	8.86
		13.8(230.5)	40.2	6.51	43.78	7.56	47.2	8.31	47.82	8.44	48.66	8.60	49.2	8.76
	30	4.6(76.8)	40.3	7.62	43.89	8.86	47.3	9.74	47.94	9.90	48.78	10.08	49.3	10.27
		9.22(153.7)	40.2	7.10	43.78	8.25	47.2	9.07	47.82	9.21	48.66	9.39	49.2	9.56
		13.8(230.5)	40.4	6.65	44.00	7.73	47.4	8.49	48.06	8.62	48.90	8.79	49.4	8.95
	35	4.6(76.8)	40.2	8.32	43.78	9.68	47.2	10.63	47.82	10.80	48.66	11.01	49.2	11.21
		9.22(153.7)	40.1	8.04	43.62	9.35	47.0	10.28	47.64	10.44	48.48	10.64	49.0	10.83
		13.8(230.5)	40.2	7.80	43.78	9.07	47.2	9.96	47.82	10.12	48.66	10.31	49.2	10.51
110	20	4.6(76.8)	40.3	6.18	43.85	7.19	47.2	7.90	47.90	8.02	48.74	8.17	49.3	8.33
		9.22(153.7)	40.7	5.87	44.22	6.82	47.6	7.50	48.31	7.62	49.15	7.76	49.7	7.91
		13.8(230.5)	41.3	5.73	44.92	6.66	48.4	7.32	49.07	7.44	49.93	7.58	50.5	7.72
	25	4.6(76.8)	38.3	6.87	41.71	7.99	44.9	8.78	45.56	8.92	46.36	9.09	46.9	9.26
		9.22(153.7)	39.3	6.49	42.78	7.55	46.1	8.29	46.73	8.43	47.55	8.59	48.1	8.74
		13.8(230.5)	39.3	6.42	42.78	7.47	46.1	8.21	46.73	8.34	47.55	8.49	48.1	8.65
	30	4.6(76.8)	39.4	7.53	42.89	8.75	46.2	9.62	46.85	9.77	47.67	9.96	48.2	10.14
		9.22(153.7)	39.3	7.01	42.78	8.15	46.1	8.96	46.73	9.10	47.55	9.27	48.1	9.44
		13.8(230.5)	39.5	6.56	43.00	7.63	46.3	8.38	46.96	8.52	47.79	8.68	48.3	8.84
	35	4.6(76.8)	39.3	8.22	42.78	9.55	46.1	10.50	46.73	10.67	47.55	10.87	48.1	11.07
		9.22(153.7)	39.2	7.94	42.62	9.23	45.9	10.15	46.55	10.31	47.37	10.50	47.9	10.70
		13.8(230.5)	39.3	7.70	42.78	8.95	46.1	9.84	46.73	9.99	47.55	10.18	48.1	10.37

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	4.6(76.8)	39.4	6.10	42.83	7.10	46.1	7.80	46.78	7.92	47.60	8.07	48.1	8.22
		9.22(153.7)	39.7	5.80	43.19	6.74	46.5	7.41	47.18	7.52	48.01	7.67	48.5	7.81
		13.8(230.5)	40.3	5.66	43.87	6.58	47.3	7.23	47.92	7.35	48.76	7.49	49.3	7.62
	25	4.6(76.8)	37.5	6.79	40.74	7.89	43.9	8.67	44.50	8.81	45.28	8.97	45.8	9.14
		9.22(153.7)	38.4	6.41	41.78	7.45	45.0	8.19	45.64	8.32	46.44	8.48	46.9	8.63
		13.8(230.5)	38.4	6.34	41.78	7.37	45.0	8.10	45.64	8.23	46.44	8.39	46.9	8.54
	30	4.6(76.8)	38.5	7.43	41.89	8.64	45.1	9.50	45.75	9.65	46.56	9.83	47.0	10.01
		9.22(153.7)	38.4	6.92	41.78	8.05	45.0	8.84	45.64	8.98	46.44	9.15	46.9	9.32
		13.8(230.5)	38.6	6.48	42.0	7.53	45.2	8.28	45.9	8.41	46.7	8.57	47.2	8.73
	35	4.6(76.8)	38.4	8.12	41.78	9.43	45.0	10.37	45.64	10.53	46.44	10.73	46.9	10.93
		9.22(153.7)	38.3	7.84	41.63	9.12	44.8	10.02	45.47	10.18	46.27	10.37	46.8	10.56
		13.8(230.5)	38.4	7.60	41.78	8.84	45.0	9.71	45.64	9.87	46.44	10.06	46.9	10.24
90	20	4.6(76.8)	35.4	5.31	38.54	6.18	41.5	6.79	42.10	6.90	42.84	7.03	43.3	7.16
		9.22(153.7)	35.7	5.05	38.87	5.87	41.9	6.45	42.46	6.55	43.21	6.67	43.7	6.80
		13.8(230.5)	36.3	4.93	39.48	5.73	42.5	6.30	43.13	6.40	43.89	6.52	44.3	6.64
	25	4.6(76.8)	33.7	5.91	36.66	6.87	39.5	7.55	40.05	7.67	40.75	7.81	41.2	7.96
		9.22(153.7)	34.6	5.58	37.60	6.49	40.5	7.13	41.08	7.24	41.80	7.38	42.2	7.52
		13.8(230.5)	34.6	5.52	37.60	6.42	40.5	7.05	41.08	7.17	41.80	7.30	42.2	7.44
	30	4.6(76.8)	34.7	6.47	37.70	7.52	40.6	8.27	41.18	8.40	41.90	8.56	42.3	8.72
		9.22(153.7)	34.6	6.03	37.60	7.01	40.5	7.70	41.08	7.82	41.80	7.97	42.2	8.12
		13.8(230.5)	34.7	5.64	37.79	6.56	40.7	7.21	41.28	7.32	42.00	7.46	42.4	7.60
	35	4.6(76.8)	34.6	7.07	37.60	8.21	40.5	9.03	41.08	9.17	41.80	9.34	42.2	9.52
		9.22(153.7)	34.4	6.83	37.46	7.94	40.3	8.72	40.92	8.86	41.64	9.03	42.1	9.20
		13.8(230.5)	34.6	6.62	37.60	7.70	40.5	8.46	41.08	8.59	41.80	8.75	42.2	8.92
80	20	4.6(76.8)	31.5	4.53	34.26	5.27	36.9	5.79	37.42	5.88	38.08	6.00	38.5	6.11
		9.22(153.7)	31.8	4.31	34.55	5.01	37.2	5.50	37.74	5.59	38.41	5.69	38.8	5.80
		13.8(230.5)	32.3	4.20	35.10	4.89	37.8	5.37	38.34	5.46	39.01	5.56	39.4	5.66
	25	4.6(76.8)	30.0	5.04	32.59	5.86	35.1	6.44	35.60	6.54	36.22	6.67	36.6	6.79
		9.22(153.7)	30.7	4.76	33.43	5.54	36.0	6.08	36.51	6.18	37.15	6.30	37.5	6.41
		13.8(230.5)	30.7	4.71	33.43	5.48	36.0	6.02	36.51	6.11	37.15	6.23	37.5	6.35
	30	4.6(76.8)	30.8	5.52	33.51	6.42	36.1	7.05	36.60	7.17	37.24	7.30	37.6	7.44
		9.22(153.7)	30.7	5.14	33.43	5.98	36.0	6.57	36.51	6.67	37.15	6.80	37.5	6.93
		13.8(230.5)	30.9	4.81	33.59	5.59	36.2	6.15	36.69	6.25	37.34	6.36	37.7	6.48
	35	4.6(76.8)	30.7	6.03	33.43	7.01	36.0	7.70	36.51	7.82	37.15	7.97	37.5	8.12
		9.22(153.7)	30.6	5.83	33.30	6.77	35.9	7.44	36.37	7.56	37.01	7.70	37.4	7.85
		13.8(230.5)	30.7	5.65	33.43	6.57	36.0	7.22	36.51	7.33	37.15	7.47	37.5	7.61

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	4.6(76.8)	27.6	3.77	29.98	4.39	32.3	4.82	32.75	4.90	33.32	4.99	33.7	5.08
		9.22(153.7)	27.8	3.58	30.23	4.17	32.6	4.58	33.03	4.65	33.61	4.74	34.0	4.83
		13.8(230.5)	28.2	3.50	30.71	4.07	33.1	4.47	33.54	4.54	34.13	4.63	34.5	4.71
	25	4.6(76.8)	26.2	4.19	28.52	4.88	30.7	5.36	31.15	5.44	31.70	5.55	32.0	5.65
		9.22(153.7)	26.9	3.96	29.25	4.61	31.5	5.06	31.95	5.14	32.51	5.24	32.9	5.34
		13.8(230.5)	26.9	3.92	29.25	4.56	31.5	5.01	31.95	5.09	32.51	5.19	32.9	5.28
	30	4.6(76.8)	27.0	4.60	29.32	5.34	31.6	5.87	32.03	5.96	32.59	6.08	32.9	6.19
		9.22(153.7)	26.9	4.28	29.25	4.97	31.5	5.47	31.95	5.55	32.51	5.66	32.9	5.76
		13.8(230.5)	27.0	4.01	29.39	4.66	31.7	5.12	32.11	5.20	32.67	5.30	33.0	5.39
	35	4.6(76.8)	26.9	5.02	29.25	5.83	31.5	6.41	31.95	6.51	32.51	6.63	32.9	6.76
		9.22(153.7)	26.8	4.85	29.14	5.64	31.4	6.19	31.83	6.29	32.39	6.41	32.7	6.53
		13.8(230.5)	26.9	4.70	29.25	5.46	31.5	6.01	31.95	6.10	32.51	6.22	32.9	6.33
60	20	4.6(76.8)	23.6	3.04	25.70	3.54	27.7	3.89	28.07	3.95	28.56	4.02	28.9	4.10
		9.22(153.7)	23.8	2.89	25.92	3.36	27.9	3.69	28.31	3.75	28.80	3.82	29.1	3.89
		13.8(230.5)	24.2	2.82	26.32	3.28	28.4	3.60	28.75	3.66	29.26	3.73	29.6	3.80
	25	4.6(76.8)	22.5	3.38	24.44	3.93	26.3	4.32	26.70	4.39	27.17	4.47	27.5	4.56
		9.22(153.7)	23.0	3.19	25.07	3.71	27.0	4.08	27.38	4.15	27.86	4.23	28.2	4.30
		13.8(230.5)	23.0	3.16	25.07	3.67	27.0	4.04	27.38	4.10	27.86	4.18	28.2	4.26
	30	4.6(76.8)	23.1	3.70	25.13	4.31	27.1	4.73	27.45	4.81	27.93	4.90	28.2	4.99
		9.22(153.7)	23.0	3.45	25.07	4.01	27.0	4.41	27.38	4.48	27.86	4.56	28.2	4.65
		13.8(230.5)	23.2	3.23	25.19	3.75	27.1	4.13	27.52	4.19	28.00	4.27	28.3	4.35
	35	4.6(76.8)	23.0	4.04	25.07	4.70	27.0	5.17	27.38	5.25	27.86	5.35	28.2	5.45
		9.22(153.7)	23.0	3.91	24.98	4.54	26.9	4.99	27.28	5.07	27.76	5.17	28.1	5.26
		13.8(230.5)	23.0	3.79	25.07	4.41	27.0	4.84	27.38	4.92	27.86	5.01	28.2	5.10
50	20	4.6(76.8)	19.7	2.56	21.41	2.98	23.1	3.28	23.39	3.33	23.80	3.39	24.1	3.45
		9.22(153.7)	19.9	2.44	21.60	2.83	23.3	3.11	23.59	3.16	24.00	3.22	24.3	3.28
		13.8(230.5)	20.2	2.38	21.94	2.77	23.6	3.04	23.96	3.09	24.38	3.15	24.6	3.20
	25	4.6(76.8)	18.7	2.85	20.37	3.31	21.9	3.64	22.25	3.70	22.64	3.77	22.9	3.84
		9.22(153.7)	19.2	2.69	20.89	3.13	22.5	3.44	22.82	3.50	23.22	3.56	23.5	3.63
		13.8(230.5)	19.2	2.66	20.89	3.10	22.5	3.40	22.82	3.46	23.22	3.52	23.5	3.59
	30	4.6(76.8)	19.3	3.12	20.94	3.63	22.6	3.99	22.88	4.05	23.28	4.13	23.5	4.21
		9.22(153.7)	19.2	2.91	20.89	3.38	22.5	3.72	22.82	3.77	23.22	3.85	23.5	3.92
		13.8(230.5)	19.3	2.72	21.00	3.16	22.6	3.48	22.93	3.53	23.34	3.60	23.6	3.67
	35	4.6(76.8)	19.2	3.41	20.89	3.96	22.5	4.36	22.82	4.43	23.22	4.51	23.5	4.59
		9.22(153.7)	19.1	3.30	20.81	3.83	22.4	4.21	22.73	4.28	23.13	4.36	23.4	4.44
		13.8(230.5)	19.2	3.20	20.89	3.71	22.5	4.08	22.82	4.15	23.22	4.23	23.5	4.30

Outdoor Unit: 18HP (AVWW-170U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	5.2(86.4)	46.9	7.66	50.99	8.90	54.9	9.78	55.69	9.94	56.67	10.13	57.3	10.31
		10.37(172.8)	47.3	7.27	51.42	8.45	55.4	9.29	56.17	9.44	57.16	9.62	57.8	9.79
		15.6(259.3)	48.0	7.10	52.23	8.25	56.3	9.07	57.05	9.22	58.05	9.39	58.7	9.56
	25	5.2(86.4)	44.6	8.51	48.50	9.90	52.2	10.87	52.98	11.05	53.91	11.26	54.5	11.46
		10.37(172.8)	45.7	8.04	49.74	9.35	53.6	10.27	54.34	10.44	55.29	10.63	55.9	10.83
		15.6(259.3)	45.7	7.96	49.74	9.25	53.6	10.16	54.34	10.33	55.29	10.52	55.9	10.72
	30	5.2(86.4)	45.8	9.32	49.87	10.84	53.7	11.91	54.47	12.10	55.43	12.33	56.0	12.56
		10.37(172.8)	45.7	8.68	49.74	10.09	53.6	11.09	54.34	11.27	55.29	11.48	55.9	11.70
		15.6(259.3)	46.0	8.13	49.99	9.45	53.8	10.38	54.61	10.55	55.57	10.75	56.2	10.95
	35	5.2(86.4)	45.7	10.18	49.74	11.83	53.6	13.01	54.34	13.21	55.29	13.46	55.9	13.71
		10.37(172.8)	45.6	9.84	49.56	11.44	53.4	12.57	54.13	12.77	55.08	13.01	55.7	13.25
		15.6(259.3)	45.7	9.54	49.74	11.09	53.6	12.19	54.34	12.38	55.29	12.61	55.9	12.85
120	20	5.2(86.4)	45.8	7.56	49.86	8.79	53.7	9.66	54.46	9.82	55.42	10.00	56.0	10.19
		10.37(172.8)	46.2	7.18	50.29	8.35	54.2	9.18	54.93	9.32	55.89	9.50	56.5	9.68
		15.6(259.3)	47.0	7.01	51.08	8.15	55.0	8.96	55.79	9.10	56.77	9.28	57.4	9.45
	25	5.2(86.4)	43.6	8.41	47.43	9.78	51.1	10.74	51.81	10.91	52.71	11.12	53.3	11.33
		10.37(172.8)	44.7	7.94	48.64	9.24	52.4	10.15	53.13	10.31	54.07	10.51	54.6	10.70
		15.6(259.3)	44.7	7.86	48.64	9.14	52.4	10.04	53.13	10.20	54.07	10.39	54.6	10.59
	30	5.2(86.4)	44.8	9.21	48.77	10.71	52.5	11.77	53.27	11.96	54.20	12.18	54.8	12.41
		10.37(172.8)	44.7	8.58	48.64	9.97	52.4	10.96	53.13	11.13	54.07	11.34	54.6	11.55
		15.6(259.3)	44.9	8.03	48.89	9.33	52.7	10.26	53.40	10.42	54.34	10.62	54.9	10.81
	35	5.2(86.4)	44.7	10.06	48.64	11.69	52.4	12.85	53.13	13.05	54.07	13.30	54.6	13.55
		10.37(172.8)	44.6	9.72	48.46	11.30	52.2	12.42	52.93	12.61	53.86	12.85	54.4	13.09
		15.6(259.3)	44.7	9.42	48.64	10.95	52.4	12.04	53.13	12.23	54.07	12.46	54.6	12.69
110	20	5.2(86.4)	44.8	7.47	48.72	8.68	52.5	9.54	53.22	9.69	54.15	9.88	54.7	10.06
		10.37(172.8)	45.2	7.09	49.14	8.25	52.9	9.06	53.67	9.20	54.62	9.38	55.2	9.55
		15.6(259.3)	45.9	6.93	49.91	8.05	53.8	8.85	54.52	8.99	55.47	9.16	56.1	9.33
	25	5.2(86.4)	42.6	8.30	46.35	9.65	49.9	10.61	50.62	10.77	51.51	10.98	52.1	11.18
		10.37(172.8)	43.7	7.84	47.53	9.12	51.2	10.02	51.92	10.18	52.83	10.37	53.4	10.56
		15.6(259.3)	43.7	7.76	47.53	9.02	51.2	9.91	51.92	10.07	52.83	10.26	53.4	10.45
	30	5.2(86.4)	43.8	9.09	47.65	10.57	51.3	11.62	52.05	11.80	52.97	12.03	53.5	12.25
		10.37(172.8)	43.7	8.47	47.53	9.85	51.2	10.82	51.92	10.99	52.83	11.20	53.4	11.41
		15.6(259.3)	43.9	7.93	47.77	9.22	51.5	10.13	52.18	10.29	53.10	10.48	53.7	10.68
	35	5.2(86.4)	43.7	9.93	47.53	11.54	51.2	12.68	51.92	12.89	52.83	13.13	53.4	13.37
		10.37(172.8)	43.5	9.60	47.36	11.16	51.0	12.26	51.73	12.45	52.64	12.69	53.2	12.92
		15.6(259.3)	43.7	9.30	47.53	10.82	51.2	11.89	51.92	12.07	52.83	12.30	53.4	12.53

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	5.2(86.4)	43.7	7.37	47.59	8.57	51.3	9.42	51.98	9.57	52.89	9.75	53.4	9.93
		10.37(172.8)	44.1	7.00	47.99	8.14	51.7	8.95	52.42	9.09	53.34	9.26	53.9	9.43
		15.6(259.3)	44.8	6.84	48.75	7.95	52.5	8.74	53.25	8.88	54.18	9.04	54.8	9.21
	25	5.2(86.4)	41.6	8.20	45.26	9.53	48.8	10.47	49.44	10.64	50.31	10.84	50.8	11.04
		10.37(172.8)	42.7	7.74	46.43	9.00	50.0	9.89	50.71	10.05	51.60	10.24	52.1	10.43
		15.6(259.3)	42.7	7.66	46.43	8.91	50.0	9.79	50.71	9.94	51.60	10.13	52.1	10.32
	30	5.2(86.4)	42.8	8.98	46.54	10.44	50.1	11.47	50.84	11.66	51.73	11.88	52.3	12.10
		10.37(172.8)	42.7	8.36	46.43	9.72	50.0	10.68	50.71	10.85	51.60	11.06	52.1	11.26
		15.6(259.3)	42.9	7.83	46.7	9.10	50.3	10.00	51.0	10.16	51.9	10.35	52.4	10.54
	35	5.2(86.4)	42.7	9.80	46.43	11.40	50.0	12.53	50.71	12.72	51.60	12.97	52.1	13.21
		10.37(172.8)	42.5	9.47	46.25	11.02	49.8	12.10	50.52	12.30	51.41	12.53	51.9	12.76
		15.6(259.3)	42.7	9.19	46.43	10.68	50.0	11.74	50.71	11.92	51.60	12.15	52.1	12.37
90	20	5.2(86.4)	39.4	6.42	42.83	7.46	46.1	8.20	46.78	8.33	47.60	8.49	48.1	8.65
		10.37(172.8)	39.7	6.10	43.19	7.09	46.5	7.79	47.18	7.91	48.01	8.06	48.5	8.21
		15.6(259.3)	40.3	5.95	43.87	6.92	47.3	7.61	47.92	7.73	48.76	7.87	49.3	8.02
	25	5.2(86.4)	37.5	7.14	40.74	8.30	43.9	9.12	44.50	9.26	45.28	9.44	45.8	9.61
		10.37(172.8)	38.4	6.74	41.78	7.84	45.0	8.61	45.64	8.75	46.44	8.92	46.9	9.08
		15.6(259.3)	38.4	6.67	41.78	7.76	45.0	8.52	45.64	8.66	46.44	8.82	46.9	8.99
	30	5.2(86.4)	38.5	7.82	41.89	9.09	45.1	9.99	45.75	10.15	46.56	10.34	47.0	10.53
		10.37(172.8)	38.4	7.28	41.78	8.46	45.0	9.30	45.64	9.45	46.44	9.63	46.9	9.81
		15.6(259.3)	38.6	6.81	41.99	7.92	45.2	8.71	45.87	8.84	46.67	9.01	47.2	9.18
	35	5.2(86.4)	38.4	8.54	41.78	9.92	45.0	10.90	45.64	11.08	46.44	11.29	46.9	11.50
		10.37(172.8)	38.3	8.25	41.63	9.59	44.8	10.54	45.47	10.71	46.27	10.91	46.8	11.11
		15.6(259.3)	38.4	8.00	41.78	9.30	45.0	10.22	45.64	10.38	46.44	10.58	46.9	10.77
80	20	5.2(86.4)	35.0	5.48	38.07	6.37	41.0	7.00	41.58	7.11	42.31	7.24	42.8	7.38
		10.37(172.8)	35.3	5.20	38.39	6.05	41.4	6.65	41.94	6.75	42.67	6.88	43.1	7.01
		15.6(259.3)	35.9	5.08	39.00	5.91	42.0	6.49	42.60	6.59	43.34	6.72	43.8	6.84
	25	5.2(86.4)	33.3	6.09	36.21	7.08	39.0	7.78	39.55	7.90	40.25	8.05	40.7	8.20
		10.37(172.8)	34.1	5.75	37.14	6.69	40.0	7.35	40.57	7.47	41.28	7.61	41.7	7.75
		15.6(259.3)	34.1	5.69	37.14	6.62	40.0	7.27	40.57	7.39	41.28	7.53	41.7	7.67
	30	5.2(86.4)	34.2	6.67	37.23	7.76	40.1	8.52	40.67	8.66	41.38	8.82	41.8	8.99
		10.37(172.8)	34.1	6.21	37.14	7.22	40.0	7.94	40.57	8.06	41.28	8.22	41.7	8.37
		15.6(259.3)	34.3	5.81	37.33	6.76	40.2	7.43	40.77	7.55	41.49	7.69	41.9	7.83
	35	5.2(86.4)	34.1	7.28	37.14	8.47	40.0	9.30	40.57	9.45	41.28	9.63	41.7	9.81
		10.37(172.8)	34.0	7.04	37.00	8.18	39.9	8.99	40.42	9.13	41.13	9.31	41.6	9.48
		15.6(259.3)	34.1	6.82	37.14	7.93	40.0	8.72	40.57	8.86	41.28	9.02	41.7	9.19

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	5.2(86.4)	30.6	4.56	33.31	5.30	35.9	5.82	36.38	5.92	37.02	6.03	37.4	6.14
		10.37(172.8)	30.9	4.33	33.59	5.03	36.2	5.53	36.70	5.62	37.34	5.73	37.7	5.83
		15.6(259.3)	31.4	4.23	34.12	4.91	36.8	5.40	37.27	5.49	37.93	5.59	38.3	5.69
	25	5.2(86.4)	29.1	5.07	31.69	5.89	34.1	6.47	34.61	6.58	35.22	6.70	35.6	6.83
		10.37(172.8)	29.9	4.79	32.50	5.57	35.0	6.12	35.50	6.21	36.12	6.33	36.5	6.45
		15.6(259.3)	29.9	4.74	32.50	5.51	35.0	6.05	35.50	6.15	36.12	6.26	36.5	6.38
	30	5.2(86.4)	30.0	5.55	32.58	6.45	35.1	7.09	35.59	7.21	36.21	7.34	36.6	7.48
		10.37(172.8)	29.9	5.17	32.50	6.01	35.0	6.60	35.50	6.71	36.12	6.84	36.5	6.96
		15.6(259.3)	30.0	4.84	32.66	5.63	35.2	6.18	35.67	6.28	36.30	6.40	36.7	6.52
	35	5.2(86.4)	29.9	6.06	32.50	7.05	35.0	7.74	35.50	7.87	36.12	8.02	36.5	8.16
		10.37(172.8)	29.8	5.86	32.38	6.81	34.9	7.48	35.36	7.60	35.98	7.75	36.4	7.89
		15.6(259.3)	29.9	5.68	32.50	6.60	35.0	7.26	35.50	7.37	36.12	7.51	36.5	7.65
60	20	5.2(86.4)	26.2	3.68	28.55	4.27	30.8	4.70	31.19	4.77	31.73	4.86	32.1	4.95
		10.37(172.8)	26.5	3.49	28.80	4.06	31.0	4.46	31.45	4.53	32.00	4.62	32.3	4.70
		15.6(259.3)	26.9	3.41	29.25	3.96	31.5	4.35	31.95	4.42	32.51	4.51	32.9	4.59
	25	5.2(86.4)	25.0	4.09	27.16	4.75	29.3	5.22	29.67	5.30	30.19	5.40	30.5	5.50
		10.37(172.8)	25.6	3.86	27.86	4.49	30.0	4.93	30.43	5.01	30.96	5.10	31.3	5.20
		15.6(259.3)	25.6	3.82	27.86	4.44	30.0	4.88	30.43	4.96	30.96	5.05	31.3	5.14
	30	5.2(86.4)	25.7	4.48	27.92	5.20	30.1	5.72	30.50	5.81	31.04	5.92	31.4	6.03
		10.37(172.8)	25.6	4.17	27.86	4.85	30.0	5.32	30.43	5.41	30.96	5.51	31.3	5.61
		15.6(259.3)	25.7	3.90	27.99	4.54	30.2	4.98	30.58	5.06	31.11	5.16	31.4	5.25
	35	5.2(86.4)	25.6	4.89	27.86	5.68	30.0	6.24	30.43	6.34	30.96	6.46	31.3	6.58
		10.37(172.8)	25.5	4.72	27.75	5.49	29.9	6.03	30.31	6.13	30.84	6.25	31.2	6.36
		15.6(259.3)	25.6	4.58	27.86	5.32	30.0	5.85	30.43	5.94	30.96	6.06	31.3	6.17
50	20	5.2(86.4)	21.9	3.10	23.79	3.60	25.6	3.96	25.99	4.02	26.45	4.10	26.7	4.17
		10.37(172.8)	22.1	2.94	24.00	3.42	25.8	3.76	26.21	3.82	26.67	3.89	27.0	3.96
		15.6(259.3)	22.4	2.87	24.37	3.34	26.3	3.67	26.62	3.73	27.09	3.80	27.4	3.87
	25	5.2(86.4)	20.8	3.44	22.63	4.00	24.4	4.40	24.72	4.47	25.16	4.56	25.4	4.64
		10.37(172.8)	21.3	3.25	23.21	3.78	25.0	4.16	25.36	4.22	25.80	4.30	26.1	4.38
		15.6(259.3)	21.3	3.22	23.21	3.74	25.0	4.11	25.36	4.18	25.80	4.26	26.1	4.34
	30	5.2(86.4)	21.4	3.77	23.27	4.39	25.1	4.82	25.42	4.90	25.86	4.99	26.1	5.08
		10.37(172.8)	21.3	3.51	23.21	4.09	25.0	4.49	25.36	4.56	25.80	4.65	26.1	4.73
		15.6(259.3)	21.4	3.29	23.33	3.82	25.1	4.20	25.48	4.27	25.93	4.35	26.2	4.43
	35	5.2(86.4)	21.3	4.12	23.21	4.79	25.0	5.26	25.36	5.35	25.80	5.45	26.1	5.55
		10.37(172.8)	21.3	3.98	23.13	4.63	24.9	5.09	25.26	5.17	25.70	5.27	26.0	5.36
		15.6(259.3)	21.3	3.86	23.21	4.49	25.0	4.93	25.36	5.01	25.80	5.11	26.1	5.20

Outdoor Unit: 20HP (AVWW-190U(E/7/8)SB)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	5.76(96)	52.5	8.98	57.11	10.43	61.5	11.47	62.38	11.65	63.47	11.87	64.1	12.09
		11.52(192)	52.9	8.52	57.59	9.91	62.0	10.89	62.91	11.06	64.01	11.27	64.7	11.48
		17.28(288)	53.8	8.32	58.50	9.68	63.0	10.63	63.90	10.80	65.02	11.01	65.7	11.21
	25	5.76(96)	49.9	9.98	54.32	11.60	58.5	12.75	59.33	12.95	60.38	13.20	61.0	13.44
		11.52(192)	51.2	9.43	55.71	10.96	60.0	12.04	60.86	12.23	61.92	12.47	62.6	12.70
		17.28(288)	51.2	9.33	55.71	10.84	60.0	11.91	60.86	12.10	61.92	12.33	62.6	12.56
	30	5.76(96)	51.3	10.93	55.85	12.71	60.2	13.96	61.01	14.19	62.08	14.46	62.7	14.72
		11.52(192)	51.2	10.18	55.71	11.83	60.0	13.00	60.86	13.21	61.92	13.46	62.6	13.71
		17.28(288)	51.5	9.53	55.99	11.08	60.3	12.17	61.16	12.36	62.23	12.60	62.9	12.83
	35	5.76(96)	51.2	11.93	55.71	13.87	60.0	15.25	60.86	15.49	61.92	15.78	62.6	16.07
		11.52(192)	51.0	11.53	55.50	13.41	59.8	14.73	60.63	14.97	61.69	15.25	62.3	15.53
		17.28(288)	51.2	11.18	55.71	13.00	60.0	14.29	60.86	14.51	61.92	14.79	62.6	15.06
120	20	5.76(96)	51.3	8.87	55.84	10.31	60.1	11.33	61.00	11.51	62.07	11.73	62.7	11.94
		11.52(192)	51.8	8.42	56.32	9.79	60.7	10.76	61.52	10.93	62.60	11.14	63.3	11.34
		17.28(288)	52.6	8.22	57.21	9.56	61.6	10.50	62.49	10.67	63.58	10.87	64.3	11.08
	25	5.76(96)	48.8	9.86	53.12	11.46	57.2	12.59	58.02	12.79	59.04	13.04	59.7	13.28
		11.52(192)	50.1	9.31	54.48	10.83	58.7	11.90	59.51	12.09	60.55	12.32	61.2	12.54
		17.28(288)	50.1	9.21	54.48	10.71	58.7	11.77	59.51	11.96	60.55	12.18	61.2	12.41
	30	5.76(96)	50.2	10.80	54.62	12.55	58.8	13.80	59.66	14.01	60.71	14.28	61.3	14.54
		11.52(192)	50.1	10.06	54.48	11.69	58.7	12.85	59.51	13.05	60.55	13.30	61.2	13.54
		17.28(288)	50.3	9.41	54.75	10.94	59.0	12.02	59.81	12.21	60.86	12.45	61.5	12.68
	35	5.76(96)	50.1	11.79	54.48	13.71	58.7	15.06	59.51	15.30	60.55	15.59	61.2	15.88
		11.52(192)	49.9	11.39	54.28	13.24	58.5	14.55	59.29	14.79	60.33	15.07	61.0	15.35
		17.28(288)	50.1	11.05	54.48	12.84	58.7	14.11	59.51	14.34	60.55	14.61	61.2	14.88
110	20	5.76(96)	50.2	8.75	54.57	10.18	58.8	11.18	59.61	11.36	60.65	11.58	61.3	11.79
		11.52(192)	50.6	8.31	55.04	9.67	59.3	10.62	60.12	10.79	61.17	11.00	61.8	11.20
		17.28(288)	51.4	8.12	55.90	9.44	60.2	10.37	61.06	10.54	62.13	10.74	62.8	10.93
	25	5.76(96)	47.7	9.73	51.91	11.31	55.9	12.43	56.70	12.63	57.69	12.87	58.3	13.11
		11.52(192)	48.9	9.19	53.24	10.69	57.3	11.75	58.15	11.93	59.17	12.16	59.8	12.38
		17.28(288)	48.9	9.10	53.24	10.58	57.3	11.62	58.15	11.81	59.17	12.03	59.8	12.25
	30	5.76(96)	49.1	10.66	53.37	12.39	57.5	13.62	58.30	13.84	59.32	14.10	59.9	14.36
		11.52(192)	48.9	9.93	53.24	11.54	57.3	12.68	58.15	12.89	59.17	13.13	59.8	13.37
		17.28(288)	49.2	9.29	53.50	10.80	57.6	11.87	58.44	12.06	59.47	12.29	60.1	12.52
	35	5.76(96)	48.9	11.64	53.24	13.53	57.3	14.87	58.15	15.11	59.17	15.39	59.8	15.68
		11.52(192)	48.8	11.25	53.04	13.08	57.1	14.37	57.93	14.60	58.95	14.88	59.6	15.15
		17.28(288)	48.9	10.91	53.24	12.68	57.3	13.93	58.15	14.15	59.17	14.42	59.8	14.69

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	5.76(96)	49.0	8.64	53.30	10.05	57.4	11.04	58.22	11.22	59.24	11.43	59.9	11.64
		11.52(192)	49.4	8.21	53.75	9.54	57.9	10.49	58.71	10.66	59.74	10.86	60.4	11.06
		17.28(288)	50.2	8.02	54.60	9.32	58.8	10.24	59.63	10.40	60.68	10.60	61.3	10.80
	25	5.76(96)	46.6	9.61	50.70	11.17	54.6	12.28	55.38	12.47	56.35	12.71	56.9	12.94
		11.52(192)	47.8	9.08	52.00	10.55	56.0	11.60	56.80	11.78	57.79	12.01	58.4	12.23
		17.28(288)	47.8	8.98	52.00	10.44	56.0	11.48	56.80	11.66	57.79	11.88	58.4	12.10
	30	5.76(96)	47.9	10.53	52.13	12.24	56.1	13.45	56.94	13.66	57.94	13.92	58.5	14.18
		11.52(192)	47.8	9.80	52.00	11.40	56.0	12.52	56.80	12.72	57.79	12.97	58.4	13.20
		17.28(288)	48.0	9.18	52.3	10.67	56.3	11.72	57.1	11.91	58.1	12.13	58.7	12.36
	35	5.76(96)	47.8	11.49	52.00	13.36	56.0	14.68	56.80	14.92	57.79	15.20	58.4	15.48
		11.52(192)	47.6	11.11	51.80	12.91	55.8	14.19	56.58	14.42	57.58	14.69	58.2	14.96
		17.28(288)	47.8	10.77	52.00	12.52	56.0	13.76	56.80	13.98	57.79	14.24	58.4	14.51
90	20	5.76(96)	44.1	7.53	47.97	8.75	51.7	9.61	52.39	9.77	53.31	9.95	53.9	10.14
		11.52(192)	44.5	7.15	48.38	8.31	52.1	9.13	52.84	9.28	53.77	9.45	54.3	9.63
		17.28(288)	45.2	6.98	49.14	8.11	52.9	8.92	53.67	9.06	54.61	9.23	55.2	9.40
	25	5.76(96)	41.9	8.37	45.63	9.73	49.1	10.69	49.84	10.86	50.71	11.07	51.2	11.27
		11.52(192)	43.0	7.90	46.80	9.19	50.4	10.10	51.12	10.26	52.01	10.45	52.6	10.65
		17.28(288)	43.0	7.82	46.80	9.09	50.4	9.99	51.12	10.15	52.01	10.34	52.6	10.53
	30	5.76(96)	43.1	9.17	46.91	10.66	50.5	11.71	51.24	11.90	52.14	12.12	52.7	12.35
		11.52(192)	43.0	8.53	46.80	9.92	50.4	10.90	51.12	11.08	52.01	11.29	52.6	11.50
		17.28(288)	43.2	7.99	47.03	9.29	50.7	10.21	51.37	10.37	52.27	10.56	52.8	10.76
	35	5.76(96)	43.0	10.01	46.80	11.63	50.4	12.78	51.12	12.99	52.01	13.23	52.6	13.48
		11.52(192)	42.9	9.67	46.62	11.24	50.2	12.35	50.92	12.55	51.82	12.79	52.4	13.02
		17.28(288)	43.0	9.38	46.80	10.90	50.4	11.98	51.12	12.17	52.01	12.40	52.6	12.63
80	20	5.76(96)	39.2	6.42	42.64	7.46	45.9	8.20	46.57	8.33	47.39	8.49	47.9	8.65
		11.52(192)	39.5	6.10	43.00	7.09	46.3	7.79	46.97	7.91	47.79	8.06	48.3	8.21
		17.28(288)	40.2	5.95	43.68	6.92	47.0	7.61	47.71	7.73	48.55	7.88	49.1	8.02
	25	5.76(96)	37.3	7.14	40.56	8.30	43.7	9.12	44.30	9.26	45.08	9.44	45.6	9.62
		11.52(192)	38.2	6.74	41.60	7.84	44.8	8.62	45.44	8.75	46.23	8.92	46.7	9.08
		17.28(288)	38.2	6.67	41.60	7.76	44.8	8.52	45.44	8.66	46.23	8.82	46.7	8.99
	30	5.76(96)	38.3	7.82	41.70	9.09	44.9	9.99	45.55	10.15	46.35	10.34	46.8	10.53
		11.52(192)	38.2	7.28	41.60	8.47	44.8	9.30	45.44	9.45	46.23	9.63	46.7	9.81
		17.28(288)	38.4	6.82	41.80	7.92	45.0	8.71	45.66	8.85	46.46	9.01	47.0	9.18
	35	5.76(96)	38.2	8.54	41.60	9.93	44.8	10.91	45.44	11.08	46.23	11.29	46.7	11.50
		11.52(192)	38.1	8.25	41.44	9.59	44.6	10.54	45.27	10.71	46.06	10.91	46.5	11.11
		17.28(288)	38.2	8.00	41.60	9.30	44.8	10.22	45.44	10.38	46.23	10.58	46.7	10.77

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	5.76(96)	34.3	5.34	37.31	6.21	40.2	6.83	40.75	6.94	41.47	7.07	41.9	7.20
		11.52(192)	34.6	5.08	37.63	5.90	40.5	6.48	41.10	6.59	41.82	6.71	42.3	6.84
		17.28(288)	35.1	4.96	38.22	5.76	41.2	6.33	41.74	6.43	42.48	6.55	42.9	6.68
	25	5.76(96)	32.6	5.94	35.49	6.91	38.2	7.59	38.76	7.71	39.44	7.86	39.9	8.00
		11.52(192)	33.5	5.61	36.40	6.53	39.2	7.17	39.76	7.28	40.45	7.42	40.9	7.56
		17.28(288)	33.5	5.55	36.40	6.46	39.2	7.09	39.76	7.21	40.45	7.34	40.9	7.48
	30	5.76(96)	33.5	6.51	36.49	7.57	39.3	8.31	39.86	8.45	40.56	8.61	41.0	8.77
		11.52(192)	33.5	6.06	36.40	7.05	39.2	7.74	39.76	7.87	40.45	8.02	40.9	8.16
		17.28(288)	33.6	5.67	36.58	6.59	39.4	7.25	39.96	7.36	40.66	7.50	41.1	7.64
	35	5.76(96)	33.5	7.11	36.40	8.26	39.2	9.08	39.76	9.22	40.45	9.40	40.9	9.57
		11.52(192)	33.3	6.87	36.26	7.98	39.1	8.77	39.61	8.91	40.30	9.08	40.7	9.25
		17.28(288)	33.5	6.66	36.40	7.74	39.2	8.51	39.76	8.64	40.45	8.80	40.9	8.97
60	20	5.76(96)	29.4	4.31	31.98	5.01	34.4	5.50	34.93	5.59	35.54	5.70	35.9	5.80
		11.52(192)	29.6	4.09	32.25	4.76	34.7	5.23	35.23	5.31	35.85	5.41	36.2	5.51
		17.28(288)	30.1	4.00	32.76	4.64	35.3	5.10	35.78	5.19	36.41	5.28	36.8	5.38
	25	5.76(96)	28.0	4.79	30.42	5.57	32.8	6.12	33.23	6.22	33.81	6.33	34.2	6.45
		11.52(192)	28.7	4.52	31.20	5.26	33.6	5.78	34.08	5.87	34.68	5.98	35.0	6.09
		17.28(288)	28.7	4.48	31.20	5.20	33.6	5.72	34.08	5.81	34.68	5.92	35.0	6.03
	30	5.76(96)	28.8	5.25	31.28	6.10	33.7	6.70	34.16	6.81	34.76	6.94	35.1	7.07
		11.52(192)	28.7	4.89	31.20	5.68	33.6	6.24	34.08	6.34	34.68	6.46	35.0	6.58
		17.28(288)	28.8	4.57	31.35	5.32	33.8	5.84	34.25	5.94	34.85	6.05	35.2	6.16
	35	5.76(96)	28.7	5.73	31.20	6.66	33.6	7.32	34.08	7.43	34.68	7.58	35.0	7.72
		11.52(192)	28.6	5.54	31.08	6.44	33.5	7.07	33.95	7.18	34.55	7.32	34.9	7.46
		17.28(288)	28.7	5.37	31.20	6.24	33.6	6.86	34.08	6.97	34.68	7.10	35.0	7.23
50	20	5.76(96)	24.5	3.63	26.65	4.22	28.7	4.64	29.11	4.71	29.62	4.80	29.9	4.89
		11.52(192)	24.7	3.45	26.88	4.01	28.9	4.41	29.36	4.48	29.87	4.56	30.2	4.65
		17.28(288)	25.1	3.37	27.30	3.92	29.4	4.30	29.82	4.37	30.34	4.45	30.7	4.54
	25	5.76(96)	23.3	4.04	25.35	4.69	27.3	5.16	27.69	5.24	28.17	5.34	28.5	5.44
		11.52(192)	23.9	3.81	26.00	4.44	28.0	4.87	28.40	4.95	28.90	5.05	29.2	5.14
		17.28(288)	23.9	3.77	26.00	4.39	28.0	4.82	28.40	4.90	28.90	4.99	29.2	5.08
	30	5.76(96)	24.0	4.42	26.06	5.14	28.1	5.65	28.47	5.74	28.97	5.85	29.3	5.96
		11.52(192)	23.9	4.12	26.00	4.79	28.0	5.26	28.40	5.35	28.90	5.45	29.2	5.55
		17.28(288)	24.0	3.86	26.13	4.48	28.1	4.93	28.54	5.00	29.04	5.10	29.3	5.19
	35	5.76(96)	23.9	4.83	26.00	5.61	28.0	6.17	28.40	6.27	28.90	6.39	29.2	6.51
		11.52(192)	23.8	4.67	25.90	5.43	27.9	5.96	28.29	6.06	28.79	6.17	29.1	6.29
		17.28(288)	23.9	4.53	26.00	5.26	28.0	5.78	28.40	5.87	28.90	5.98	29.2	6.10

Outdoor Unit: 24HP (AVWW-229U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate		Ti (Indoor Unit Temp.)										
		m ³ /h (l/min.)	16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	6.9(115)	63.3	9.51	68.78	11.05	74.0	12.15	75.21	12.33	76.50	12.58	77.3	12.81
		13.8(230)	63.8	9.03	69.43	10.50	74.6	11.54	75.86	11.72	77.14	11.95	78.1	12.17
		20.7(288)	64.9	8.82	70.51	10.25	75.8	11.27	77.05	11.45	78.33	11.66	79.3	11.88
	25	6.9(115)	60.2	10.58	65.46	12.29	70.6	13.51	71.58	13.72	72.76	13.98	73.5	14.24
		13.8(230)	61.8	10.00	67.19	11.61	72.3	12.76	73.39	12.96	74.68	13.20	75.4	13.46
		20.7(288)	61.8	9.88	67.19	11.49	72.3	12.62	73.39	12.83	74.68	13.07	75.4	13.30
	30	6.9(115)	62.0	11.58	67.28	13.46	72.4	14.79	73.50	15.03	74.78	15.31	75.6	15.61
		13.8(230)	61.8	10.78	67.19	12.55	72.3	13.77	73.39	14.00	74.68	14.26	75.4	14.52
		20.7(288)	62.1	10.10	67.49	11.74	72.7	12.88	73.78	13.10	75.07	13.36	75.7	13.60
	35	6.9(115)	61.8	12.65	67.19	14.69	72.3	16.15	73.39	16.41	74.68	16.72	75.4	17.03
		13.8(230)	61.6	12.21	66.85	14.21	72.0	15.60	73.08	15.85	74.35	16.16	75.1	16.45
		20.7(288)	61.8	11.85	67.19	13.77	72.3	15.14	73.39	15.38	74.68	15.66	75.4	15.95
120	20	6.9(115)	62.0	9.39	67.26	10.92	72.4	12.00	73.56	12.20	74.82	12.43	75.7	12.64
		13.8(230)	62.5	8.93	67.91	10.37	73.0	11.41	74.18	11.58	75.43	11.80	76.3	12.02
		20.7(288)	63.5	8.71	68.95	10.13	74.2	11.14	75.34	11.32	76.59	11.53	77.5	11.73
	25	6.9(115)	58.9	10.45	64.02	12.14	69.1	13.34	70.00	13.55	71.14	13.81	71.9	14.06
		13.8(230)	60.3	9.88	65.70	11.47	70.8	12.61	71.77	12.79	73.03	13.05	73.7	13.30
		20.7(288)	60.3	9.76	65.70	11.35	70.8	12.47	71.77	12.67	73.03	12.91	73.7	13.14
	30	6.9(115)	60.5	11.44	65.80	13.29	70.9	14.61	71.88	14.86	73.13	15.11	74.0	15.41
		13.8(230)	60.3	10.65	65.70	12.38	70.8	13.61	71.77	13.82	73.03	14.09	73.7	14.34
		20.7(288)	60.6	9.97	66.00	11.60	71.1	12.74	72.14	12.94	73.40	13.19	74.1	13.43
	35	6.9(115)	60.3	12.48	65.70	14.51	70.8	15.95	71.77	16.21	73.03	16.52	73.7	16.82
		13.8(230)	60.2	12.06	65.38	14.02	70.5	15.42	71.45	15.66	72.71	15.97	73.5	16.25
		20.7(288)	60.3	11.70	65.70	13.61	70.8	14.95	71.77	15.19	73.03	15.47	73.7	15.77
110	20	6.9(115)	60.5	9.27	65.73	10.79	70.7	11.85	71.88	12.03	73.11	12.26	74.0	12.50
		13.8(230)	61.1	8.80	66.35	10.23	71.3	11.26	72.50	11.43	73.71	11.65	74.6	11.87
		20.7(288)	62.0	8.60	67.37	9.99	72.5	10.99	73.63	11.17	74.85	11.38	75.8	11.58
	25	6.9(115)	57.5	10.31	62.55	11.99	67.4	13.18	68.39	13.39	69.52	13.64	70.4	13.89
		13.8(230)	59.0	9.74	64.20	11.33	69.1	12.44	70.14	12.65	71.37	12.89	72.1	13.12
		20.7(288)	59.0	9.63	64.20	11.21	69.1	12.32	70.14	12.52	71.37	12.74	72.1	12.98
	30	6.9(115)	59.2	11.30	64.30	13.13	69.2	14.43	70.25	14.66	71.46	14.93	72.3	15.22
		13.8(230)	59.0	10.52	64.20	12.23	69.1	13.44	70.14	13.65	71.37	13.91	72.1	14.16
		20.7(288)	59.3	9.84	64.50	11.45	69.4	12.57	70.49	12.79	71.74	13.03	72.4	13.27
	35	6.9(115)	59.0	12.33	64.20	14.32	69.1	15.76	70.14	16.01	71.37	16.31	72.1	16.61
		13.8(230)	58.9	11.91	63.88	13.85	68.8	15.23	69.82	15.47	71.05	15.76	71.8	16.05
		20.7(288)	59.0	11.55	64.20	13.43	69.1	14.77	70.14	14.99	71.37	15.27	72.1	15.56

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	6.9(115)	59.1	9.15	64.20	10.65	69.1	11.70	70.20	11.88	71.40	12.11	72.2	12.33
		13.8(230)	59.6	8.70	64.80	10.11	69.7	11.12	70.80	11.28	72.00	11.51	72.8	11.72
		20.7(288)	60.5	8.49	65.80	9.87	70.9	10.85	71.90	11.03	73.10	11.24	74.0	11.43
	25	6.9(115)	56.3	10.19	61.10	11.84	65.9	13.01	66.80	13.22	67.90	13.46	68.7	13.71
		13.8(230)	57.6	9.62	62.70	11.18	67.5	12.29	68.50	12.48	69.70	12.72	70.3	12.95
		20.7(288)	57.6	9.51	62.70	11.06	67.5	12.15	68.50	12.35	69.70	12.59	70.3	12.81
	30	6.9(115)	57.8	11.15	62.80	12.96	67.6	14.25	68.60	14.48	69.80	14.74	70.5	15.02
		13.8(230)	57.6	10.38	62.70	12.08	67.5	13.26	68.50	13.47	69.70	13.73	70.3	13.98
		20.7(288)	57.9	9.72	63.00	11.30	67.8	12.42	68.90	12.62	70.10	12.86	70.8	13.10
	35	6.9(115)	57.6	12.18	62.70	14.14	67.5	15.56	68.50	15.80	69.70	16.10	70.3	16.40
		13.8(230)	57.5	11.76	62.40	13.68	67.2	15.03	68.20	15.27	69.40	15.56	70.2	15.84
		20.7(288)	57.6	11.40	62.70	13.26	67.5	14.57	68.50	14.81	69.70	15.09	70.3	15.36
90	20	6.9(115)	53.1	7.97	57.77	9.27	62.2	10.19	63.18	10.35	64.26	10.55	65.0	10.74
		13.8(230)	53.6	7.58	58.32	8.81	62.8	9.68	63.72	9.83	64.80	10.01	65.6	10.20
		20.7(288)	54.5	7.40	59.22	8.60	63.7	9.45	64.71	9.60	65.80	9.78	66.5	9.96
	25	6.9(115)	50.6	8.87	54.98	10.31	59.3	11.33	60.12	11.51	61.11	11.72	61.8	11.94
		13.8(230)	51.9	8.37	56.43	9.74	60.8	10.70	61.66	10.86	62.74	11.07	63.3	11.28
		20.7(288)	51.9	8.28	56.43	9.63	60.8	10.58	61.66	10.76	62.74	10.95	63.3	11.16
	30	6.9(115)	52.1	9.71	56.52	11.28	60.9	12.41	61.75	12.60	62.81	12.84	63.5	13.08
		13.8(230)	51.9	9.05	56.43	10.52	60.8	11.55	61.66	11.73	62.74	11.96	63.3	12.18
		20.7(288)	52.1	8.46	56.69	9.84	61.1	10.82	61.96	10.98	63.04	11.19	63.6	11.40
	35	6.9(115)	51.9	10.61	56.43	12.31	60.8	13.55	61.66	13.76	62.74	14.01	63.3	14.28
		13.8(230)	51.6	10.25	56.15	11.91	60.5	13.08	61.38	13.29	62.46	13.55	63.2	13.80
		20.7(288)	51.9	9.93	56.43	11.55	60.8	12.69	61.66	12.89	62.74	13.13	63.3	13.38
80	20	6.9(115)	47.3	6.80	51.35	7.91	55.3	8.69	56.15	8.82	57.12	9.00	57.8	9.17
		13.8(230)	47.7	6.47	51.84	7.51	55.8	8.25	56.63	8.39	57.60	8.54	58.2	8.70
		20.7(288)	48.5	6.30	52.65	7.34	56.7	8.06	57.53	8.19	58.48	8.34	59.1	8.49
	25	6.9(115)	45.0	7.56	48.88	8.79	52.7	9.66	53.44	9.81	54.31	10.01	54.9	10.19
		13.8(230)	46.1	7.14	50.17	8.31	54.0	9.12	54.80	9.27	55.76	9.45	56.2	9.62
		20.7(288)	46.1	7.07	50.17	8.22	54.0	9.03	54.80	9.17	55.76	9.35	56.2	9.53
	30	6.9(115)	46.2	8.28	50.24	9.63	54.1	10.58	54.88	10.76	55.83	10.95	56.4	11.16
		13.8(230)	46.1	7.71	50.17	8.97	54.0	9.86	54.80	10.01	55.76	10.20	56.2	10.40
		20.7(288)	46.4	7.22	50.39	8.39	54.3	9.23	55.07	9.38	56.05	9.54	56.6	9.72
	35	6.9(115)	46.1	9.05	50.17	10.51	54.0	11.55	54.80	11.73	55.76	11.96	56.2	12.18
		13.8(230)	45.9	8.75	49.91	10.16	53.9	11.16	54.55	11.34	55.51	11.55	56.1	11.78
		20.7(288)	46.1	8.48	50.17	9.86	54.0	10.83	54.80	11.00	55.76	11.21	56.2	11.42

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	6.9(115)	41.4	5.66	44.94	6.59	48.4	7.23	49.15	7.35	49.98	7.49	50.6	7.62
		13.8(230)	41.7	5.37	45.36	6.26	48.9	6.87	49.57	6.98	50.40	7.11	51.0	7.25
		20.7(288)	42.3	5.25	46.06	6.11	49.6	6.71	50.32	6.81	51.17	6.95	51.8	7.07
	25	6.9(115)	39.3	6.29	42.77	7.32	46.1	8.04	46.76	8.16	47.54	8.33	48.0	8.48
		13.8(230)	40.4	5.94	43.90	6.92	47.3	7.59	47.95	7.71	48.79	7.86	49.3	8.01
		20.7(288)	40.4	5.88	43.90	6.84	47.3	7.51	47.95	7.64	48.79	7.79	49.3	7.92
	30	6.9(115)	40.5	6.90	43.96	8.01	47.4	8.81	48.03	8.94	48.86	9.12	49.4	9.29
		13.8(230)	40.4	6.42	43.90	7.46	47.3	8.20	47.95	8.33	48.79	8.49	49.3	8.64
		20.7(288)	40.5	6.02	44.09	6.99	47.6	7.68	48.20	7.80	49.04	7.95	49.5	8.09
	35	6.9(115)	40.4	7.53	43.90	8.74	47.3	9.62	47.95	9.77	48.79	9.95	49.3	10.14
		13.8(230)	40.2	7.28	43.68	8.46	47.1	9.29	47.74	9.44	48.58	9.62	49.1	9.80
		20.7(288)	40.4	7.05	43.90	8.19	47.3	9.02	47.95	9.15	48.79	9.33	49.3	9.50
60	20	6.9(115)	35.4	4.56	38.52	5.31	41.5	5.84	42.12	5.93	42.84	6.03	43.4	6.15
		13.8(230)	35.7	4.34	38.89	5.04	41.8	5.54	42.48	5.62	43.19	5.73	43.7	5.84
		20.7(288)	36.3	4.23	39.48	4.92	42.6	5.40	43.14	5.49	43.87	5.60	44.4	5.70
	25	6.9(115)	33.8	5.07	36.65	5.90	39.5	6.48	40.08	6.59	40.74	6.71	41.3	6.84
		13.8(230)	34.5	4.79	37.62	5.57	40.5	6.12	41.09	6.23	41.81	6.35	42.3	6.45
		20.7(288)	34.5	4.74	37.62	5.51	40.5	6.06	41.09	6.15	41.81	6.27	42.3	6.39
	30	6.9(115)	34.7	5.55	37.67	6.47	40.6	7.10	41.16	7.22	41.87	7.35	42.3	7.49
		13.8(230)	34.5	5.18	37.62	6.02	40.5	6.62	41.09	6.72	41.81	6.84	42.3	6.97
		20.7(288)	34.8	4.85	37.79	5.63	40.7	6.20	41.31	6.29	42.03	6.41	42.5	6.53
	35	6.9(115)	34.5	6.06	37.62	7.05	40.5	7.76	41.09	7.88	41.81	8.03	42.3	8.18
		13.8(230)	34.5	5.87	37.44	6.81	40.4	7.49	40.92	7.61	41.64	7.76	42.2	7.89
		20.7(288)	34.5	5.69	37.62	6.62	40.5	7.26	41.09	7.38	41.81	7.51	42.3	7.65
50	20	6.9(115)	29.6	3.84	32.09	4.47	34.6	4.92	35.10	5.00	35.70	5.09	36.2	5.18
		13.8(230)	29.9	3.66	32.41	4.25	34.9	4.67	35.40	4.74	35.99	4.83	36.5	4.92
		20.7(288)	30.3	3.57	32.91	4.16	35.4	4.56	35.95	4.64	36.55	4.73	36.9	4.80
	25	6.9(115)	28.1	4.28	30.55	4.97	32.9	5.46	33.40	5.55	33.95	5.66	34.4	5.76
		13.8(230)	28.8	4.04	31.35	4.70	33.8	5.16	34.25	5.25	34.85	5.34	35.2	5.45
		20.7(288)	28.8	3.99	31.35	4.65	33.8	5.10	34.25	5.19	34.85	5.28	35.2	5.39
	30	6.9(115)	29.0	4.68	31.39	5.45	33.9	5.99	34.31	6.08	34.90	6.19	35.3	6.32
		13.8(230)	28.8	4.37	31.35	5.07	33.8	5.58	34.25	5.66	34.85	5.78	35.2	5.88
		20.7(288)	29.0	4.08	31.50	4.74	33.9	5.22	34.42	5.30	35.03	5.40	35.4	5.51
	35	6.9(115)	28.8	5.12	31.35	5.94	33.8	6.54	34.25	6.65	34.85	6.77	35.2	6.89
		13.8(230)	28.7	4.95	31.19	5.75	33.6	6.32	34.09	6.42	34.69	6.54	35.1	6.66
		20.7(288)	28.8	4.80	31.35	5.57	33.8	6.12	34.25	6.23	34.85	6.34	35.2	6.45

Outdoor Unit: 26HP (AVWW-250U(E/7/8)SB)														
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	7.48(125)	68.5	10.83	74.46	12.59	80.2	13.83	81.32	14.05	82.72	14.33	83.7	14.58
		14.96(249)	69.1	10.28	75.11	11.95	80.9	13.13	81.97	13.34	83.48	13.60	84.4	13.84
		22.44(374)	70.1	10.04	76.28	11.66	82.3	12.83	83.25	13.04	84.75	13.27	85.7	13.51
	25	7.48(125)	65.1	12.03	70.83	13.99	76.2	15.37	77.37	15.62	78.76	15.92	79.6	16.20
		14.96(249)	66.7	11.36	72.63	13.21	78.3	14.52	79.30	14.76	80.68	15.03	81.6	15.32
		22.44(374)	66.7	11.25	72.63	13.08	78.3	14.36	79.30	14.60	80.68	14.87	81.6	15.16
	30	7.48(125)	66.9	13.18	72.76	15.33	78.4	16.84	79.50	17.11	80.90	17.44	81.8	17.76
		14.96(249)	66.7	12.27	72.63	14.26	78.3	15.68	79.30	15.93	80.68	16.23	81.6	16.54
		22.44(374)	67.1	11.49	73.00	13.37	78.5	14.68	79.77	14.91	81.16	15.19	82.0	15.48
	35	7.48(125)	66.7	14.40	72.63	16.73	78.3	18.40	79.30	18.67	80.68	19.03	81.6	19.39
		14.96(249)	66.6	13.91	72.33	16.17	78.0	17.77	79.08	18.05	80.46	18.40	81.3	18.73
		22.44(374)	66.7	13.48	72.63	15.68	78.3	17.24	79.30	17.50	80.68	17.83	81.6	18.17
120	20	7.48(125)	66.9	10.69	72.82	12.43	78.4	13.66	79.52	13.88	80.89	14.14	81.8	14.41
		14.96(249)	67.5	10.15	73.46	11.81	79.2	12.98	80.16	13.18	81.62	13.43	82.5	13.68
		22.44(374)	68.6	9.91	74.60	11.52	80.4	12.67	81.41	12.87	82.88	13.12	83.8	13.36
	25	7.48(125)	63.6	11.89	69.27	13.82	74.6	15.18	75.66	15.42	77.01	15.73	77.9	16.02
		14.96(249)	65.2	11.22	71.03	13.06	76.5	14.35	77.53	14.58	78.90	14.86	79.8	15.13
		22.44(374)	65.2	11.11	71.03	12.93	76.5	14.19	77.53	14.42	78.90	14.69	79.8	14.97
	30	7.48(125)	65.4	13.03	71.15	15.14	76.6	16.64	77.75	16.91	79.10	17.22	80.1	17.55
		14.96(249)	65.2	12.13	71.03	14.09	76.5	15.50	77.53	15.74	78.90	16.04	79.8	16.33
		22.44(374)	65.5	11.35	71.40	13.20	76.9	14.51	78.01	14.73	79.36	15.01	80.1	15.28
	35	7.48(125)	65.2	14.23	71.03	16.53	76.5	18.17	77.53	18.45	78.90	18.81	79.8	19.16
		14.96(249)	65.2	13.74	70.73	15.98	76.2	17.56	77.32	17.83	78.68	18.17	79.5	18.51
		22.44(374)	65.2	13.32	71.03	15.48	76.5	17.02	77.53	17.29	78.90	17.62	79.8	17.94
110	20	7.48(125)	65.4	10.56	71.15	12.28	76.7	13.49	77.71	13.70	79.04	13.97	79.9	14.22
		14.96(249)	66.0	10.03	71.78	11.67	77.3	12.81	78.32	13.01	79.77	13.26	80.6	13.50
		22.44(374)	67.0	9.80	72.89	11.38	78.6	12.52	79.55	12.72	80.98	12.95	81.9	13.19
	25	7.48(125)	62.2	11.73	67.69	13.64	72.8	15.00	73.92	15.22	75.25	15.53	76.1	15.81
		14.96(249)	63.8	11.08	69.41	12.89	74.8	14.16	75.77	14.39	77.09	14.66	78.0	14.93
		22.44(374)	63.8	10.97	69.41	12.76	74.8	14.01	75.77	14.23	77.09	14.50	78.0	14.77
	30	7.48(125)	64.0	12.86	69.52	14.94	74.9	16.43	75.97	16.69	77.31	17.01	78.2	17.32
		14.96(249)	63.8	11.98	69.41	13.92	74.8	15.30	75.77	15.54	77.09	15.84	78.0	16.13
		22.44(374)	64.1	11.21	69.76	13.04	75.2	14.32	76.22	14.54	77.55	14.81	78.4	15.10
	35	7.48(125)	63.8	14.04	69.41	16.32	74.8	17.93	75.77	18.22	77.09	18.57	78.0	18.91
		14.96(249)	63.6	13.57	69.12	15.78	74.5	17.34	75.57	17.60	76.90	17.95	77.7	18.27
		22.44(374)	63.8	13.15	69.41	15.30	74.8	16.81	75.77	17.06	77.09	17.39	78.0	17.72

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	7.48(125)	63.8	10.42	69.50	12.12	74.9	13.32	75.90	13.53	77.20	13.79	78.0	14.04
		14.96(249)	64.4	9.90	70.10	11.51	75.5	12.65	76.50	12.85	77.90	13.09	78.7	13.33
		22.44(374)	65.4	9.67	71.20	11.24	76.7	12.36	77.70	12.56	79.10	12.78	80.0	13.02
	25	7.48(125)	60.7	11.59	66.10	13.47	71.2	14.80	72.20	15.04	73.50	15.33	74.2	15.61
		14.96(249)	62.3	10.94	67.80	12.72	73.0	13.98	74.00	14.21	75.30	14.48	76.1	14.75
		22.44(374)	62.3	10.83	67.80	12.60	73.0	13.84	74.00	14.05	75.30	14.32	76.1	14.59
	30	7.48(125)	62.5	12.70	67.90	14.76	73.1	16.22	74.20	16.49	75.50	16.80	76.4	17.11
		14.96(249)	62.3	11.82	67.80	13.74	73.0	15.10	74.00	15.34	75.30	15.64	76.1	15.92
		22.44(374)	62.6	11.07	68.20	12.87	73.4	14.14	74.50	14.36	75.80	14.63	76.5	14.90
	35	7.48(125)	62.3	13.86	67.80	16.12	73.0	17.72	74.00	17.98	75.30	18.34	76.1	18.68
		14.96(249)	62.1	13.39	67.50	15.58	72.7	17.11	73.80	17.39	75.10	17.72	75.8	18.04
		22.44(374)	62.3	12.99	67.80	15.10	73.0	16.60	74.00	16.85	75.30	17.18	76.1	17.49
90	20	7.48(125)	57.5	9.08	62.55	10.55	67.3	11.59	68.31	11.78	69.48	12.01	70.3	12.23
		14.96(249)	58.0	8.63	63.09	10.03	67.9	11.01	68.85	11.18	70.12	11.39	70.8	11.61
		22.44(374)	58.8	8.41	64.07	9.78	69.1	10.76	69.92	10.93	71.19	11.13	72.0	11.34
	25	7.48(125)	54.7	10.09	59.50	11.73	64.1	12.89	64.99	13.09	66.15	13.35	66.9	13.59
		14.96(249)	56.0	9.53	61.01	11.08	65.7	12.17	66.60	12.37	67.77	12.61	68.5	12.84
		22.44(374)	56.0	9.43	61.01	10.97	65.7	12.04	66.60	12.24	67.77	12.47	68.5	12.71
	30	7.48(125)	56.2	11.06	61.12	12.85	65.8	14.13	66.77	14.35	67.95	14.62	68.7	14.89
		14.96(249)	56.0	10.29	61.01	11.96	65.7	13.15	66.60	13.36	67.77	13.62	68.5	13.87
		22.44(374)	56.3	9.63	61.32	11.20	66.0	12.32	67.01	12.49	68.16	12.74	68.9	12.98
	35	7.48(125)	56.0	12.08	61.01	14.03	65.7	15.41	66.60	15.66	67.77	15.96	68.5	16.26
		14.96(249)	56.0	11.66	60.76	13.56	65.4	14.90	66.42	15.14	67.59	15.43	68.4	15.71
		22.44(374)	56.0	11.31	61.01	13.15	65.7	14.45	66.60	14.67	67.77	14.96	68.5	15.23
80	20	7.48(125)	51.1	7.75	55.60	9.01	59.9	9.90	60.71	10.05	61.76	10.24	62.5	10.43
		14.96(249)	51.5	7.35	56.08	8.55	60.5	9.40	61.21	9.54	62.32	9.73	62.9	9.91
		22.44(374)	52.4	7.18	56.96	8.36	61.4	9.18	62.16	9.32	63.27	9.50	63.9	9.67
	25	7.48(125)	48.6	8.61	52.88	10.01	56.9	11.00	57.76	11.17	58.80	11.38	59.4	11.59
		14.96(249)	49.8	8.13	54.23	9.46	58.4	10.39	59.20	10.56	60.24	10.76	60.9	10.96
		22.44(374)	49.8	8.04	54.23	9.36	58.4	10.28	59.20	10.45	60.24	10.64	60.9	10.84
	30	7.48(125)	49.9	9.43	54.32	10.97	58.5	12.05	59.36	12.25	60.39	12.47	61.1	12.71
		14.96(249)	49.8	8.78	54.23	10.21	58.4	11.23	59.20	11.40	60.24	11.62	60.9	11.83
		22.44(374)	50.1	8.21	54.52	9.56	58.7	10.51	59.56	10.67	60.60	10.87	61.2	11.07
	35	7.48(125)	49.8	10.30	54.23	11.98	58.4	13.15	59.20	13.36	60.24	13.62	60.9	13.87
		14.96(249)	49.7	9.95	54.00	11.56	58.2	12.71	59.05	12.91	60.08	13.17	60.8	13.40
		22.44(374)	49.8	9.64	54.23	11.21	58.4	12.33	59.20	12.52	60.24	12.75	60.9	12.99

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
		m ³ /h (l/min.)	16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	7.48(125)	44.7	6.45	48.65	7.50	52.4	8.23	53.12	8.37	54.04	8.53	54.6	8.68
		14.96(249)	45.1	6.12	49.07	7.11	52.9	7.82	53.56	7.94	54.53	8.10	55.0	8.24
		22.44(374)	45.8	5.98	49.83	6.94	53.8	7.64	54.38	7.77	55.38	7.90	55.9	8.04
	25	7.48(125)	42.5	7.17	46.28	8.33	49.8	9.15	50.54	9.30	51.45	9.48	52.0	9.66
		14.96(249)	43.6	6.77	47.46	7.87	51.1	8.65	51.80	8.78	52.71	8.95	53.3	9.12
		22.44(374)	43.6	6.70	47.46	7.79	51.1	8.55	51.80	8.69	52.71	8.85	53.3	9.02
	30	7.48(125)	43.8	7.85	47.53	9.12	51.2	10.03	51.94	10.20	52.85	10.38	53.5	10.58
		14.96(249)	43.6	7.31	47.46	8.50	51.1	9.33	51.80	9.49	52.71	9.67	53.3	9.84
		22.44(374)	43.8	6.84	47.70	7.96	51.4	8.74	52.11	8.88	53.02	9.05	53.6	9.22
	35	7.48(125)	43.6	8.57	47.46	9.97	51.1	10.95	51.80	11.12	52.71	11.34	53.3	11.54
		14.96(249)	43.5	8.29	47.26	9.63	50.9	10.58	51.65	10.75	52.56	10.96	53.2	11.15
		22.44(374)	43.6	8.03	47.46	9.33	51.1	10.27	51.80	10.42	52.71	10.62	53.3	10.82
60	20	7.48(125)	38.3	5.20	41.69	6.04	45.0	6.65	45.54	6.74	46.31	6.87	46.9	7.00
		14.96(249)	38.7	4.94	42.07	5.74	45.3	6.30	45.90	6.40	46.73	6.53	47.2	6.64
		22.44(374)	39.3	4.82	42.72	5.60	46.0	6.15	46.62	6.25	47.46	6.38	48.0	6.49
	25	7.48(125)	36.5	5.78	39.67	6.71	42.7	7.38	43.33	7.49	44.11	7.64	44.5	7.78
		14.96(249)	37.4	5.46	40.68	6.35	43.8	6.97	44.41	7.08	45.18	7.21	45.7	7.35
		22.44(374)	37.4	5.40	40.68	6.28	43.8	6.90	44.41	7.01	45.18	7.14	45.7	7.27
	30	7.48(125)	37.5	6.34	40.73	7.35	43.9	8.09	44.51	8.22	45.30	8.37	45.9	8.53
		14.96(249)	37.4	5.90	40.68	6.86	43.8	7.52	44.41	7.65	45.18	7.79	45.7	7.93
		22.44(374)	37.5	5.51	40.88	6.42	44.1	7.04	44.67	7.15	45.44	7.29	45.8	7.42
	35	7.48(125)	37.4	6.92	40.68	8.03	43.8	8.82	44.41	8.96	45.18	9.13	45.7	9.30
		14.96(249)	37.3	6.67	40.50	7.76	43.6	8.53	44.28	8.67	45.05	8.84	45.6	8.99
		22.44(374)	37.4	6.47	40.68	7.52	43.8	8.27	44.41	8.40	45.18	8.57	45.7	8.72
50	20	7.48(125)	32.0	4.38	34.74	5.09	37.4	5.60	37.95	5.68	38.61	5.80	39.0	5.90
		14.96(249)	32.3	4.16	35.06	4.84	37.7	5.31	38.25	5.40	38.95	5.50	39.4	5.60
		22.44(374)	32.7	4.06	35.59	4.72	38.4	5.19	38.84	5.28	39.55	5.37	40.0	5.47
	25	7.48(125)	30.4	4.86	33.05	5.65	35.6	6.22	36.10	6.32	36.76	6.45	37.1	6.56
		14.96(249)	31.1	4.59	33.89	5.34	36.5	5.88	37.01	5.97	37.65	6.08	38.1	6.19
		22.44(374)	31.1	4.55	33.89	5.29	36.5	5.81	37.01	5.91	37.65	6.02	38.1	6.14
	30	7.48(125)	31.3	5.33	33.95	6.21	36.6	6.82	37.10	6.93	37.74	7.06	38.1	7.18
		14.96(249)	31.1	4.96	33.89	5.78	36.5	6.35	37.01	6.45	37.65	6.58	38.1	6.69
		22.44(374)	31.2	4.65	34.07	5.40	36.6	5.94	37.22	6.04	37.87	6.15	38.3	6.26
	35	7.48(125)	31.1	5.83	33.89	6.77	36.5	7.44	37.01	7.56	37.65	7.71	38.1	7.85
		14.96(249)	31.1	5.63	33.76	6.55	36.4	7.20	36.90	7.31	37.54	7.45	38.0	7.58
		22.44(374)	31.1	5.46	33.89	6.35	36.5	6.97	37.01	7.08	37.65	7.23	38.1	7.35

Outdoor Unit: 28HP (AVWW-268U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	8.06(134)	73.6	12.15	80.03	14.11	86.2	15.51	87.43	15.77	88.93	16.06	89.9	16.35
		16.12(269)	74.2	11.53	80.68	13.40	87.0	14.74	88.18	14.98	89.69	15.26	90.7	15.53
		24.18(403)	75.3	11.26	81.96	13.09	88.4	14.38	89.57	14.62	91.18	14.89	92.1	15.17
	25	8.06(134)	70.0	13.50	76.19	15.71	81.9	17.24	83.16	17.53	84.66	17.86	85.6	18.18
		16.12(269)	71.7	12.76	78.10	14.84	84.2	16.29	85.30	16.56	86.79	16.86	87.8	17.18
		24.18(403)	71.7	12.63	78.10	14.67	84.2	16.12	85.30	16.39	86.79	16.69	87.8	17.01
	30	8.06(134)	71.9	14.78	78.33	17.19	84.4	18.89	85.50	19.19	87.01	19.55	87.9	19.92
		16.12(269)	71.7	13.77	78.10	16.01	84.2	17.59	85.30	17.88	86.79	18.21	87.8	18.56
		24.18(403)	72.3	12.90	78.46	14.99	84.5	16.46	85.77	16.74	87.26	17.05	88.3	17.37
	35	8.06(134)	71.7	16.14	78.10	18.76	84.2	20.63	85.30	20.96	86.79	21.35	87.8	21.74
		16.12(269)	71.6	15.61	77.80	18.15	83.9	19.93	84.97	20.26	86.46	20.63	87.5	21.02
		24.18(403)	71.7	15.14	78.10	17.59	84.2	19.33	85.30	19.64	86.79	20.00	87.8	20.38
120	20	8.06(134)	71.9	11.99	78.26	13.94	84.3	15.32	85.49	15.58	86.97	15.86	87.9	16.16
		16.12(269)	72.5	11.39	78.91	13.24	85.1	14.56	86.24	14.78	87.70	15.07	88.7	15.36
		24.18(403)	73.8	11.12	80.16	12.93	86.3	14.21	87.59	14.43	89.17	14.72	90.1	14.99
	25	8.06(134)	68.4	13.34	74.51	15.52	80.2	17.04	81.32	17.31	82.77	17.63	83.7	17.97
		16.12(269)	70.1	12.60	76.37	14.66	82.3	16.10	83.40	16.35	84.88	16.67	85.7	16.97
		24.18(403)	70.1	12.47	76.37	14.49	82.3	15.93	83.40	16.18	84.88	16.48	85.7	16.80
	30	8.06(134)	70.3	14.60	76.60	16.99	82.5	18.67	83.61	18.97	85.08	19.32	86.0	19.68
		16.12(269)	70.1	13.61	76.37	15.82	82.3	17.38	83.40	17.65	84.88	17.98	85.7	18.32
		24.18(403)	70.5	12.74	76.74	14.79	82.8	16.27	83.87	16.53	85.33	16.85	86.2	17.15
	35	8.06(134)	70.1	15.95	76.37	18.54	82.3	20.38	83.40	20.70	84.88	21.09	85.7	21.49
		16.12(269)	70.0	15.42	76.07	17.92	82.0	19.70	83.08	20.00	84.55	20.38	85.4	20.76
		24.18(403)	70.1	14.94	76.37	17.37	82.3	19.10	83.40	19.40	84.88	19.76	85.7	20.13
110	20	8.06(134)	70.3	11.85	76.47	13.76	82.4	15.13	83.55	15.37	84.98	15.67	85.8	15.96
		16.12(269)	70.9	11.24	77.10	13.08	83.1	14.37	84.26	14.59	85.71	14.88	86.6	15.15
		24.18(403)	72.0	10.99	78.32	12.77	84.4	14.03	85.59	14.25	87.13	14.53	88.0	14.80
	25	8.06(134)	66.9	13.17	72.81	15.31	78.3	16.83	79.45	17.09	80.88	17.41	81.8	17.73
		16.12(269)	68.6	12.44	74.63	14.47	80.4	15.90	81.50	16.15	82.93	16.45	83.8	16.75
		24.18(403)	68.6	12.31	74.63	14.30	80.4	15.72	81.50	15.98	82.93	16.28	83.8	16.58
	30	8.06(134)	68.8	14.41	74.84	16.77	80.6	18.43	81.70	18.71	83.15	19.08	84.0	19.43
		16.12(269)	68.6	13.43	74.63	15.63	80.4	17.16	81.50	17.43	82.93	17.76	83.8	18.10
		24.18(403)	69.0	12.58	74.98	14.62	80.9	16.07	81.95	16.33	83.38	16.63	84.3	16.94
	35	8.06(134)	68.6	15.75	74.63	18.30	80.4	20.11	81.50	20.45	82.93	20.82	83.8	21.20
		16.12(269)	68.3	15.23	74.34	17.70	80.1	19.44	81.20	19.75	82.63	20.12	83.5	20.49
		24.18(403)	68.6	14.75	74.63	17.16	80.4	18.86	81.50	19.15	82.93	19.51	83.8	19.87

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	8.06(134)	68.6	11.69	74.70	13.59	80.5	14.94	81.60	15.18	83.00	15.46	83.8	15.75
		16.12(269)	69.2	11.10	75.30	12.91	81.2	14.20	82.30	14.42	83.70	14.69	84.6	14.96
		24.18(403)	70.3	10.85	76.50	12.61	82.4	13.86	83.60	14.08	85.10	14.34	86.0	14.61
	25	8.06(134)	65.3	13.01	71.10	15.12	76.6	16.61	77.60	16.88	79.00	17.19	79.8	17.51
		16.12(269)	67.0	12.28	72.90	14.28	78.5	15.69	79.60	15.94	81.00	16.24	81.8	16.54
		24.18(403)	67.0	12.15	72.90	14.13	78.5	15.53	79.60	15.77	81.00	16.07	81.8	16.37
	30	8.06(134)	67.2	14.24	73.10	16.56	78.7	18.19	79.80	18.49	81.20	18.84	82.1	19.19
		16.12(269)	67.0	13.26	72.90	15.42	78.5	16.94	79.60	17.21	81.00	17.54	81.8	17.86
		24.18(403)	67.4	12.42	73.30	14.43	79.0	15.86	80.10	16.12	81.50	16.42	82.3	16.72
	35	8.06(134)	67.0	15.54	72.90	18.08	78.5	19.87	79.60	20.18	81.00	20.57	81.8	20.95
		16.12(269)	66.7	15.02	72.60	17.48	78.2	19.19	79.30	19.51	80.70	19.87	81.5	20.24
		24.18(403)	67.0	14.58	72.90	16.94	78.5	18.62	79.60	18.91	81.00	19.27	81.8	19.62
90	20	8.06(134)	61.8	10.18	67.23	11.83	72.3	13.01	73.44	13.21	74.70	13.46	75.5	13.72
		16.12(269)	62.3	9.67	67.77	11.24	73.0	12.36	74.07	12.55	75.34	12.79	76.1	13.02
		24.18(403)	63.2	9.44	68.84	10.98	74.2	12.07	75.23	12.26	76.59	12.48	77.4	12.72
	25	8.06(134)	58.9	11.33	64.00	13.17	68.9	14.47	69.85	14.69	71.10	14.97	71.9	15.24
		16.12(269)	60.3	10.69	65.60	12.44	70.7	13.66	71.64	13.88	72.90	14.15	73.6	14.40
		24.18(403)	60.3	10.58	65.60	12.31	70.7	13.52	71.64	13.74	72.90	13.99	73.6	14.26
	30	8.06(134)	60.4	12.40	65.80	14.42	70.8	15.84	71.81	16.10	73.08	16.40	73.8	16.70
		16.12(269)	60.3	11.55	65.60	13.42	70.7	14.75	71.64	14.99	72.90	15.27	73.6	15.56
		24.18(403)	60.6	10.80	65.91	12.56	71.0	13.81	72.04	14.03	73.29	14.29	74.1	14.56
	35	8.06(134)	60.3	13.54	65.60	15.73	70.7	17.29	71.64	17.58	72.90	17.91	73.6	18.24
		16.12(269)	60.1	13.09	65.35	15.21	70.3	16.72	71.37	16.99	72.63	17.30	73.5	17.62
		24.18(403)	60.3	12.69	65.60	14.75	70.7	16.21	71.64	16.47	72.90	16.78	73.6	17.08
80	20	8.06(134)	54.9	8.69	59.76	10.10	64.3	11.10	65.27	11.28	66.40	11.48	67.2	11.71
		16.12(269)	55.4	8.25	60.24	9.60	65.0	10.55	65.85	10.71	66.96	10.91	67.6	11.12
		24.18(403)	56.3	8.06	61.20	9.37	65.9	10.29	66.88	10.45	68.07	10.66	68.7	10.85
	25	8.06(134)	52.3	9.66	56.88	11.23	61.2	12.34	62.08	12.53	63.20	12.77	63.9	13.01
		16.12(269)	53.5	9.12	58.31	10.61	62.8	11.66	63.68	11.85	64.80	12.07	65.5	12.29
		24.18(403)	53.5	9.03	58.31	10.50	62.8	11.53	63.68	11.72	64.80	11.95	65.5	12.17
	30	8.06(134)	53.7	10.58	58.48	12.31	63.0	13.51	63.84	13.73	64.95	13.99	65.6	14.26
		16.12(269)	53.5	9.85	58.31	11.45	62.8	12.59	63.68	12.78	64.80	13.04	65.5	13.28
		24.18(403)	53.9	9.22	58.59	10.72	63.1	11.78	64.03	11.98	65.15	12.20	65.8	12.42
	35	8.06(134)	53.5	11.54	58.31	13.43	62.8	14.75	63.68	14.99	64.80	15.27	65.5	15.56
		16.12(269)	53.4	11.17	58.08	12.98	62.7	14.26	63.45	14.48	64.56	14.76	65.3	15.04
		24.18(403)	53.5	10.82	58.31	12.58	62.8	13.83	63.68	14.06	64.80	14.31	65.5	14.58

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	8.06(134)	48.0	7.23	52.29	8.40	56.3	9.23	57.11	9.39	58.10	9.56	58.7	9.74
		16.12(269)	48.5	6.87	52.71	7.98	56.9	8.77	57.62	8.92	58.59	9.09	59.2	9.25
		24.18(403)	49.3	6.71	53.54	7.79	57.8	8.56	58.51	8.70	59.58	8.87	60.1	9.03
	25	8.06(134)	45.7	8.04	49.78	9.34	53.5	10.26	54.32	10.44	55.30	10.62	55.9	10.83
		16.12(269)	46.9	7.60	51.03	8.84	55.0	9.71	55.72	9.85	56.70	10.04	57.3	10.23
		24.18(403)	46.9	7.52	51.03	8.74	55.0	9.60	55.72	9.76	56.70	9.93	57.3	10.12
	30	8.06(134)	47.1	8.80	51.17	10.23	55.1	11.24	55.86	11.43	56.84	11.64	57.5	11.86
		16.12(269)	46.9	8.20	51.03	9.53	55.0	10.47	55.72	10.64	56.70	10.85	57.3	11.04
		24.18(403)	47.1	7.68	51.26	8.93	55.3	9.80	56.02	9.96	57.00	10.15	57.6	10.34
	35	8.06(134)	46.9	9.61	51.03	11.18	55.0	12.27	55.72	12.49	56.70	12.72	57.3	12.94
		16.12(269)	46.8	9.29	50.83	10.80	54.8	11.86	55.50	12.05	56.48	12.29	57.2	12.52
		24.18(403)	46.9	9.01	51.03	10.47	55.0	11.51	55.72	11.69	56.70	11.91	57.3	12.13
60	20	8.06(134)	41.1	5.84	44.81	6.77	48.3	7.45	48.96	7.57	49.79	7.71	50.4	7.85
		16.12(269)	41.6	5.53	45.19	6.44	48.7	7.08	49.38	7.19	50.21	7.33	50.7	7.46
		24.18(403)	42.2	5.41	45.90	6.28	49.4	6.90	50.16	7.01	51.06	7.15	51.6	7.28
	25	8.06(134)	39.2	6.49	42.67	7.54	46.0	8.28	46.57	8.41	47.41	8.56	47.9	8.72
		16.12(269)	40.2	6.12	43.74	7.12	47.1	7.82	47.77	7.95	48.60	8.09	49.1	8.25
		24.18(403)	40.2	6.06	43.74	7.04	47.1	7.74	47.77	7.87	48.60	8.01	49.1	8.15
	30	8.06(134)	40.4	7.10	43.85	8.25	47.3	9.07	47.87	9.21	48.72	9.39	49.3	9.56
		16.12(269)	40.2	6.61	43.74	7.69	47.1	8.44	47.77	8.58	48.60	8.74	49.1	8.90
		24.18(403)	40.4	6.19	43.93	7.20	47.4	7.90	48.03	8.03	48.85	8.19	49.3	8.33
	35	8.06(134)	40.2	7.75	43.74	9.01	47.1	9.90	47.77	10.06	48.60	10.25	49.1	10.44
		16.12(269)	40.0	7.49	43.56	8.71	47.0	9.56	47.58	9.72	48.41	9.91	49.0	10.09
		24.18(403)	40.2	7.27	43.74	8.44	47.1	9.28	47.77	9.42	48.60	9.61	49.1	9.79
50	20	8.06(134)	34.4	4.92	37.34	5.71	40.2	6.28	40.80	6.38	41.51	6.50	41.9	6.61
		16.12(269)	34.7	4.66	37.66	5.42	40.5	5.97	41.15	6.06	41.85	6.17	42.4	6.28
		24.18(403)	35.2	4.55	38.24	5.30	41.3	5.82	41.79	5.91	42.55	6.03	43.0	6.14
	25	8.06(134)	32.7	5.46	35.55	6.35	38.3	6.98	38.80	7.09	39.51	7.23	39.9	7.36
		16.12(269)	33.4	5.16	36.44	6.00	39.3	6.60	39.81	6.69	40.50	6.82	41.0	6.95
		24.18(403)	33.4	5.11	36.44	5.93	39.3	6.52	39.81	6.63	40.50	6.76	41.0	6.88
	30	8.06(134)	33.6	5.98	36.55	6.96	39.4	7.64	39.90	7.77	40.59	7.91	41.0	8.06
		16.12(269)	33.4	5.57	36.44	6.49	39.3	7.12	39.81	7.23	40.50	7.37	41.0	7.50
		24.18(403)	33.6	5.22	36.62	6.06	39.4	6.66	40.02	6.77	40.72	6.90	41.2	7.03
	35	8.06(134)	33.4	6.53	36.44	7.60	39.3	8.34	39.81	8.49	40.50	8.64	41.0	8.80
		16.12(269)	33.4	6.31	36.31	7.34	39.1	8.07	39.65	8.20	40.34	8.36	40.8	8.50
		24.18(403)	33.4	6.12	36.44	7.12	39.3	7.82	39.81	7.95	40.50	8.10	41.0	8.25

Outdoor Unit: 30HP (AVWW-290U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)											
			16°C		18°C		19°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	20	8.64(144)	78.7	13.47	85.72	15.65	92.2	17.20	93.54	17.47	95.25	17.81	96.2	18.14
		17.28(288)	79.4	12.79	86.35	14.87	92.9	16.34	94.40	16.59	96.01	16.91	97.1	17.22
		25.92(432)	80.7	12.48	87.75	14.52	94.5	15.95	95.80	16.20	97.51	16.52	98.6	16.82
	25	8.64(144)	74.8	14.98	81.53	17.41	87.7	19.13	89.03	19.43	90.54	19.81	91.6	20.16
		17.28(288)	76.8	14.14	83.56	16.45	90.0	18.06	91.29	18.34	92.90	18.71	93.9	19.05
		25.92(432)	76.8	14.00	83.56	16.26	90.0	17.87	91.29	18.15	92.90	18.50	93.9	18.84
	30	8.64(144)	77.0	16.40	83.78	19.07	90.2	20.93	91.51	21.29	93.11	21.69	94.1	22.08
		17.28(288)	76.8	15.27	83.56	17.74	90.0	19.50	91.29	19.81	92.90	20.20	93.9	20.56
		25.92(432)	77.2	14.29	84.04	16.62	90.4	18.26	91.79	18.55	93.40	18.90	94.4	19.24
	35	8.64(144)	76.8	17.90	83.56	20.81	90.0	22.87	91.29	23.23	92.90	23.67	93.9	24.10
		17.28(288)	76.5	17.30	83.25	20.12	89.7	22.10	90.98	22.45	92.57	22.88	93.4	23.29
		25.92(432)	76.8	16.78	83.56	19.50	90.0	21.43	91.29	21.76	92.90	22.18	93.9	22.60
120	20	8.64(144)	76.9	13.31	83.81	15.47	90.1	17.00	91.47	17.27	93.15	17.60	94.1	17.91
		17.28(288)	77.7	12.64	84.45	14.69	91.0	16.15	92.32	16.40	93.89	16.71	94.9	17.01
		25.92(432)	78.9	12.33	85.82	14.34	92.4	15.75	93.69	16.01	95.35	16.31	96.5	16.62
	25	8.64(144)	73.2	14.80	79.73	17.20	85.8	18.89	87.06	19.19	88.53	19.57	89.6	19.92
		17.28(288)	75.2	13.97	81.72	16.25	88.1	17.85	89.26	18.13	90.84	18.49	91.8	18.82
		25.92(432)	75.2	13.82	81.72	16.07	88.1	17.66	89.26	17.94	90.84	18.27	91.8	18.61
	30	8.64(144)	75.4	16.21	81.94	18.83	88.1	20.69	89.48	21.02	91.05	21.42	92.0	21.81
		17.28(288)	75.2	15.09	81.72	17.54	88.1	19.28	89.26	19.58	90.84	19.96	91.8	20.31
		25.92(432)	75.5	14.12	82.18	16.42	88.4	18.03	89.77	18.32	91.34	18.68	92.3	19.02
	35	8.64(144)	75.2	17.69	81.72	20.57	88.1	22.59	89.26	22.95	90.84	23.39	91.8	23.82
		17.28(288)	74.8	17.09	81.42	19.87	87.7	21.83	88.97	22.19	90.53	22.61	91.5	23.03
		25.92(432)	75.2	16.58	81.72	19.26	88.1	21.17	89.26	21.51	90.84	21.92	91.8	22.33
110	20	8.64(144)	75.3	13.13	81.91	15.28	88.2	16.77	89.38	17.04	91.02	17.38	92.0	17.68
		17.28(288)	75.9	12.47	82.53	14.51	88.9	15.94	90.22	16.19	91.74	16.50	92.7	16.80
		25.92(432)	77.1	12.18	83.85	14.16	90.3	15.56	91.54	15.81	93.17	16.11	94.3	16.40
	25	8.64(144)	71.5	14.60	77.92	16.97	83.8	18.65	85.08	18.95	86.51	19.31	87.5	19.66
		17.28(288)	73.4	13.78	79.86	16.04	86.0	17.63	87.22	17.89	88.77	18.25	89.7	18.58
		25.92(432)	73.4	13.65	79.86	15.87	86.0	17.43	87.22	17.72	88.77	18.05	89.7	18.38
	30	8.64(144)	73.7	16.00	80.06	18.58	86.2	20.42	87.44	20.76	88.97	21.15	89.9	21.54
		17.28(288)	73.4	14.90	79.86	17.31	86.0	19.02	87.22	19.33	88.77	19.70	89.7	20.06
		25.92(432)	73.8	13.94	80.30	16.21	86.3	17.81	87.71	18.10	89.26	18.44	90.2	18.78
	35	8.64(144)	73.4	17.47	79.86	20.29	86.0	22.30	87.22	22.67	88.77	23.09	89.7	23.52
		17.28(288)	73.2	16.88	79.56	19.63	85.7	21.56	86.93	21.90	88.46	22.33	89.4	22.73
		25.92(432)	73.4	16.37	79.86	19.02	86.0	20.90	87.22	21.23	88.77	21.63	89.7	22.04

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)												
			16°C		18°C		19°C		20°C		22°C		24°C		
		m ³ /h (l/min.)		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
				kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	20	8.64(144)	73.5	12.96	80.00	15.08	86.1	16.56	87.30	16.83	88.90	17.15	89.9	17.46	
		17.28(288)	74.1	12.32	80.60	14.31	86.8	15.74	88.10	15.99	89.60	16.29	90.6	16.59	
		25.92(432)	75.3	12.03	81.90	13.98	88.2	15.36	89.40	15.60	91.00	15.90	92.0	16.20	
	25	8.64(144)	69.9	14.42	76.10	16.76	81.9	18.42	83.10	18.71	84.50	19.07	85.4	19.41	
		17.28(288)	71.7	13.62	78.00	15.83	84.0	17.40	85.20	17.67	86.70	18.02	87.6	18.35	
		25.92(432)	71.7	13.47	78.00	15.66	84.0	17.22	85.20	17.49	86.70	17.82	87.6	18.15	
	30	8.64(144)	71.9	15.80	78.20	18.36	84.1	20.17	85.40	20.49	86.90	20.88	87.8	21.27	
		17.28(288)	71.7	14.70	78.00	17.10	84.0	18.78	85.20	19.08	86.70	19.46	87.6	19.80	
		25.92(432)	72.0	13.77	78.50	16.01	84.4	17.58	85.70	17.87	87.20	18.20	88.1	18.54	
	35	8.64(144)	71.7	17.24	78.00	20.04	84.0	22.02	85.20	22.38	86.70	22.80	87.6	23.22	
		17.28(288)	71.4	16.67	77.70	19.37	83.7	21.29	84.90	21.63	86.40	22.04	87.3	22.44	
		25.92(432)	71.7	16.16	78.00	18.78	84.0	20.64	85.20	20.97	86.70	21.36	87.6	21.77	
90	20	8.64(144)	66.2	11.30	72.00	13.13	77.6	14.42	78.56	14.66	80.00	14.93	80.9	15.21	
		17.28(288)	66.8	10.73	72.55	12.47	78.1	13.70	79.29	13.92	80.65	14.18	81.5	14.45	
		25.92(432)	67.8	10.47	73.71	12.17	79.4	13.38	80.46	13.59	81.90	13.85	82.8	14.10	
	25	8.64(144)	62.9	12.56	68.49	14.60	73.7	16.04	74.79	16.29	76.04	16.61	76.8	16.91	
		17.28(288)	64.5	11.85	70.20	13.79	75.6	15.15	76.68	15.39	78.03	15.68	78.9	15.98	
		25.92(432)	64.5	11.73	70.20	13.64	75.6	14.99	76.68	15.23	78.03	15.51	78.9	15.80	
	30	8.64(144)	64.7	13.76	70.37	15.99	75.7	17.56	76.85	17.85	78.20	18.18	79.1	18.53	
		17.28(288)	64.5	12.80	70.20	14.88	75.6	16.35	76.68	16.62	78.03	16.94	78.9	17.25	
		25.92(432)	64.8	11.99	70.59	13.94	76.0	15.32	77.10	15.56	78.45	15.84	79.2	16.14	
	35	8.64(144)	64.5	15.02	70.20	17.45	75.6	19.17	76.68	19.49	78.03	19.85	78.9	20.22	
		17.28(288)	64.4	14.51	69.93	16.86	75.3	18.53	76.41	18.83	77.76	19.19	78.6	19.53	
		25.92(432)	64.5	14.07	70.20	16.35	75.6	17.97	76.68	18.26	78.03	18.60	78.9	18.95	
80	20	8.64(144)	58.8	9.63	64.00	11.19	68.9	12.30	69.83	12.50	71.12	12.74	71.9	12.98	
		17.28(288)	59.3	9.15	64.48	10.64	69.4	11.69	70.48	11.87	71.68	12.09	72.5	12.32	
		25.92(432)	60.3	8.93	65.52	10.38	70.5	11.42	71.53	11.60	72.81	11.82	73.7	12.03	
	25	8.64(144)	56.0	10.71	60.88	12.45	65.6	13.68	66.47	13.89	67.60	14.16	68.4	14.43	
		17.28(288)	57.3	10.11	62.40	11.76	67.2	12.93	68.16	13.13	69.36	13.38	70.1	13.62	
		25.92(432)	57.3	10.01	62.40	11.64	67.2	12.78	68.16	12.99	69.36	13.23	70.1	13.49	
	30	8.64(144)	57.5	11.73	62.55	13.64	67.3	14.98	68.32	15.23	69.52	15.51	70.2	15.80	
		17.28(288)	57.3	10.92	62.40	12.71	67.2	13.95	68.16	14.18	69.36	14.45	70.1	14.72	
		25.92(432)	57.6	10.23	62.74	11.88	67.5	13.07	68.53	13.28	69.73	13.52	70.5	13.77	
	35	8.64(144)	57.3	12.81	62.40	14.90	67.2	16.37	68.16	16.62	69.36	16.94	70.1	17.25	
		17.28(288)	57.2	12.38	62.16	14.39	66.9	15.81	67.93	16.07	69.11	16.37	69.8	16.67	
		25.92(432)	57.3	12.00	62.40	13.95	67.2	15.33	68.16	15.57	69.36	15.87	70.1	16.16	

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)												
			16°C		18°C		19°C		20°C		22°C		24°C		
		m³/h (l/min.)		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
				kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	20	8.64(144)	51.5	8.01	56.00	9.32	60.3	10.25	61.10	10.41	62.23	10.61	62.9	10.80	
		17.28(288)	51.9	7.62	56.43	8.85	60.7	9.72	61.67	9.89	62.72	10.07	63.5	10.26	
		25.92(432)	52.7	7.44	57.33	8.64	61.8	9.50	62.58	9.65	63.71	9.83	64.4	10.02	
	25	8.64(144)	48.9	8.91	53.27	10.37	57.3	11.39	58.16	11.57	59.14	11.79	59.9	12.00	
		17.28(288)	50.3	8.42	54.60	9.80	58.8	10.76	59.64	10.92	60.69	11.13	61.4	11.34	
		25.92(432)	50.3	8.33	54.60	9.69	58.8	10.64	59.64	10.82	60.69	11.01	61.4	11.22	
	30	8.64(144)	50.3	9.77	54.74	11.36	58.9	12.46	59.78	12.68	60.83	12.92	61.5	13.16	
		17.28(288)	50.3	9.09	54.60	10.58	58.8	11.61	59.64	11.81	60.69	12.03	61.4	12.24	
		25.92(432)	50.4	8.50	54.90	9.89	59.1	10.88	59.97	11.04	61.02	11.25	61.7	11.46	
	35	8.64(144)	50.3	10.67	54.60	12.39	58.8	13.62	59.64	13.83	60.69	14.10	61.4	14.36	
		17.28(288)	50.0	10.31	54.39	11.97	58.7	13.16	59.44	13.37	60.47	13.62	61.1	13.88	
		25.92(432)	50.3	9.99	54.60	11.61	58.8	12.77	59.64	12.96	60.69	13.20	61.4	13.46	
60	20	8.64(144)	44.1	6.47	48.00	7.52	51.6	8.25	52.38	8.39	53.33	8.55	53.9	8.70	
		17.28(288)	44.4	6.14	48.36	7.14	52.0	7.85	52.87	7.97	53.77	8.12	54.3	8.26	
		25.92(432)	45.2	6.00	49.14	6.96	53.0	7.65	53.64	7.79	54.60	7.92	55.2	8.07	
	25	8.64(144)	42.0	7.19	45.66	8.36	49.2	9.18	49.86	9.33	50.70	9.50	51.3	9.68	
		17.28(288)	43.1	6.78	46.80	7.89	50.4	8.67	51.12	8.81	52.03	8.97	52.5	9.14	
		25.92(432)	43.1	6.72	46.80	7.80	50.4	8.58	51.12	8.72	52.03	8.88	52.5	9.05	
	30	8.64(144)	43.2	7.88	46.92	9.15	50.5	10.05	51.23	10.22	52.13	10.41	52.7	10.61	
		17.28(288)	43.1	7.34	46.80	8.52	50.4	9.36	51.12	9.51	52.03	9.69	52.5	9.87	
		25.92(432)	43.2	6.86	47.05	7.98	50.7	8.76	51.40	8.91	52.30	9.08	52.8	9.24	
	35	8.64(144)	43.1	8.60	46.80	9.99	50.4	10.98	51.12	11.15	52.03	11.37	52.5	11.58	
		17.28(288)	42.9	8.31	46.62	9.66	50.3	10.61	50.94	10.77	51.84	10.98	52.4	11.19	
		25.92(432)	43.1	8.06	46.80	9.36	50.4	10.29	51.12	10.46	52.03	10.65	52.5	10.85	
50	20	8.64(144)	36.8	5.45	40.00	6.33	43.1	6.96	43.65	7.06	44.45	7.20	44.9	7.34	
		17.28(288)	37.1	5.18	40.31	6.02	43.3	6.62	44.06	6.72	44.80	6.84	45.3	6.97	
		25.92(432)	37.7	5.06	40.95	5.88	44.1	6.45	44.71	6.56	45.50	6.68	46.1	6.81	
	25	8.64(144)	35.0	6.06	38.05	7.04	41.0	7.74	41.55	7.86	42.24	8.01	42.8	8.16	
		17.28(288)	35.9	5.72	39.00	6.66	42.0	7.31	42.60	7.42	43.36	7.58	43.8	7.71	
		25.92(432)	35.9	5.66	39.00	6.59	42.0	7.23	42.60	7.35	43.36	7.49	43.8	7.62	
	30	8.64(144)	36.0	6.63	39.09	7.71	42.1	8.47	42.70	8.61	43.45	8.78	44.0	8.94	
		17.28(288)	35.9	6.18	39.00	7.19	42.0	7.89	42.60	8.02	43.36	8.18	43.8	8.32	
		25.92(432)	36.0	5.79	39.22	6.72	42.1	7.39	42.83	7.50	43.58	7.65	44.0	7.78	
	35	8.64(144)	35.9	7.25	39.00	8.42	42.0	9.26	42.60	9.41	43.36	9.58	43.8	9.77	
		17.28(288)	35.7	7.01	38.85	8.15	41.9	8.94	42.45	9.09	43.20	9.26	43.7	9.43	
		25.92(432)	35.9	6.80	39.00	7.89	42.0	8.67	42.60	8.80	43.36	8.97	43.8	9.15	

4.3.2 Heating Capacity

Outdoor Unit: 3HP (AVWW-28U(C/2)SA)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	0.9(16)	9.4	2.02	9.6	2.04	9.7	2.06	9.0	2.02	8.2	1.96
		1.8(31)	9.6	2.04	9.8	2.08	10.1	2.10	9.2	2.04	8.4	1.98
		2.6(43.4)	9.8	2.08	10.1	2.11	10.3	2.14	9.5	2.08	8.5	2.00
	20	0.9(16)	11.2	2.26	10.9	2.28	10.6	2.29	9.7	2.20	8.8	2.09
		1.8(31)	11.3	2.21	11.0	2.18	10.8	2.16	10.0	2.14	9.0	2.11
		2.6(43.4)	11.4	2.17	11.2	2.22	10.9	2.27	10.1	2.12	9.1	1.98
	25	0.9(16)	11.3	2.21	11.2	2.22	11.0	2.22	10.1	2.04	9.0	1.85
		1.8(31)	11.5	2.11	11.4	2.17	11.2	2.22	10.2	1.99	9.1	1.76
		2.6(43.4)	11.5	2.08	11.4	2.15	11.2	2.21	10.2	1.99	9.2	1.76
	30	0.9(16)	11.5	2.10	11.4	2.15	11.2	2.18	10.2	1.98	9.2	1.76
		1.8(31)	11.6	2.06	11.5	2.14	11.4	2.21	10.3	1.99	9.2	1.78
		2.6(43.4)	11.6	2.04	11.5	2.09	11.4	2.14	10.3	1.99	9.2	1.84
120	15	0.9(16)	8.9	1.91	9.1	1.93	9.2	1.95	8.5	1.91	7.7	1.85
		1.8(31)	9.1	1.93	9.3	1.97	9.5	1.99	8.7	1.93	8.0	1.87
		2.6(43.4)	9.3	1.97	9.5	2.00	9.8	2.02	9.0	1.97	8.1	1.90
	20	0.9(16)	10.6	2.14	10.3	2.16	10.0	2.17	9.2	2.08	8.3	1.98
		1.8(31)	10.7	2.09	10.5	2.07	10.2	2.04	9.4	2.02	8.5	2.00
		2.6(43.4)	10.8	2.06	10.6	2.10	10.3	2.15	9.5	2.01	8.6	1.87
	25	0.9(16)	10.7	2.09	10.6	2.10	10.5	2.10	9.5	1.93	8.5	1.75
		1.8(31)	10.9	2.00	10.8	2.06	10.6	2.10	9.7	1.89	8.6	1.67
		2.6(43.4)	10.9	1.97	10.8	2.03	10.6	2.09	9.7	1.89	8.7	1.67
	30	0.9(16)	10.9	1.99	10.8	2.03	10.6	2.07	9.7	1.87	8.7	1.67
		1.8(31)	11.0	1.95	10.9	2.02	10.8	2.09	9.8	1.89	8.7	1.68
		2.6(43.4)	11.0	1.93	10.9	1.98	10.8	2.02	9.8	1.89	8.7	1.74
110	15	0.9(16)	8.3	1.79	8.5	1.82	8.7	1.84	8.0	1.79	7.3	1.74
		1.8(31)	8.5	1.82	8.8	1.85	9.0	1.87	8.2	1.82	7.5	1.76
		2.6(43.4)	8.8	1.85	9.0	1.88	9.2	1.90	8.4	1.85	7.6	1.78
	20	0.9(16)	9.9	2.01	9.7	2.03	9.4	2.04	8.7	1.95	7.8	1.86
		1.8(31)	10.0	1.97	9.8	1.94	9.6	1.92	8.9	1.90	8.0	1.88
		2.6(43.4)	10.1	1.93	9.9	1.98	9.7	2.02	9.0	1.89	8.1	1.76
	25	0.9(16)	10.0	1.97	9.9	1.98	9.8	1.98	9.0	1.82	8.0	1.64
		1.8(31)	10.3	1.88	10.1	1.93	9.9	1.98	9.1	1.77	8.1	1.57
		2.6(43.4)	10.3	1.85	10.1	1.91	9.9	1.97	9.1	1.77	8.2	1.57
	30	0.9(16)	10.3	1.87	10.1	1.91	9.9	1.94	9.1	1.76	8.2	1.57
		1.8(31)	10.4	1.84	10.3	1.90	10.1	1.97	9.2	1.77	8.2	1.58
		2.6(43.4)	10.4	1.82	10.3	1.86	10.1	1.90	9.2	1.77	8.2	1.63

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m ³ /h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	0.9(16)	7.8	1.68	8.0	1.70	8.1	1.72	7.5	1.68	6.8	1.63
		1.8(31)	8.0	1.70	8.2	1.73	8.4	1.75	7.7	1.70	7.0	1.65
		2.6(43.4)	8.2	1.73	8.4	1.76	8.6	1.78	7.9	1.73	7.1	1.67
	20	0.9(16)	9.3	1.88	9.1	1.90	8.8	1.91	8.1	1.83	7.3	1.74
		1.8(31)	9.4	1.84	9.2	1.82	9.0	1.80	8.3	1.78	7.5	1.76
		2.6(43.4)	9.5	1.81	9.3	1.85	9.1	1.89	8.4	1.77	7.6	1.65
	25	0.9(16)	9.4	1.84	9.3	1.85	9.2	1.85	8.4	1.70	7.5	1.54
		1.8(31)	9.6	1.76	9.5	1.81	9.3	1.85	8.5	1.66	7.6	1.47
		2.6(43.4)	9.6	1.73	9.5	1.79	9.3	1.84	8.5	1.66	7.7	1.47
	30	0.9(16)	9.6	1.75	9.5	1.79	9.3	1.82	8.5	1.65	7.7	1.47
		1.8(31)	9.7	1.72	9.6	1.78	9.5	1.84	8.6	1.66	7.7	1.48
		2.6(43.4)	9.7	1.70	9.6	1.74	9.5	1.78	8.6	1.66	7.7	1.53
90	15	0.9(16)	7.0	1.51	7.2	1.53	7.3	1.55	6.8	1.51	6.1	1.47
		1.8(31)	7.2	1.53	7.4	1.56	7.6	1.58	6.9	1.53	6.3	1.49
		2.6(43.4)	7.4	1.56	7.6	1.58	7.7	1.60	7.1	1.56	6.4	1.50
	20	0.9(16)	8.4	1.69	8.2	1.71	7.9	1.72	7.3	1.65	6.6	1.57
		1.8(31)	8.5	1.66	8.3	1.64	8.1	1.62	7.5	1.60	6.8	1.58
		2.6(43.4)	8.6	1.63	8.4	1.67	8.2	1.70	7.6	1.59	6.8	1.49
	25	0.9(16)	8.5	1.66	8.4	1.67	8.3	1.67	7.6	1.53	6.8	1.39
		1.8(31)	8.6	1.58	8.6	1.63	8.4	1.67	7.7	1.49	6.8	1.32
		2.6(43.4)	8.6	1.56	8.6	1.61	8.4	1.66	7.7	1.49	6.9	1.32
	30	0.9(16)	8.6	1.58	8.6	1.61	8.4	1.64	7.7	1.49	6.9	1.32
		1.8(31)	8.7	1.55	8.6	1.60	8.6	1.66	7.7	1.49	6.9	1.33
		2.6(43.4)	8.7	1.53	8.6	1.57	8.6	1.60	7.7	1.49	6.9	1.38
80	15	0.9(16)	6.2	1.34	6.4	1.36	6.5	1.38	6.0	1.34	5.4	1.30
		1.8(31)	6.4	1.36	6.6	1.38	6.7	1.40	6.2	1.36	5.6	1.32
		2.6(43.4)	6.6	1.38	6.7	1.41	6.9	1.42	6.3	1.38	5.7	1.34
	20	0.9(16)	7.4	1.50	7.3	1.52	7.0	1.53	6.5	1.46	5.8	1.39
		1.8(31)	7.5	1.47	7.4	1.46	7.2	1.44	6.6	1.42	6.0	1.41
		2.6(43.4)	7.6	1.45	7.4	1.48	7.3	1.51	6.7	1.42	6.1	1.32
	25	0.9(16)	7.5	1.47	7.4	1.48	7.4	1.48	6.7	1.36	6.0	1.23
		1.8(31)	7.7	1.41	7.6	1.45	7.4	1.48	6.8	1.33	6.1	1.18
		2.6(43.4)	7.7	1.38	7.6	1.43	7.4	1.47	6.8	1.33	6.2	1.18
	30	0.9(16)	7.7	1.40	7.6	1.43	7.4	1.46	6.8	1.32	6.2	1.18
		1.8(31)	7.8	1.38	7.7	1.42	7.6	1.47	6.9	1.33	6.2	1.18
		2.6(43.4)	7.8	1.36	7.7	1.39	7.6	1.42	6.9	1.33	6.2	1.22

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	0.9(16)	5.5	1.18	5.6	1.19	5.7	1.20	5.3	1.18	4.8	1.14
		1.8(31)	5.6	1.19	5.7	1.21	5.9	1.23	5.4	1.19	4.9	1.16
		2.6(43.4)	5.7	1.21	5.9	1.23	6.0	1.25	5.5	1.21	5.0	1.17
	20	0.9(16)	6.5	1.32	6.4	1.33	6.2	1.34	5.7	1.28	5.1	1.22
		1.8(31)	6.6	1.29	6.4	1.27	6.3	1.26	5.8	1.25	5.3	1.23
		2.6(43.4)	6.7	1.27	6.5	1.30	6.4	1.32	5.9	1.24	5.3	1.16
	25	0.9(16)	6.6	1.29	6.5	1.30	6.4	1.30	5.9	1.19	5.3	1.08
		1.8(31)	6.7	1.23	6.7	1.27	6.5	1.30	6.0	1.16	5.3	1.03
		2.6(43.4)	6.7	1.21	6.7	1.25	6.5	1.29	6.0	1.16	5.4	1.03
	30	0.9(16)	6.7	1.23	6.7	1.25	6.5	1.27	6.0	1.16	5.4	1.03
		1.8(31)	6.8	1.20	6.7	1.25	6.7	1.29	6.0	1.16	5.4	1.04
		2.6(43.4)	6.8	1.19	6.7	1.22	6.7	1.25	6.0	1.16	5.4	1.07
60	15	0.9(16)	4.7	1.01	4.8	1.02	4.9	1.03	4.5	1.01	4.1	0.98
		1.8(31)	4.8	1.02	4.9	1.04	5.0	1.05	4.6	1.02	4.2	0.99
		2.6(43.4)	4.9	1.04	5.0	1.06	5.2	1.07	4.7	1.04	4.3	1.00
	20	0.9(16)	5.6	1.13	5.5	1.14	5.3	1.15	4.9	1.10	4.4	1.04
		1.8(31)	5.6	1.10	5.5	1.09	5.4	1.08	5.0	1.07	4.5	1.06
		2.6(43.4)	5.7	1.09	5.6	1.11	5.5	1.13	5.0	1.06	4.6	0.99
	25	0.9(16)	5.6	1.10	5.6	1.11	5.5	1.11	5.0	1.02	4.5	0.92
		1.8(31)	5.8	1.06	5.7	1.09	5.6	1.11	5.1	1.00	4.6	0.88
		2.6(43.4)	5.8	1.04	5.7	1.07	5.6	1.10	5.1	1.00	4.6	0.88
	30	0.9(16)	5.8	1.05	5.7	1.07	5.6	1.09	5.1	0.99	4.6	0.88
		1.8(31)	5.8	1.03	5.8	1.07	5.7	1.10	5.2	1.00	4.6	0.89
		2.6(43.4)	5.8	1.02	5.8	1.04	5.7	1.07	5.2	1.00	4.6	0.92
50	15	0.9(16)	3.9	0.84	4.0	0.85	4.1	0.86	3.8	0.84	3.4	0.82
		1.8(31)	4.0	0.85	4.1	0.87	4.2	0.88	3.9	0.85	3.5	0.83
		2.6(43.4)	4.1	0.87	4.2	0.88	4.3	0.89	4.0	0.87	3.6	0.84
	20	0.9(16)	4.7	0.94	4.6	0.95	4.4	0.96	4.1	0.92	3.7	0.87
		1.8(31)	4.7	0.92	4.6	0.91	4.5	0.90	4.2	0.89	3.8	0.88
		2.6(43.4)	4.8	0.91	4.7	0.93	4.6	0.95	4.2	0.89	3.8	0.83
	25	0.9(16)	4.7	0.92	4.7	0.93	4.6	0.93	4.2	0.85	3.8	0.77
		1.8(31)	4.8	0.88	4.8	0.91	4.7	0.93	4.3	0.83	3.8	0.74
		2.6(43.4)	4.8	0.87	4.8	0.90	4.7	0.92	4.3	0.83	3.9	0.74
	30	0.9(16)	4.8	0.88	4.8	0.90	4.7	0.91	4.3	0.83	3.9	0.74
		1.8(31)	4.9	0.86	4.8	0.89	4.8	0.92	4.3	0.83	3.9	0.74
		2.6(43.4)	4.9	0.85	4.8	0.87	4.8	0.89	4.3	0.83	3.9	0.77

Outdoor Unit: 4HP (AVWW-38U(C/2)SA)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	1.14(19)	12.4	2.40	12.2	2.38	12.0	2.36	11.0	2.35	10.1	2.33
		2.28(38)	12.7	2.44	12.5	2.43	12.3	2.41	11.3	2.39	10.4	2.36
		3.29(55)	12.9	2.48	12.8	2.47	12.6	2.44	11.6	2.44	10.7	2.43
	20	1.14(19)	13.6	2.65	13.2	2.67	12.9	2.69	11.9	2.57	10.8	2.45
		2.28(38)	13.9	2.59	13.5	2.57	13.2	2.54	12.1	2.51	10.9	2.49
		3.29(55)	13.9	2.55	13.6	2.61	13.4	2.67	12.3	2.50	11.1	2.33
	25	1.14(19)	13.9	2.59	13.6	2.60	13.5	2.61	12.3	2.39	11.0	2.17
		2.28(38)	14.1	2.49	13.9	2.55	13.6	2.61	12.4	2.35	11.2	2.07
		3.29(55)	14.2	2.44	14.0	2.52	13.8	2.59	12.5	2.34	11.3	2.07
	30	1.14(19)	14.2	2.47	13.9	2.52	13.6	2.57	12.5	2.33	11.3	2.07
		2.28(38)	14.3	2.42	14.1	2.51	14.0	2.59	12.6	2.34	11.3	2.08
		3.29(55)	14.3	2.40	14.2	2.45	14.0	2.51	12.7	2.34	11.3	2.16
120	15	1.14(19)	12.2	2.36	12.0	2.34	11.8	2.32	10.8	2.31	9.9	2.29
		2.28(38)	12.5	2.40	12.3	2.39	12.1	2.37	11.1	2.35	10.2	2.32
		3.29(55)	12.7	2.43	12.6	2.42	12.4	2.40	11.4	2.40	10.5	2.39
	20	1.14(19)	13.4	2.60	13.0	2.62	12.7	2.64	11.7	2.53	10.6	2.41
		2.28(38)	13.6	2.55	13.3	2.53	13.0	2.50	11.9	2.47	10.7	2.44
		3.29(55)	13.6	2.51	13.4	2.57	13.2	2.62	12.1	2.45	10.9	2.29
	25	1.14(19)	13.6	2.55	13.4	2.56	13.3	2.57	12.1	2.35	10.8	2.13
		2.28(38)	13.8	2.44	13.6	2.51	13.4	2.57	12.2	2.31	11.0	2.04
		3.29(55)	13.9	2.40	13.7	2.48	13.5	2.55	12.3	2.30	11.1	2.04
	30	1.14(19)	13.9	2.42	13.6	2.48	13.4	2.53	12.3	2.29	11.1	2.04
		2.28(38)	14.0	2.38	13.8	2.47	13.7	2.55	12.4	2.30	11.1	2.05
		3.29(55)	14.0	2.36	13.9	2.41	13.7	2.47	12.5	2.30	11.1	2.12
110	15	1.14(19)	11.9	2.31	11.7	2.29	11.5	2.27	10.6	2.26	9.7	2.24
		2.28(38)	12.2	2.35	12.0	2.34	11.8	2.32	10.9	2.30	10.0	2.27
		3.29(55)	12.4	2.38	12.3	2.37	12.1	2.35	11.2	2.35	10.3	2.34
	20	1.14(19)	13.1	2.54	12.7	2.56	12.4	2.59	11.4	2.47	10.4	2.36
		2.28(38)	13.3	2.49	13.0	2.47	12.7	2.44	11.6	2.41	10.5	2.39
		3.29(55)	13.3	2.45	13.1	2.51	12.9	2.56	11.8	2.40	10.7	2.24
	25	1.14(19)	13.3	2.49	13.1	2.50	13.0	2.51	11.8	2.30	10.6	2.09
		2.28(38)	13.5	2.39	13.3	2.45	13.1	2.51	11.9	2.26	10.8	1.99
		3.29(55)	13.6	2.35	13.4	2.42	13.2	2.49	12.0	2.25	10.9	1.99
	30	1.14(19)	13.6	2.37	13.3	2.42	13.1	2.47	12.0	2.24	10.9	1.99
		2.28(38)	13.7	2.33	13.5	2.41	13.4	2.49	12.1	2.25	10.9	2.01
		3.29(55)	13.7	2.31	13.6	2.36	13.4	2.41	12.2	2.25	10.9	2.08

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	1.14(19)	11.7	2.27	11.5	2.25	11.3	2.23	10.4	2.22	9.5	2.20
		2.28(38)	12.0	2.31	11.8	2.30	11.6	2.28	10.7	2.26	9.8	2.23
		3.29(55)	12.2	2.34	12.1	2.33	11.9	2.31	11.0	2.31	10.1	2.30
	20	1.14(19)	12.9	2.50	12.5	2.52	12.2	2.54	11.2	2.43	10.2	2.32
		2.28(38)	13.1	2.45	12.8	2.43	12.5	2.40	11.4	2.37	10.3	2.35
		3.29(55)	13.1	2.41	12.9	2.47	12.7	2.52	11.6	2.36	10.5	2.20
	25	1.14(19)	13.1	2.45	12.9	2.46	12.8	2.47	11.6	2.26	10.4	2.05
		2.28(38)	13.3	2.35	13.1	2.41	12.9	2.47	11.7	2.22	10.6	1.96
		3.29(55)	13.4	2.31	13.2	2.38	13.0	2.45	11.8	2.21	10.7	1.96
	30	1.14(19)	13.4	2.33	13.1	2.38	12.9	2.43	11.8	2.20	10.7	1.96
		2.28(38)	13.5	2.29	13.3	2.37	13.2	2.45	11.9	2.21	10.7	1.97
		3.29(55)	13.5	2.27	13.4	2.32	13.2	2.37	12.0	2.21	10.7	2.04
90	15	1.14(19)	10.6	2.05	10.4	2.03	10.2	2.01	9.4	2.00	8.6	1.98
		2.28(38)	10.8	2.08	10.6	2.07	10.5	2.06	9.6	2.04	8.8	2.01
		3.29(55)	11.0	2.11	10.9	2.10	10.7	2.08	9.9	2.08	9.1	2.07
	20	1.14(19)	11.6	2.25	11.3	2.27	11.0	2.29	10.1	2.19	9.2	2.09
		2.28(38)	11.8	2.21	11.5	2.19	11.3	2.16	10.3	2.14	9.3	2.12
		3.29(55)	11.8	2.17	11.6	2.23	11.5	2.27	10.5	2.13	9.5	1.98
	25	1.14(19)	11.8	2.21	11.6	2.22	11.5	2.23	10.5	2.04	9.4	1.85
		2.28(38)	12.0	2.12	11.8	2.17	11.6	2.23	10.6	2.00	9.6	1.77
		3.29(55)	12.1	2.08	11.9	2.15	11.7	2.21	10.6	1.99	9.6	1.77
	30	1.14(19)	12.1	2.10	11.8	2.15	11.6	2.19	10.6	1.98	9.6	1.77
		2.28(38)	12.2	2.07	12.0	2.14	11.9	2.21	10.7	1.99	9.6	1.78
		3.29(55)	12.2	2.05	12.1	2.09	11.9	2.14	10.8	1.99	9.6	1.84
80	15	1.14(19)	9.4	1.82	9.2	1.80	9.0	1.78	8.3	1.78	7.6	1.76
		2.28(38)	9.6	1.85	9.4	1.84	9.3	1.82	8.6	1.81	7.8	1.78
		3.29(55)	9.8	1.87	9.7	1.86	9.5	1.85	8.8	1.85	8.1	1.84
	20	1.14(19)	10.3	2.00	10.0	2.02	9.8	2.03	9.0	1.94	8.2	1.86
		2.28(38)	10.5	1.96	10.2	1.94	10.0	1.92	9.1	1.90	8.2	1.88
		3.29(55)	10.5	1.93	10.3	1.98	10.2	2.02	9.3	1.89	8.4	1.76
	25	1.14(19)	10.5	1.96	10.3	1.97	10.2	1.98	9.3	1.81	8.3	1.64
		2.28(38)	10.6	1.88	10.5	1.93	10.3	1.98	9.4	1.78	8.5	1.57
		3.29(55)	10.7	1.85	10.6	1.90	10.4	1.96	9.4	1.77	8.6	1.57
	30	1.14(19)	10.7	1.86	10.5	1.90	10.3	1.94	9.4	1.76	8.6	1.57
		2.28(38)	10.8	1.83	10.6	1.90	10.6	1.96	9.5	1.77	8.6	1.58
		3.29(55)	10.8	1.82	10.7	1.86	10.6	1.90	9.6	1.77	8.6	1.63

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	1.14(19)	8.2	1.59	8.1	1.58	7.9	1.56	7.3	1.55	6.7	1.54
		2.28(38)	8.4	1.62	8.3	1.61	8.1	1.60	7.5	1.58	6.9	1.56
		3.29(55)	8.5	1.64	8.5	1.63	8.3	1.62	7.7	1.62	7.1	1.61
	20	1.14(19)	9.0	1.75	8.8	1.76	8.5	1.78	7.8	1.70	7.1	1.62
		2.28(38)	9.2	1.72	9.0	1.70	8.8	1.68	8.0	1.66	7.2	1.65
		3.29(55)	9.2	1.69	9.0	1.73	8.9	1.76	8.1	1.65	7.4	1.54
	25	1.14(19)	9.2	1.72	9.0	1.72	9.0	1.73	8.1	1.58	7.3	1.44
		2.28(38)	9.3	1.65	9.2	1.69	9.0	1.73	8.2	1.55	7.4	1.37
		3.29(55)	9.4	1.62	9.2	1.67	9.1	1.72	8.3	1.55	7.5	1.37
	30	1.14(19)	9.4	1.63	9.2	1.67	9.0	1.70	8.3	1.54	7.5	1.37
		2.28(38)	9.5	1.60	9.3	1.66	9.2	1.72	8.3	1.55	7.5	1.38
		3.29(55)	9.5	1.59	9.4	1.62	9.2	1.66	8.4	1.55	7.5	1.43
60	15	1.14(19)	7.0	1.36	6.9	1.35	6.8	1.33	6.2	1.33	5.7	1.32
		2.28(38)	7.2	1.38	7.1	1.38	6.9	1.36	6.4	1.35	5.9	1.33
		3.29(55)	7.3	1.40	7.2	1.39	7.1	1.38	6.6	1.38	6.0	1.38
	20	1.14(19)	7.7	1.50	7.5	1.51	7.3	1.52	6.7	1.45	6.1	1.39
		2.28(38)	7.8	1.47	7.7	1.45	7.5	1.44	6.8	1.42	6.2	1.41
		3.29(55)	7.8	1.44	7.7	1.48	7.6	1.51	6.9	1.41	6.3	1.32
	25	1.14(19)	7.8	1.47	7.7	1.47	7.7	1.48	6.9	1.35	6.2	1.23
		2.28(38)	8.0	1.41	7.8	1.44	7.7	1.48	7.0	1.33	6.3	1.17
		3.29(55)	8.0	1.38	7.9	1.42	7.8	1.47	7.1	1.32	6.4	1.17
	30	1.14(19)	8.0	1.39	7.8	1.42	7.7	1.45	7.1	1.32	6.4	1.17
		2.28(38)	8.1	1.37	8.0	1.42	7.9	1.47	7.1	1.32	6.4	1.18
		3.29(55)	8.1	1.36	8.0	1.39	7.9	1.42	7.2	1.32	6.4	1.22
50	15	1.14(19)	5.9	1.14	5.8	1.13	5.7	1.12	5.2	1.11	4.8	1.10
		2.28(38)	6.0	1.16	5.9	1.15	5.8	1.14	5.4	1.13	4.9	1.12
		3.29(55)	6.1	1.17	6.1	1.17	6.0	1.16	5.5	1.16	5.1	1.15
	20	1.14(19)	6.5	1.25	6.3	1.26	6.1	1.27	5.6	1.22	5.1	1.16
		2.28(38)	6.6	1.23	6.4	1.22	6.3	1.20	5.7	1.19	5.2	1.18
		3.29(55)	6.6	1.21	6.5	1.24	6.4	1.26	5.8	1.18	5.3	1.10
	25	1.14(19)	6.6	1.23	6.5	1.23	6.4	1.24	5.8	1.13	5.2	1.03
		2.28(38)	6.7	1.18	6.6	1.21	6.5	1.24	5.9	1.11	5.3	0.98
		3.29(55)	6.7	1.16	6.6	1.19	6.5	1.23	5.9	1.11	5.4	0.98
	30	1.14(19)	6.7	1.17	6.6	1.19	6.5	1.22	5.9	1.10	5.4	0.98
		2.28(38)	6.8	1.15	6.7	1.19	6.6	1.23	6.0	1.11	5.4	0.99
		3.29(55)	6.8	1.14	6.7	1.16	6.6	1.19	6.0	1.11	5.4	1.02

Outdoor Unit: 5HP (AVWW-48U(C/2)SA)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		Q	P	Q	P	Q	P	Q	P	Q	P	
		m ³ /h (l/min.)	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	1.44(24)	16.3	3.10	16.1	3.12	15.9	3.13	14.6	3.08	13.2	3.03
		2.88(48)	16.6	3.13	16.4	3.15	16.1	3.17	14.9	3.12	13.8	3.07
		4.32(72)	17.1	3.15	16.8	3.22	16.4	3.28	15.2	3.20	14.1	3.10
	20	1.44(24)	17.5	3.46	17.0	3.49	16.5	3.52	15.1	3.36	13.8	3.21
		2.88(48)	17.7	3.40	17.4	3.35	16.9	3.32	15.4	3.29	14.0	3.25
		4.32(72)	17.8	3.33	17.5	3.42	17.2	3.49	15.8	3.27	14.3	3.04
	25	1.44(24)	17.8	3.40	17.6	3.41	17.2	3.42	15.7	3.13	14.1	2.85
		2.88(48)	18.0	3.25	17.8	3.33	17.5	3.42	15.9	3.07	14.4	2.72
		4.32(72)	18.1	3.20	17.9	3.29	17.6	3.40	16.0	3.06	14.4	2.72
	30	1.44(25)	18.1	3.23	17.8	3.29	17.5	3.36	16.0	3.04	14.4	2.72
		2.88(49)	18.3	3.16	18.1	3.28	17.9	3.40	16.2	3.06	14.5	2.73
		4.32(73)	18.3	3.14	18.1	3.21	17.9	3.28	16.2	3.06	14.5	2.82
120	15	1.44(24)	16.0	3.05	15.8	3.07	15.6	3.08	14.4	3.03	13.0	2.97
		2.88(48)	16.3	3.08	16.1	3.10	15.8	3.12	14.7	3.07	13.5	3.02
		4.32(72)	16.9	3.10	16.5	3.16	16.1	3.22	15.0	3.14	13.8	3.05
	20	1.44(26)	17.2	3.40	16.7	3.43	16.2	3.46	14.9	3.31	13.5	3.15
		2.88(50)	17.4	3.34	17.1	3.30	16.6	3.27	15.2	3.24	13.7	3.19
		4.32(74)	17.5	3.28	17.2	3.36	17.0	3.43	15.5	3.21	14.0	2.99
	25	1.44(26)	17.5	3.34	17.3	3.35	17.0	3.36	15.4	3.08	13.8	2.80
		2.88(50)	17.7	3.19	17.5	3.28	17.2	3.36	15.6	3.02	14.1	2.67
		4.32(74)	17.8	3.14	17.6	3.24	17.3	3.34	15.7	3.01	14.1	2.67
	30	1.44(27)	17.8	3.17	17.5	3.24	17.2	3.31	15.7	2.99	14.1	2.67
		2.88(51)	18.0	3.11	17.8	3.22	17.6	3.34	15.9	3.01	14.3	2.68
		4.32(75)	18.0	3.09	17.8	3.15	17.6	3.22	15.9	3.01	14.3	2.78
110	15	1.44(24)	15.7	2.98	15.5	3.00	15.3	3.01	14.0	2.96	12.7	2.91
		2.88(48)	16.0	3.01	15.8	3.03	15.5	3.05	14.4	3.00	13.2	2.95
		4.32(72)	16.5	3.03	16.2	3.09	15.8	3.16	14.7	3.07	13.5	2.98
	20	1.44(28)	16.8	3.33	16.4	3.36	15.9	3.39	14.6	3.24	13.2	3.08
		2.88(52)	17.0	3.27	16.7	3.23	16.3	3.20	14.9	3.17	13.4	3.12
		4.32(76)	17.1	3.21	16.8	3.29	16.6	3.36	15.2	3.15	13.7	2.92
	25	1.44(28)	17.1	3.27	16.9	3.28	16.6	3.29	15.1	3.01	13.5	2.74
		2.88(52)	17.3	3.12	17.1	3.21	16.8	3.29	15.3	2.95	13.8	2.62
		4.32(76)	17.4	3.07	17.2	3.17	16.9	3.27	15.4	2.94	13.8	2.62
	30	1.44(29)	17.4	3.10	17.1	3.17	16.8	3.24	15.4	2.92	13.8	2.62
		2.88(53)	17.6	3.04	17.4	3.16	17.2	3.27	15.6	2.94	13.9	2.63
		4.32(77)	17.6	3.02	17.4	3.08	17.2	3.16	15.6	2.94	13.9	2.72

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	1.44(24)	15.4	2.93	15.2	2.95	15.0	2.96	13.8	2.91	12.5	2.86
		2.88(48)	15.7	2.96	15.5	2.98	15.2	3.00	14.1	2.95	13.0	2.90
		4.32(72)	16.2	2.98	15.9	3.04	15.5	3.10	14.4	3.02	13.3	2.93
	20	1.44(30)	16.5	3.27	16.1	3.30	15.6	3.33	14.3	3.18	13.0	3.03
		2.88(54)	16.7	3.21	16.4	3.17	16.0	3.14	14.6	3.11	13.2	3.07
		4.32(78)	16.8	3.15	16.5	3.23	16.3	3.30	14.9	3.09	13.5	2.87
	25	1.44(30)	16.8	3.21	16.6	3.22	16.3	3.23	14.8	2.96	13.3	2.69
		2.88(54)	17.0	3.07	16.8	3.15	16.5	3.23	15.0	2.90	13.6	2.57
		4.32(78)	17.1	3.02	16.9	3.11	16.6	3.21	15.1	2.89	13.6	2.57
	30	1.44(31)	17.1	3.05	16.8	3.11	16.5	3.18	15.1	2.87	13.6	2.57
		2.88(55)	17.3	2.99	17.1	3.10	16.9	3.21	15.3	2.89	13.7	2.58
		4.32(79)	17.3	2.97	17.1	3.03	16.9	3.10	15.3	2.89	13.7	2.67
90	15	1.44(24)	13.9	2.64	13.7	2.66	13.5	2.67	12.4	2.62	11.3	2.58
		2.88(48)	14.2	2.67	14.0	2.69	13.7	2.71	12.7	2.66	11.7	2.62
		4.32(72)	14.6	2.69	14.3	2.74	14.0	2.80	13.0	2.72	12.0	2.64
	20	1.44(32)	14.9	2.95	14.5	2.98	14.1	3.00	12.9	2.87	11.7	2.73
		2.88(56)	15.1	2.89	14.8	2.86	14.4	2.83	13.2	2.80	11.9	2.77
		4.32(80)	15.2	2.84	14.9	2.91	14.7	2.98	13.4	2.79	12.2	2.59
	25	1.44(32)	15.2	2.89	15.0	2.90	14.7	2.91	13.3	2.67	12.0	2.43
		2.88(56)	15.3	2.77	15.2	2.84	14.9	2.91	13.5	2.62	12.3	2.32
		4.32(80)	15.4	2.72	15.2	2.80	15.0	2.89	13.6	2.61	12.3	2.32
	30	1.44(33)	15.4	2.75	15.2	2.80	14.9	2.87	13.6	2.59	12.3	2.32
		2.88(57)	15.6	2.70	15.4	2.80	15.2	2.89	13.8	2.61	12.4	2.33
		4.32(81)	15.6	2.68	15.4	2.73	15.2	2.80	13.8	2.61	12.4	2.41
80	15	1.44(24)	12.3	2.34	12.2	2.36	12.0	2.37	11.0	2.33	10.0	2.29
		2.88(48)	12.6	2.37	12.4	2.38	12.2	2.40	11.3	2.36	10.4	2.32
		4.32(72)	13.0	2.38	12.7	2.43	12.4	2.48	11.5	2.42	10.6	2.34
	20	1.44(34)	13.2	2.62	12.9	2.64	12.5	2.66	11.4	2.54	10.4	2.42
		2.88(58)	13.4	2.57	13.1	2.54	12.8	2.51	11.7	2.49	10.6	2.46
		4.32(82)	13.4	2.52	13.2	2.58	13.0	2.64	11.9	2.47	10.8	2.30
	25	1.44(34)	13.4	2.57	13.3	2.58	13.0	2.58	11.8	2.37	10.6	2.15
		2.88(58)	13.6	2.46	13.4	2.52	13.2	2.58	12.0	2.32	10.9	2.06
		4.32(82)	13.7	2.42	13.5	2.49	13.3	2.57	12.1	2.31	10.9	2.06
	30	1.44(35)	13.7	2.44	13.4	2.49	13.2	2.54	12.1	2.30	10.9	2.06
		2.88(59)	13.8	2.39	13.7	2.48	13.5	2.57	12.2	2.31	11.0	2.06
		4.32(83)	13.8	2.38	13.7	2.42	13.5	2.48	12.2	2.31	11.0	2.14

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	1.44(24)	10.8	2.05	10.6	2.07	10.5	2.07	9.7	2.04	8.8	2.00
		2.88(48)	11.0	2.07	10.9	2.09	10.6	2.10	9.9	2.07	9.1	2.03
		4.32(72)	11.3	2.09	11.1	2.13	10.9	2.17	10.1	2.11	9.3	2.05
	20	1.44(36)	11.6	2.29	11.3	2.31	10.9	2.33	10.0	2.23	9.1	2.12
		2.88(60)	11.7	2.25	11.5	2.22	11.2	2.20	10.2	2.18	9.2	2.15
		4.32(84)	11.8	2.21	11.6	2.26	11.4	2.31	10.4	2.16	9.5	2.01
	25	1.44(36)	11.8	2.25	11.6	2.25	11.4	2.26	10.4	2.07	9.3	1.88
		2.88(60)	11.9	2.15	11.8	2.21	11.6	2.26	10.5	2.03	9.5	1.80
		4.32(84)	12.0	2.11	11.8	2.18	11.6	2.25	10.6	2.02	9.5	1.80
	30	1.44(37)	12.0	2.14	11.8	2.18	11.6	2.23	10.6	2.01	9.5	1.80
		2.88(61)	12.1	2.09	12.0	2.17	11.8	2.25	10.7	2.02	9.6	1.81
		4.32(85)	12.1	2.08	12.0	2.12	11.8	2.17	10.7	2.02	9.6	1.87
60	15	1.44(24)	9.2	1.75	9.1	1.76	9.0	1.77	8.3	1.74	7.5	1.71
		2.88(48)	9.4	1.77	9.3	1.78	9.1	1.79	8.4	1.76	7.8	1.73
		4.32(72)	9.7	1.78	9.5	1.82	9.3	1.85	8.6	1.81	8.0	1.75
	20	1.44(38)	9.9	1.96	9.6	1.97	9.3	1.99	8.6	1.90	7.8	1.81
		2.88(62)	10.0	1.92	9.8	1.90	9.6	1.88	8.7	1.86	7.9	1.84
		4.32(86)	10.0	1.88	9.9	1.93	9.8	1.97	8.9	1.85	8.1	1.72
	25	1.44(38)	10.0	1.92	9.9	1.93	9.8	1.93	8.9	1.77	8.0	1.61
		2.88(62)	10.2	1.84	10.0	1.88	9.9	1.93	9.0	1.73	8.1	1.54
		4.32(86)	10.2	1.81	10.1	1.86	9.9	1.92	9.0	1.73	8.1	1.54
	30	1.44(39)	10.2	1.82	10.0	1.86	9.9	1.90	9.0	1.72	8.1	1.54
		2.88(63)	10.3	1.79	10.2	1.85	10.1	1.92	9.2	1.73	8.2	1.54
		4.32(87)	10.3	1.78	10.2	1.81	10.1	1.85	9.2	1.73	8.2	1.60
50	15	1.44(24)	7.7	1.47	7.6	1.48	7.5	1.48	6.9	1.46	6.3	1.43
		2.88(48)	7.9	1.48	7.8	1.49	7.6	1.50	7.1	1.48	6.5	1.45
		4.32(72)	8.1	1.49	8.0	1.52	7.8	1.55	7.2	1.51	6.7	1.47
	20	1.44(40)	8.3	1.64	8.1	1.65	7.8	1.67	7.2	1.59	6.5	1.52
		2.88(64)	8.4	1.61	8.2	1.59	8.0	1.57	7.3	1.56	6.6	1.54
		4.32(88)	8.4	1.58	8.3	1.62	8.2	1.65	7.5	1.55	6.8	1.44
	25	1.44(40)	8.4	1.61	8.3	1.61	8.2	1.62	7.4	1.48	6.7	1.35
		2.88(64)	8.5	1.54	8.4	1.58	8.3	1.62	7.5	1.45	6.8	1.29
		4.32(88)	8.6	1.51	8.5	1.56	8.3	1.61	7.6	1.45	6.8	1.29
	30	1.44(41)	8.6	1.53	8.4	1.56	8.3	1.59	7.6	1.44	6.8	1.29
		2.88(65)	8.7	1.50	8.6	1.55	8.5	1.61	7.7	1.45	6.9	1.29
		4.32(89)	8.7	1.49	8.6	1.52	8.5	1.55	7.7	1.45	6.9	1.34

Outdoor Unit: 6HP (AVWW-54U(C/2)SA)

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	1.59(26.5)	17.8	3.60	17.5	3.54	17.1	3.49	16.0	3.38	14.8	3.26
		3.18(53)	18.0	3.76	17.8	3.71	17.5	3.67	16.3	3.53	15.1	3.40
		4.77(79.5)	18.3	3.91	18.2	3.87	18.0	3.83	16.9	3.72	15.8	3.62
	20	1.59(26.5)	19.6	3.97	19.2	4.00	18.6	4.03	17.0	3.86	15.6	3.21
		3.18(53)	19.9	3.89	19.5	3.85	19.0	3.81	17.5	3.77	15.8	3.25
		4.77(79.5)	20.0	3.83	19.7	3.91	19.4	4.00	17.7	3.75	16.1	3.04
	25	1.59(26.5)	20.0	3.89	19.7	3.90	19.5	3.93	17.7	3.59	15.9	2.85
		3.18(53)	20.3	3.72	20.0	3.83	19.6	3.93	17.9	3.51	16.2	2.72
		4.77(79.5)	20.4	3.66	20.1	3.78	19.8	3.89	18.0	3.50	16.3	2.72
	30	1.59(26.5)	20.4	3.69	20.0	3.78	19.6	3.86	17.9	3.48	16.3	2.72
		3.18(53)	20.6	3.63	20.3	3.76	20.1	3.89	18.2	3.51	16.3	2.73
		4.77(79.5)	20.5	3.60	20.3	3.68	20.1	3.76	18.2	3.50	16.3	2.82
120	15	1.59(26.5)	17.5	3.54	17.2	3.48	16.9	3.43	15.7	3.32	14.6	3.20
		3.18(53)	17.7	3.69	17.5	3.65	17.2	3.61	16.0	3.47	14.9	3.34
		4.77(79.5)	18.0	3.85	17.9	3.81	17.7	3.77	16.6	3.66	15.5	3.56
	20	1.59(26.5)	19.2	3.90	18.8	3.93	18.3	3.96	16.7	3.80	15.3	3.15
		3.18(53)	19.6	3.83	19.1	3.79	18.7	3.74	17.2	3.70	15.5	3.19
		4.77(79.5)	19.7	3.77	19.3	3.85	19.0	3.93	17.4	3.68	15.8	2.99
	25	1.59(26.5)	19.7	3.83	19.3	3.84	19.1	3.86	17.4	3.53	15.6	2.80
		3.18(53)	20.0	3.66	19.7	3.77	19.2	3.86	17.6	3.45	15.9	2.67
		4.77(79.5)	20.1	3.60	19.8	3.71	19.5	3.83	17.7	3.44	16.0	2.67
	30	1.59(26.5)	20.1	3.63	19.7	3.71	19.2	3.80	17.6	3.42	16.0	2.67
		3.18(53)	20.3	3.57	20.0	3.69	19.8	3.83	17.9	3.45	16.0	2.68
		4.77(79.5)	20.2	3.54	20.0	3.62	19.8	3.69	17.9	3.44	16.0	2.78
110	15	1.59(26.5)	17.1	3.46	16.8	3.41	16.5	3.36	15.4	3.25	14.2	3.13
		3.18(53)	17.3	3.61	17.1	3.57	16.8	3.53	15.7	3.40	14.6	3.27
		4.77(79.5)	17.6	3.77	17.5	3.73	17.3	3.68	16.3	3.58	15.2	3.48
	20	1.59(26.5)	18.8	3.82	18.4	3.85	17.9	3.88	16.4	3.72	15.0	3.08
		3.18(53)	19.1	3.75	18.7	3.70	18.3	3.66	16.8	3.62	15.2	3.12
		4.77(79.5)	19.2	3.68	18.9	3.77	18.6	3.85	17.0	3.60	15.5	2.92
	25	1.59(26.5)	19.2	3.75	18.9	3.76	18.7	3.78	17.0	3.45	15.3	2.74
		3.18(53)	19.5	3.58	19.2	3.68	18.8	3.78	17.2	3.38	15.6	2.62
		4.77(79.5)	19.6	3.52	19.3	3.63	19.0	3.75	17.3	3.37	15.7	2.62
	30	1.59(26.5)	19.6	3.55	19.2	3.63	18.8	3.72	17.2	3.35	15.7	2.62
		3.18(53)	19.8	3.49	19.5	3.61	19.3	3.75	17.5	3.38	15.7	2.63
		4.77(79.5)	19.7	3.46	19.5	3.54	19.3	3.61	17.5	3.37	15.7	2.72

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	1.59(26.5)	16.8	3.40	16.5	3.35	16.2	3.30	15.1	3.19	14.0	3.08
		3.18(53)	17.0	3.55	16.8	3.51	16.5	3.47	15.4	3.34	14.3	3.21
		4.77(79.5)	17.3	3.70	17.2	3.66	17.0	3.62	16.0	3.52	14.9	3.42
	20	1.59(26.5)	18.5	3.75	18.1	3.78	17.6	3.81	16.1	3.65	14.7	3.03
		3.18(53)	18.8	3.68	18.4	3.64	18.0	3.60	16.5	3.56	14.9	3.07
		4.77(79.5)	18.9	3.62	18.6	3.70	18.3	3.78	16.7	3.54	15.2	2.87
	25	1.59(26.5)	18.9	3.68	18.6	3.69	18.4	3.71	16.7	3.39	15.0	2.69
		3.18(53)	19.2	3.52	18.9	3.62	18.5	3.71	16.9	3.32	15.3	2.57
		4.77(79.5)	19.3	3.46	19.0	3.57	18.7	3.68	17.0	3.31	15.4	2.57
	30	1.59(26.5)	19.3	3.49	18.9	3.57	18.5	3.65	16.9	3.29	15.4	2.57
		3.18(53)	19.5	3.43	19.2	3.55	19.0	3.68	17.2	3.32	15.4	2.58
		4.77(79.5)	19.4	3.40	19.2	3.48	19.0	3.55	17.2	3.31	15.4	2.67
90	15	1.59(26.5)	15.2	3.07	14.9	3.02	14.6	2.98	13.6	2.88	12.6	2.78
		3.18(53)	15.3	3.20	15.2	3.17	14.9	3.13	13.9	3.01	12.9	2.89
		4.77(79.5)	15.6	3.34	15.5	3.30	15.3	3.26	14.4	3.17	13.4	3.08
	20	1.59(26.5)	16.7	3.38	16.3	3.41	15.9	3.44	14.5	3.29	13.3	2.73
		3.18(53)	17.0	3.32	16.6	3.28	16.2	3.25	14.9	3.21	13.4	2.77
		4.77(79.5)	17.0	3.26	16.8	3.34	16.5	3.41	15.1	3.19	13.7	2.59
	25	1.59(26.5)	17.0	3.32	16.8	3.33	16.6	3.35	15.1	3.06	13.5	2.43
		3.18(53)	17.3	3.17	17.0	3.26	16.7	3.35	15.2	2.99	13.8	2.32
		4.77(79.5)	17.4	3.12	17.1	3.22	16.9	3.32	15.3	2.98	13.9	2.32
	30	1.59(26.5)	17.4	3.15	17.0	3.22	16.7	3.29	15.2	2.97	13.9	2.32
		3.18(53)	17.6	3.09	17.3	3.20	17.1	3.32	15.5	2.99	13.9	2.33
		4.77(79.5)	17.5	3.07	17.3	3.14	17.1	3.20	15.5	2.98	13.9	2.41
80	15	1.59(26.5)	13.4	2.72	13.2	2.68	13.0	2.64	12.1	2.55	11.2	2.46
		3.18(53)	13.6	2.84	13.4	2.81	13.2	2.78	12.3	2.67	11.4	2.57
		4.77(79.5)	13.8	2.96	13.8	2.93	13.6	2.90	12.8	2.82	11.9	2.74
	20	1.59(26.5)	14.8	3.00	14.5	3.02	14.1	3.05	12.9	2.92	11.8	2.42
		3.18(53)	15.0	2.94	14.7	2.91	14.4	2.88	13.2	2.85	11.9	2.46
		4.77(79.5)	15.1	2.90	14.9	2.96	14.6	3.02	13.4	2.83	12.2	2.30
	25	1.59(26.5)	15.1	2.94	14.9	2.95	14.7	2.97	13.4	2.71	12.0	2.15
		3.18(53)	15.4	2.82	15.1	2.90	14.8	2.97	13.5	2.66	12.2	2.06
		4.77(79.5)	15.4	2.77	15.2	2.86	15.0	2.94	13.6	2.65	12.3	2.06
	30	1.59(26.5)	15.4	2.79	15.1	2.86	14.8	2.92	13.5	2.63	12.3	2.06
		3.18(53)	15.6	2.74	15.4	2.84	15.2	2.94	13.8	2.66	12.3	2.06
		4.77(79.5)	15.5	2.72	15.4	2.78	15.2	2.84	13.8	2.65	12.3	2.14

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	1.59(26.5)	11.8	2.38	11.6	2.35	11.3	2.31	10.6	2.23	9.8	2.16
		3.18(53)	11.9	2.49	11.8	2.46	11.6	2.43	10.8	2.34	10.0	2.25
		4.77(79.5)	12.1	2.59	12.0	2.56	11.9	2.53	11.2	2.46	10.4	2.39
	20	1.59(26.5)	13.0	2.63	12.7	2.65	12.3	2.67	11.3	2.56	10.3	2.12
		3.18(53)	13.2	2.58	12.9	2.55	12.6	2.52	11.6	2.49	10.4	2.15
		4.77(79.5)	13.2	2.53	13.0	2.59	12.8	2.65	11.7	2.48	10.6	2.01
	25	1.59(26.5)	13.2	2.58	13.0	2.58	12.9	2.60	11.7	2.37	10.5	1.88
		3.18(53)	13.4	2.46	13.2	2.53	13.0	2.60	11.8	2.32	10.7	1.80
		4.77(79.5)	13.5	2.42	13.3	2.50	13.1	2.58	11.9	2.32	10.8	1.80
	30	1.59(26.5)	13.5	2.44	13.2	2.50	13.0	2.56	11.8	2.30	10.8	1.80
		3.18(53)	13.7	2.40	13.4	2.49	13.3	2.58	12.0	2.32	10.8	1.81
		4.77(79.5)	13.6	2.38	13.4	2.44	13.3	2.49	12.0	2.32	10.8	1.87
60	15	1.59(26.5)	10.0	2.03	9.9	2.00	9.7	1.97	9.0	1.91	8.4	1.84
		3.18(53)	10.2	2.12	10.0	2.10	9.9	2.08	9.2	2.00	8.6	1.92
		4.77(79.5)	10.3	2.21	10.3	2.19	10.2	2.17	9.6	2.11	8.9	2.05
	20	1.59(26.5)	11.1	2.24	10.8	2.26	10.5	2.28	9.6	2.18	8.8	1.81
		3.18(53)	11.2	2.20	11.0	2.18	10.8	2.15	9.9	2.13	8.9	1.84
		4.77(79.5)	11.3	2.17	11.1	2.21	10.9	2.26	10.0	2.12	9.1	1.72
	25	1.59(26.5)	11.3	2.20	11.1	2.21	11.0	2.22	10.0	2.03	9.0	1.61
		3.18(53)	11.5	2.11	11.3	2.17	11.1	2.22	10.1	1.99	9.2	1.54
		4.77(79.5)	11.5	2.07	11.4	2.14	11.2	2.20	10.2	1.98	9.2	1.54
	30	1.59(26.5)	11.5	2.09	11.3	2.14	11.1	2.18	10.1	1.97	9.2	1.54
		3.18(53)	11.7	2.05	11.5	2.12	11.4	2.20	10.3	1.99	9.2	1.54
		4.77(79.5)	11.6	2.03	11.5	2.08	11.4	2.12	10.3	1.98	9.2	1.60
50	15	1.59(26.5)	8.4	1.70	8.3	1.68	8.1	1.65	7.6	1.60	7.0	1.54
		3.18(53)	8.5	1.78	8.4	1.76	8.3	1.74	7.7	1.67	7.2	1.61
		4.77(79.5)	8.7	1.85	8.6	1.83	8.5	1.81	8.0	1.76	7.5	1.71
	20	1.59(26.5)	9.3	1.88	9.1	1.89	8.8	1.91	8.1	1.83	7.4	1.52
		3.18(53)	9.4	1.84	9.2	1.82	9.0	1.80	8.3	1.78	7.5	1.54
		4.77(79.5)	9.5	1.81	9.3	1.85	9.2	1.89	8.4	1.77	7.6	1.44
	25	1.59(26.5)	9.5	1.84	9.3	1.85	9.2	1.86	8.4	1.70	7.5	1.35
		3.18(53)	9.6	1.76	9.5	1.81	9.3	1.86	8.5	1.66	7.7	1.29
		4.77(79.5)	9.7	1.73	9.5	1.79	9.4	1.84	8.5	1.66	7.7	1.29
	30	1.59(26.5)	9.7	1.75	9.5	1.79	9.3	1.83	8.5	1.65	7.7	1.29
		3.18(53)	9.8	1.72	9.6	1.78	9.5	1.84	8.6	1.66	7.7	1.29
		4.77(79.5)	9.7	1.70	9.6	1.74	9.5	1.78	8.6	1.66	7.7	1.34

Outdoor Unit: 8HP (AVWW-76U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	3(50)	28.2	4.35	28.0	4.36	27.6	4.37	27.2	4.96	26.8	5.54
		4.61(76.8)	28.9	4.45	28.6	4.43	28.1	4.40	27.4	4.96	26.5	5.52
		8(133.3)	29.8	4.51	29.3	4.46	28.8	4.42	28.0	4.97	27.0	5.51
	20	3(50)	30.2	4.03	30.0	4.29	29.6	4.45	27.8	4.65	25.4	4.88
		4.61(76.8)	30.6	4.11	30.2	4.32	30.0	4.45	28.2	4.94	25.8	5.30
		8(133.3)	30.8	4.13	30.5	4.43	30.4	4.53	28.2	5.04	25.9	5.30
	25	3(50)	31.0	4.13	30.8	4.43	30.5	4.56	28.0	5.06	26.2	5.30
		4.61(76.8)	31.3	4.24	31.0	4.52	30.7	4.63	28.3	5.15	26.8	5.41
		8(133.3)	32.4	4.35	32.0	4.54	31.6	4.66	28.4	5.17	26.9	5.41
	30	3(50)	32.6	4.35	32.4	4.54	31.7	4.61	28.6	5.19	27.1	5.41
		4.61(76.8)	33.4	4.45	33.1	4.63	32.3	4.59	29.3	5.30	27.7	5.51
		8(133.3)	33.6	4.45	33.6	4.69	32.9	4.61	29.8	5.35	28.3	5.51
120		3(50)	26.6	4.26	26.4	4.27	26.1	4.28	25.7	4.87	25.3	5.44
		4.61(76.8)	27.3	4.37	27.0	4.35	26.5	4.32	25.9	4.87	25.1	5.42
		8(133.3)	28.1	4.42	27.7	4.38	27.2	4.34	26.4	4.88	25.5	5.41
	20	3(50)	28.6	3.95	28.4	4.21	28.0	4.37	26.3	4.57	24.0	4.78
		4.61(76.8)	28.9	4.04	28.6	4.24	28.4	4.37	26.6	4.85	24.4	5.20
		8(133.3)	29.1	4.06	28.8	4.35	28.7	4.44	26.6	4.94	24.5	5.20
	25	3(50)	29.3	4.06	29.1	4.35	28.8	4.47	26.4	4.96	24.7	5.20
		4.61(76.8)	29.6	4.16	29.3	4.43	29.0	4.54	26.8	5.05	25.3	5.30
		8(133.3)	30.6	4.26	30.3	4.45	29.8	4.58	26.9	5.08	25.4	5.30
	30	3(50)	30.8	4.26	30.6	4.45	29.9	4.52	27.0	5.10	25.6	5.30
		4.61(76.8)	31.5	4.37	31.3	4.54	30.5	4.50	27.7	5.20	26.2	5.41
		8(133.3)	31.8	4.37	31.8	4.60	31.1	4.52	28.1	5.25	26.8	5.41
110	15	3(50)	25.1	4.18	24.9	4.19	24.5	4.20	24.2	4.77	23.8	5.33
		4.61(76.8)	25.7	4.28	25.4	4.26	25.0	4.23	24.3	4.77	23.6	5.31
		8(133.3)	26.5	4.34	26.0	4.29	25.6	4.25	24.9	4.78	24.0	5.30
	20	3(50)	26.9	3.88	26.7	4.13	26.4	4.28	24.8	4.48	22.6	4.69
		4.61(76.8)	27.2	3.96	26.9	4.16	26.7	4.28	25.1	4.75	22.9	5.10
		8(133.3)	27.4	3.98	27.1	4.26	27.0	4.36	25.1	4.85	23.0	5.10
	25	3(50)	27.5	3.98	27.4	4.26	27.1	4.39	24.9	4.87	23.3	5.10
		4.61(76.8)	27.8	4.08	27.5	4.35	27.3	4.46	25.2	4.96	23.8	5.20
		8(133.3)	28.8	4.18	28.5	4.37	28.1	4.49	25.3	4.98	23.9	5.20
	30	3(50)	29.0	4.18	28.8	4.37	28.2	4.44	25.4	5.00	24.1	5.20
		4.61(76.8)	29.7	4.28	29.4	4.46	28.7	4.42	26.0	5.10	24.6	5.30
		8(133.3)	29.9	4.28	29.9	4.51	29.2	4.44	26.5	5.15	25.2	5.30

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	3(50)	23.5	4.10	23.3	4.11	23.0	4.12	22.7	4.68	22.3	5.23
		4.61(76.8)	24.1	4.20	23.8	4.18	23.4	4.15	22.8	4.68	22.1	5.21
		8(133.3)	24.8	4.25	24.4	4.21	24.0	4.17	23.3	4.69	22.5	5.20
	20	3(50)	25.2	3.80	25.0	4.05	24.7	4.20	23.2	4.39	21.2	4.60
		4.61(76.8)	25.5	3.88	25.2	4.08	25.0	4.20	23.5	4.66	21.5	5.00
		8(133.3)	25.7	3.90	25.4	4.18	25.3	4.27	23.5	4.75	21.6	5.00
	25	3(50)	25.8	3.90	25.7	4.18	25.4	4.30	23.3	4.77	21.8	5.00
		4.61(76.8)	26.1	4.00	25.8	4.26	25.6	4.37	23.6	4.86	22.3	5.10
		8(133.3)	27.0	4.10	26.7	4.28	26.3	4.40	23.7	4.88	22.4	5.10
	30	3(50)	27.2	4.10	27.0	4.28	26.4	4.35	23.8	4.90	22.6	5.10
		4.61(76.8)	27.8	4.20	27.6	4.37	26.9	4.33	24.4	5.00	23.1	5.20
		8(133.3)	28.0	4.20	28.0	4.42	27.4	4.35	24.8	5.05	23.6	5.20
90	15	3(50)	21.2	3.77	21.0	3.78	20.7	3.79	20.4	4.30	20.1	4.81
		4.61(76.8)	21.7	3.86	21.4	3.84	21.1	3.81	20.5	4.30	19.9	4.79
		8(133.3)	22.3	3.91	22.0	3.87	21.6	3.83	21.0	4.31	20.3	4.78
	20	3(50)	22.7	3.49	22.5	3.72	22.2	3.86	20.9	4.03	19.1	4.23
		4.61(76.8)	23.0	3.57	22.7	3.75	22.5	3.86	21.2	4.28	19.4	4.60
		8(133.3)	23.1	3.58	22.9	3.84	22.8	3.92	21.2	4.37	19.4	4.60
	25	3(50)	23.2	3.58	23.1	3.84	22.9	3.95	21.0	4.38	19.6	4.60
		4.61(76.8)	23.5	3.68	23.2	3.91	23.0	4.02	21.2	4.47	20.1	4.69
		8(133.3)	24.3	3.77	24.0	3.93	23.7	4.04	21.3	4.48	20.2	4.69
	30	3(50)	24.5	3.77	24.3	3.93	23.8	4.00	21.4	4.50	20.3	4.69
		4.61(76.8)	25.0	3.86	24.8	4.02	24.2	3.98	22.0	4.60	20.8	4.78
		8(133.3)	25.2	3.86	25.2	4.06	24.7	4.00	22.3	4.64	21.2	4.78
80	15	3(50)	18.8	3.44	18.6	3.44	18.4	3.45	18.2	3.92	17.8	4.38
		4.61(76.8)	19.3	3.52	19.0	3.50	18.7	3.48	18.2	3.92	17.7	4.37
		8(133.3)	19.8	3.56	19.5	3.53	19.2	3.49	18.6	3.93	18.0	4.36
	20	3(50)	20.2	3.18	20.0	3.39	19.8	3.52	18.6	3.68	17.0	3.85
		4.61(76.8)	20.4	3.25	20.2	3.42	20.0	3.52	18.8	3.91	17.2	4.19
		8(133.3)	20.6	3.27	20.3	3.50	20.2	3.58	18.8	3.98	17.3	4.19
	25	3(50)	20.6	3.27	20.6	3.50	20.3	3.60	18.6	4.00	17.4	4.19
		4.61(76.8)	20.9	3.35	20.6	3.57	20.5	3.66	18.9	4.07	17.8	4.27
		8(133.3)	21.6	3.44	21.4	3.59	21.0	3.69	19.0	4.09	17.9	4.27
	30	3(50)	21.8	3.44	21.6	3.59	21.1	3.65	19.0	4.11	18.1	4.27
		4.61(76.8)	22.2	3.52	22.1	3.66	21.5	3.63	19.5	4.19	18.5	4.36
		8(133.3)	22.4	3.52	22.4	3.70	21.9	3.65	19.8	4.23	18.9	4.36

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	3(50)	16.5	3.10	16.3	3.11	16.1	3.12	15.9	3.54	15.6	3.96
		4.61(76.8)	16.9	3.18	16.7	3.16	16.4	3.14	16.0	3.54	15.5	3.94
		8(133.3)	17.4	3.22	17.1	3.19	16.8	3.16	16.3	3.55	15.8	3.94
	20	3(50)	17.6	2.88	17.5	3.07	17.3	3.18	16.2	3.32	14.8	3.48
		4.61(76.8)	17.9	2.94	17.6	3.09	17.5	3.18	16.5	3.53	15.1	3.79
		8(133.3)	18.0	2.95	17.8	3.16	17.7	3.23	16.5	3.60	15.1	3.79
	25	3(50)	18.1	2.95	18.0	3.16	17.8	3.26	16.3	3.61	15.3	3.79
		4.61(76.8)	18.3	3.03	18.1	3.23	17.9	3.31	16.5	3.68	15.6	3.86
		8(133.3)	18.9	3.10	18.7	3.24	18.4	3.33	16.6	3.69	15.7	3.86
	30	3(50)	19.0	3.10	18.9	3.24	18.5	3.29	16.7	3.71	15.8	3.86
		4.61(76.8)	19.5	3.18	19.3	3.31	18.8	3.28	17.1	3.79	16.2	3.94
		8(133.3)	19.6	3.18	19.6	3.35	19.2	3.29	17.4	3.82	16.5	3.94
60	15	3(50)	14.1	2.77	14.0	2.78	13.8	2.79	13.6	3.16	13.4	3.54
		4.61(76.8)	14.5	2.84	14.3	2.83	14.0	2.81	13.7	3.16	13.3	3.52
		8(133.3)	14.9	2.87	14.6	2.85	14.4	2.82	14.0	3.17	13.5	3.52
	20	3(50)	15.1	2.57	15.0	2.74	14.8	2.84	13.9	2.97	12.7	3.11
		4.61(76.8)	15.3	2.62	15.1	2.76	15.0	2.84	14.1	3.15	12.9	3.38
		8(133.3)	15.4	2.64	15.2	2.83	15.2	2.89	14.1	3.21	13.0	3.38
	25	3(50)	15.5	2.64	15.4	2.83	15.2	2.91	14.0	3.23	13.1	3.38
		4.61(76.8)	15.7	2.70	15.5	2.88	15.4	2.95	14.2	3.29	13.4	3.45
		8(133.3)	16.2	2.77	16.0	2.89	15.8	2.98	14.2	3.30	13.4	3.45
	30	3(50)	16.3	2.77	16.2	2.89	15.8	2.94	14.3	3.31	13.6	3.45
		4.61(76.8)	16.7	2.84	16.6	2.95	16.1	2.93	14.6	3.38	13.9	3.52
		8(133.3)	16.8	2.84	16.8	2.99	16.4	2.94	14.9	3.41	14.2	3.52
50	15	3(50)	11.8	2.44	11.7	2.45	11.5	2.45	11.4	2.79	11.2	3.11
		4.61(76.8)	12.1	2.50	11.9	2.49	11.7	2.47	11.4	2.79	11.1	3.10
		8(133.3)	12.4	2.53	12.2	2.51	12.0	2.48	11.7	2.79	11.3	3.10
	20	3(50)	12.6	2.26	12.5	2.41	12.4	2.50	11.6	2.61	10.6	2.74
		4.61(76.8)	12.8	2.31	12.6	2.43	12.5	2.50	11.8	2.77	10.8	2.98
		8(133.3)	12.9	2.32	12.7	2.49	12.7	2.54	11.8	2.83	10.8	2.98
	25	3(50)	12.9	2.32	12.9	2.49	12.7	2.56	11.7	2.84	10.9	2.98
		4.61(76.8)	13.1	2.38	12.9	2.54	12.8	2.60	11.8	2.89	11.2	3.04
		8(133.3)	13.5	2.44	13.4	2.55	13.2	2.62	11.9	2.90	11.2	3.04
	30	3(50)	13.6	2.44	13.5	2.55	13.2	2.59	11.9	2.92	11.3	3.04
		4.61(76.8)	13.9	2.50	13.8	2.60	13.5	2.58	12.2	2.98	11.6	3.10
		8(133.3)	14.0	2.50	14.0	2.63	13.7	2.59	12.4	3.01	11.8	3.10

Outdoor Unit: 10HP (AVWW-96U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m ³ /h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	2.88(48)	32.1	4.83	31.5	4.92	31.0	5.01	29.8	5.24	28.6	5.47
		5.76(96)	32.9	4.93	32.4	4.99	31.9	5.07	30.8	5.35	29.6	5.64
		8.64(144)	33.5	5.03	32.9	5.08	32.5	5.13	31.8	5.55	31.0	5.97
	20	2.88(48)	33.9	4.83	33.8	5.00	33.7	5.17	31.9	5.36	29.9	5.55
		5.76(96)	34.1	4.92	34.1	5.06	34.0	5.20	32.2	5.56	30.2	5.91
		8.64(144)	34.2	4.92	34.2	5.10	34.1	5.28	32.2	5.59	30.3	5.91
	25	2.88(48)	34.2	4.92	34.0	5.10	33.8	5.28	32.1	5.59	30.6	5.91
		5.76(96)	35.2	5.01	34.7	5.19	34.2	5.37	32.4	5.64	31.1	6.00
		8.64(144)	35.5	5.10	34.9	5.24	34.3	5.37	32.7	5.68	31.2	6.00
	30	2.88(48)	35.3	5.10	34.9	5.24	34.5	5.37	32.8	5.68	31.4	6.00
		5.76(96)	36.0	5.19	35.5	5.33	35.1	5.46	33.3	5.73	32.0	6.09
		8.64(144)	36.2	5.19	35.9	5.35	35.5	5.51	33.8	5.80	32.5	6.09
120	15	2.88(48)	31.3	5.03	30.8	5.12	30.2	5.21	29.1	5.46	27.9	5.69
		5.76(96)	32.1	5.13	31.6	5.20	31.1	5.27	30.0	5.57	28.9	5.87
		8.64(144)	32.7	5.23	32.1	5.29	31.7	5.34	31.0	5.77	30.2	6.21
	20	2.88(48)	33.1	5.03	33.0	5.21	32.9	5.38	31.1	5.58	29.2	5.77
		5.76(96)	33.3	5.12	33.3	5.26	33.2	5.41	31.4	5.78	29.5	6.15
		8.64(144)	33.4	5.12	33.4	5.31	33.3	5.49	31.4	5.82	29.6	6.15
	25	2.88(48)	33.4	5.12	33.2	5.31	33.0	5.49	31.3	5.82	29.8	6.15
		5.76(96)	34.3	5.21	33.8	5.40	33.4	5.59	31.6	5.87	30.3	6.24
		8.64(144)	34.7	5.31	34.0	5.45	33.5	5.59	31.9	5.91	30.4	6.24
	30	2.88(48)	34.4	5.31	34.0	5.45	33.6	5.59	32.0	5.91	30.7	6.24
		5.76(96)	35.1	5.40	34.7	5.54	34.2	5.68	32.4	5.96	31.2	6.33
		8.64(144)	35.3	5.40	35.0	5.57	34.7	5.74	33.0	6.03	31.7	6.33
110	15	2.88(48)	30.5	5.21	30.0	5.31	29.5	5.41	28.3	5.66	27.2	5.90
		5.76(96)	31.3	5.32	30.8	5.39	30.3	5.47	29.3	5.77	28.1	6.08
		8.64(144)	31.8	5.43	31.3	5.48	30.9	5.53	30.2	5.99	29.5	6.44
	20	2.88(48)	32.2	5.21	32.1	5.40	32.0	5.58	30.3	5.78	28.4	5.99
		5.76(96)	32.4	5.31	32.4	5.46	32.3	5.61	30.6	6.00	28.7	6.37
		8.64(144)	32.5	5.31	32.5	5.50	32.4	5.70	30.6	6.03	28.9	6.37
	25	2.88(48)	32.5	5.31	32.3	5.50	32.1	5.70	30.5	6.03	29.1	6.37
		5.76(96)	33.5	5.41	33.0	5.60	32.5	5.79	30.8	6.08	29.6	6.47
		8.64(144)	33.8	5.50	33.2	5.65	32.6	5.79	31.1	6.13	29.7	6.47
	30	2.88(48)	33.6	5.50	33.2	5.65	32.8	5.79	31.2	6.13	29.9	6.47
		5.76(96)	34.2	5.60	33.8	5.75	33.4	5.89	31.6	6.18	30.4	6.57
		8.64(144)	34.4	5.60	34.1	5.77	33.8	5.95	32.1	6.26	30.9	6.57

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	2.88(48)	29.7	5.40	29.2	5.50	28.7	5.60	27.6	5.86	26.5	6.11
		5.76(96)	30.5	5.51	30.0	5.58	29.5	5.66	28.5	5.98	27.4	6.30
		8.64(144)	31.0	5.62	30.5	5.68	30.1	5.73	29.4	6.20	28.7	6.67
	20	2.88(48)	31.4	5.40	31.3	5.59	31.2	5.78	29.5	5.99	27.7	6.20
		5.76(96)	31.6	5.50	31.6	5.65	31.5	5.81	29.8	6.21	28.0	6.60
		8.64(144)	31.7	5.50	31.7	5.70	31.6	5.90	29.8	6.25	28.1	6.60
	25	2.88(48)	31.7	5.50	31.5	5.70	31.3	5.90	29.7	6.25	28.3	6.60
		5.76(96)	32.6	5.60	32.1	5.80	31.7	6.00	30.0	6.30	28.8	6.70
		8.64(144)	32.9	5.70	32.3	5.85	31.8	6.00	30.3	6.35	28.9	6.70
	30	2.88(48)	32.7	5.70	32.3	5.85	31.9	6.00	30.4	6.35	29.1	6.70
		5.76(96)	33.3	5.80	32.9	5.95	32.5	6.10	30.8	6.40	29.6	6.80
		8.64(144)	33.5	5.80	33.2	5.98	32.9	6.16	31.3	6.48	30.1	6.80
90	15	2.88(48)	26.7	4.80	26.3	4.88	25.8	4.97	24.8	5.20	23.9	5.43
		5.76(96)	27.5	4.89	27.0	4.96	26.6	5.03	25.7	5.31	24.7	5.59
		8.64(144)	27.9	4.99	27.5	5.04	27.1	5.09	26.5	5.51	25.8	5.92
	20	2.88(48)	28.3	4.80	28.2	4.96	28.1	5.13	26.6	5.32	24.9	5.51
		5.76(96)	28.4	4.88	28.4	5.02	28.4	5.16	26.8	5.51	25.2	5.86
		8.64(144)	28.5	4.88	28.5	5.06	28.4	5.24	26.8	5.55	25.3	5.86
	25	2.88(48)	28.5	4.88	28.4	5.06	28.2	5.24	26.7	5.55	25.5	5.86
		5.76(96)	29.3	4.97	28.9	5.15	28.5	5.33	27.0	5.59	25.9	5.95
		8.64(144)	29.6	5.06	29.1	5.19	28.6	5.33	27.3	5.64	26.0	5.95
	30	2.88(48)	29.4	5.06	29.1	5.19	28.7	5.33	27.4	5.64	26.2	5.95
		5.76(96)	30.0	5.15	29.6	5.28	29.3	5.42	27.7	5.68	26.6	6.04
		8.64(144)	30.2	5.15	29.9	5.31	29.6	5.47	28.2	5.75	27.1	6.04
80	15	2.88(48)	23.8	4.19	23.4	4.26	23.0	4.34	22.1	4.54	21.2	4.74
		5.76(96)	24.4	4.27	24.0	4.32	23.6	4.39	22.8	4.63	21.9	4.88
		8.64(144)	24.8	4.36	24.4	4.40	24.1	4.44	23.5	4.81	23.0	5.17
	20	2.88(48)	25.1	4.19	25.0	4.33	25.0	4.48	23.6	4.64	22.2	4.81
		5.76(96)	25.3	4.26	25.3	4.38	25.2	4.50	23.8	4.81	22.4	5.12
		8.64(144)	25.4	4.26	25.4	4.42	25.3	4.57	23.8	4.84	22.5	5.12
	25	2.88(48)	25.4	4.26	25.2	4.42	25.0	4.57	23.8	4.84	22.6	5.12
		5.76(96)	26.1	4.34	25.7	4.50	25.4	4.65	24.0	4.88	23.0	5.19
		8.64(144)	26.3	4.42	25.8	4.53	25.4	4.65	24.2	4.92	23.1	5.19
	30	2.88(48)	26.2	4.42	25.8	4.53	25.5	4.65	24.3	4.92	23.3	5.19
		5.76(96)	26.6	4.50	26.3	4.61	26.0	4.73	24.6	4.96	23.7	5.27
		8.64(144)	26.8	4.50	26.6	4.63	26.3	4.77	25.0	5.02	24.1	5.27

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m ³ /h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	2.88(48)	20.8	3.55	20.4	3.62	20.1	3.68	19.3	3.85	18.6	4.02
		5.76(96)	21.4	3.62	21.0	3.67	20.7	3.72	20.0	3.93	19.2	4.14
		8.64(144)	21.7	3.70	21.4	3.73	21.1	3.77	20.6	4.08	20.1	4.39
	20	2.88(48)	22.0	3.55	21.9	3.68	21.8	3.80	20.7	3.94	19.4	4.08
		5.76(96)	22.1	3.62	22.1	3.71	22.1	3.82	20.9	4.08	19.6	4.34
		8.64(144)	22.2	3.62	22.2	3.75	22.1	3.88	20.9	4.11	19.7	4.34
	25	2.88(48)	22.2	3.62	22.1	3.75	21.9	3.88	20.8	4.11	19.8	4.34
		5.76(96)	22.8	3.68	22.5	3.81	22.2	3.95	21.0	4.14	20.2	4.41
		8.64(144)	23.0	3.75	22.6	3.85	22.3	3.95	21.2	4.18	20.2	4.41
	30	2.88(48)	22.9	3.75	22.6	3.85	22.3	3.95	21.3	4.18	20.4	4.41
		5.76(96)	23.3	3.81	23.0	3.91	22.8	4.01	21.6	4.21	20.7	4.47
		8.64(144)	23.5	3.81	23.2	3.93	23.0	4.05	21.9	4.26	21.1	4.47
60	15	2.88(48)	17.8	2.91	17.5	2.96	17.2	3.02	16.6	3.16	15.9	3.29
		5.76(96)	18.3	2.97	18.0	3.01	17.7	3.05	17.1	3.22	16.4	3.39
		8.64(144)	18.6	3.03	18.3	3.06	18.1	3.09	17.6	3.34	17.2	3.59
	20	2.88(48)	18.8	2.91	18.8	3.01	18.7	3.11	17.7	3.23	16.6	3.34
		5.76(96)	19.0	2.96	19.0	3.04	18.9	3.13	17.9	3.35	16.8	3.56
		8.64(144)	19.0	2.96	19.0	3.07	19.0	3.18	17.9	3.37	16.9	3.56
	25	2.88(48)	19.0	2.96	18.9	3.07	18.8	3.18	17.8	3.37	17.0	3.56
		5.76(96)	19.6	3.02	19.3	3.12	19.0	3.23	18.0	3.39	17.3	3.61
		8.64(144)	19.7	3.07	19.4	3.15	19.1	3.23	18.2	3.42	17.3	3.61
	30	2.88(48)	19.6	3.07	19.4	3.15	19.1	3.23	18.2	3.42	17.5	3.61
		5.76(96)	20.0	3.12	19.7	3.21	19.5	3.29	18.5	3.45	17.8	3.66
		8.64(144)	20.1	3.12	19.9	3.22	19.7	3.32	18.8	3.49	18.1	3.66
50	15	2.88(48)	14.9	2.28	14.6	2.32	14.4	2.36	13.8	2.47	13.3	2.58
		5.76(96)	15.3	2.32	15.0	2.35	14.8	2.39	14.3	2.52	13.7	2.66
		8.64(144)	15.5	2.37	15.3	2.39	15.1	2.42	14.7	2.61	14.4	2.81
	20	2.88(48)	15.7	2.28	15.7	2.36	15.6	2.44	14.8	2.53	13.9	2.61
		5.76(96)	15.8	2.32	15.8	2.38	15.8	2.45	14.9	2.62	14.0	2.78
		8.64(144)	15.9	2.32	15.9	2.40	15.8	2.49	14.9	2.64	14.1	2.78
	25	2.88(48)	15.9	2.32	15.8	2.40	15.7	2.49	14.9	2.64	14.2	2.78
		5.76(96)	16.3	2.36	16.1	2.45	15.9	2.53	15.0	2.66	14.4	2.82
		8.64(144)	16.5	2.40	16.2	2.47	15.9	2.53	15.2	2.68	14.5	2.82
	30	2.88(48)	16.4	2.40	16.2	2.47	16.0	2.53	15.2	2.68	14.6	2.82
		5.76(96)	16.7	2.45	16.5	2.51	16.3	2.57	15.4	2.70	14.8	2.87
		8.64(144)	16.8	2.45	16.6	2.52	16.5	2.60	15.7	2.73	15.1	2.87

Outdoor Unit: 16HP (AVWW-154U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate		Ti (Indoor Unit Temp.)								
		m³/h (l/min.)	16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	4.6(76.8)	50.9	6.99	50.1	7.12	49.2	7.25	47.3	6.36	45.4	5.47
		9.22(153.7)	52.3	7.13	51.4	7.23	50.6	7.32	48.8	7.66	47.0	7.99
		13.8(230.5)	53.1	7.27	52.4	7.34	51.6	7.41	50.4	7.83	49.2	8.25
	20	4.6(76.8)	53.8	6.99	53.7	7.23	53.5	7.48	50.5	8.09	47.5	8.71
		9.22(153.7)	54.2	7.12	54.1	7.32	54.0	7.52	51.0	7.79	48.0	8.06
		13.8(230.5)	54.3	7.12	54.3	7.37	54.2	7.63	51.1	7.85	48.2	8.67
	25	4.6(76.8)	54.9	7.12	54.6	7.37	54.2	7.63	51.2	8.15	49.0	8.54
		9.22(153.7)	55.9	7.25	55.1	7.50	54.3	7.76	51.7	8.15	49.4	8.68
		13.8(230.5)	56.4	7.38	55.5	7.57	54.5	7.76	51.9	8.22	49.5	8.67
	30	4.6(76.8)	56.1	7.38	55.4	7.57	54.7	7.76	52.1	8.22	49.9	8.67
		9.22(153.7)	57.1	7.51	56.4	7.70	55.7	7.89	52.8	8.28	50.7	8.81
		13.8(230.5)	57.4	7.51	56.9	7.74	56.4	7.97	53.6	8.39	51.6	8.89
120	15	4.6(76.8)	49.7	7.27	48.8	7.40	48.0	7.54	46.1	6.61	44.3	5.69
		9.22(153.7)	51.0	7.42	50.2	7.52	49.3	7.62	47.6	7.97	45.8	8.31
		13.8(230.5)	51.8	7.57	51.1	7.64	50.3	7.71	49.2	8.15	48.0	8.59
	20	4.6(76.8)	52.5	7.27	52.3	7.52	52.2	7.78	49.2	8.42	46.3	9.06
		9.22(153.7)	52.8	7.40	52.8	7.61	52.7	7.82	49.7	8.11	46.8	8.39
		13.8(230.5)	53.0	7.40	52.9	7.67	52.8	7.94	49.8	8.17	47.0	9.02
	25	4.6(76.8)	53.6	7.40	53.2	7.67	52.9	7.94	49.9	8.48	47.8	8.89
		9.22(153.7)	54.5	7.54	53.8	7.81	53.0	8.08	50.4	8.48	48.2	9.04
		13.8(230.5)	55.0	7.67	54.1	7.87	53.2	8.08	50.7	8.56	48.3	9.02
	30	4.6(76.8)	54.7	7.67	54.0	7.87	53.3	8.08	50.8	8.55	48.7	9.02
		9.22(153.7)	55.7	7.81	55.0	8.01	54.3	8.21	51.5	8.62	49.5	9.17
		13.8(230.5)	56.0	7.81	55.5	8.05	55.0	8.29	52.3	8.73	50.3	9.24
110	15	4.6(76.8)	48.4	7.54	47.6	7.68	46.8	7.82	45.0	6.86	43.2	5.90
		9.22(153.7)	49.7	7.69	48.9	7.80	48.1	7.90	46.4	8.26	44.7	8.62
		13.8(230.5)	50.5	7.85	49.8	7.92	49.1	8.00	47.9	8.45	46.8	8.90
	20	4.6(76.8)	51.2	7.54	51.0	7.80	50.8	8.07	48.0	8.73	45.1	9.39
		9.22(153.7)	51.5	7.68	51.4	7.89	51.3	8.11	48.5	8.41	45.6	8.70
		13.8(230.5)	51.7	7.68	51.6	7.96	51.5	8.24	48.6	8.47	45.8	9.36
	25	4.6(76.8)	52.2	7.68	51.9	7.96	51.6	8.24	48.7	8.80	46.6	9.21
		9.22(153.7)	53.1	7.82	52.4	8.09	51.7	8.38	49.1	8.79	46.9	9.37
		13.8(230.5)	53.6	7.96	52.7	8.17	51.8	8.38	49.4	8.87	47.1	9.35
	30	4.6(76.8)	53.3	7.96	52.6	8.17	52.0	8.38	49.5	8.86	47.4	9.35
		9.22(153.7)	54.3	8.10	53.6	8.31	53.0	8.52	50.2	8.93	48.2	9.51
		13.8(230.5)	54.6	8.10	54.1	8.35	53.6	8.60	50.9	9.05	49.1	9.59

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	4.6(76.8)	47.1	7.81	46.3	7.95	45.6	8.10	43.8	7.10	42.1	6.11
		9.22(153.7)	48.4	7.97	47.6	8.07	46.8	8.18	45.2	8.56	43.5	8.93
		13.8(230.5)	49.2	8.13	48.5	8.20	47.8	8.28	46.7	8.75	45.6	9.22
	20	4.6(76.8)	49.8	7.81	49.7	8.08	49.5	8.36	46.7	9.04	44.0	9.73
		9.22(153.7)	50.2	7.95	50.1	8.17	50.0	8.40	47.2	8.71	44.4	9.01
		13.8(230.5)	50.3	7.95	50.2	8.24	50.2	8.53	47.3	8.77	44.6	9.69
	25	4.6(76.8)	50.9	7.95	50.5	8.24	50.2	8.53	47.4	9.11	45.4	9.54
		9.22(153.7)	51.7	8.10	51.0	8.38	50.3	8.67	47.9	9.11	45.7	9.70
		13.8(230.5)	52.2	8.24	51.3	8.46	50.5	8.67	48.1	9.19	45.9	9.69
	30	4.6(76.8)	51.9	8.24	51.3	8.46	50.6	8.67	48.3	9.18	46.2	9.69
		9.22(153.7)	52.9	8.39	52.2	8.60	51.6	8.82	48.9	9.25	47.0	9.85
		13.8(230.5)	53.2	8.39	52.7	8.64	52.2	8.91	49.6	9.38	47.8	9.93
90	15	4.6(76.8)	42.4	6.93	41.7	7.06	41.0	7.19	39.4	6.31	37.9	5.43
		9.22(153.7)	43.6	7.07	42.9	7.17	42.1	7.27	40.6	7.60	39.1	7.93
		13.8(230.5)	44.3	7.22	43.6	7.29	43.0	7.36	42.0	7.77	41.0	8.19
	20	4.6(76.8)	44.9	6.93	44.7	7.18	44.6	7.42	42.1	8.03	39.6	8.64
		9.22(153.7)	45.1	7.06	45.1	7.26	45.0	7.46	42.5	7.73	40.0	8.00
		13.8(230.5)	45.3	7.06	45.2	7.32	45.1	7.57	42.6	7.79	40.1	8.60
	25	4.6(76.8)	45.8	7.06	45.5	7.32	45.2	7.57	42.7	8.09	40.9	8.47
		9.22(153.7)	46.6	7.19	45.9	7.44	45.3	7.70	43.1	8.09	41.1	8.62
		13.8(230.5)	47.0	7.32	46.2	7.51	45.4	7.70	43.3	8.16	41.3	8.60
	30	4.6(76.8)	46.7	7.32	46.1	7.51	45.6	7.70	43.4	8.15	41.6	8.60
		9.22(153.7)	47.6	7.45	47.0	7.64	46.4	7.83	44.0	8.22	42.3	8.75
		13.8(230.5)	47.9	7.45	47.4	7.68	47.0	7.91	44.6	8.33	43.0	8.82
80	15	4.6(76.8)	37.7	6.05	37.1	6.16	36.4	6.27	35.0	5.50	33.7	4.74
		9.22(153.7)	38.7	6.17	38.1	6.26	37.5	6.34	36.1	6.63	34.8	6.92
		13.8(230.5)	39.4	6.30	38.8	6.36	38.2	6.42	37.3	6.78	36.4	7.15
	20	4.6(76.8)	39.9	6.05	39.7	6.26	39.6	6.48	37.4	7.01	35.2	7.54
		9.22(153.7)	40.1	6.16	40.1	6.34	40.0	6.51	37.8	6.75	35.6	6.98
		13.8(230.5)	40.3	6.16	40.2	6.39	40.1	6.61	37.8	6.80	35.7	7.51
	25	4.6(76.8)	40.7	6.16	40.4	6.39	40.2	6.61	37.9	7.06	36.3	7.40
		9.22(153.7)	41.4	6.27	40.8	6.50	40.3	6.72	38.3	7.06	36.6	7.52
		13.8(230.5)	41.8	6.39	41.1	6.55	40.4	6.72	38.5	7.12	36.7	7.51
	30	4.6(76.8)	41.5	6.39	41.0	6.55	40.5	6.72	38.6	7.12	37.0	7.51
		9.22(153.7)	42.3	6.50	41.8	6.67	41.3	6.83	39.1	7.17	37.6	7.63
		13.8(230.5)	42.5	6.50	42.2	6.70	41.8	6.90	39.7	7.27	38.2	7.69

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	4.6(76.8)	33.0	5.13	32.4	5.23	31.9	5.32	30.7	4.67	29.4	4.02
		9.22(153.7)	33.9	5.24	33.3	5.31	32.8	5.38	31.6	5.63	30.4	5.87
		13.8(230.5)	34.4	5.34	33.9	5.39	33.4	5.45	32.7	5.75	31.9	6.06
	20	4.6(76.8)	34.9	5.13	34.8	5.31	34.7	5.49	32.7	5.95	30.8	6.40
		9.22(153.7)	35.1	5.23	35.1	5.37	35.0	5.52	33.1	5.72	31.1	5.92
		13.8(230.5)	35.2	5.23	35.2	5.42	35.1	5.61	33.1	5.77	31.2	6.37
	25	4.6(76.8)	35.6	5.23	35.4	5.42	35.2	5.61	33.2	5.99	31.8	6.27
		9.22(153.7)	36.2	5.32	35.7	5.51	35.2	5.70	33.5	5.99	32.0	6.38
		13.8(230.5)	36.6	5.42	35.9	5.56	35.3	5.70	33.7	6.04	32.1	6.37
	30	4.6(76.8)	36.3	5.42	35.9	5.56	35.4	5.70	33.8	6.04	32.3	6.37
		9.22(153.7)	37.0	5.51	36.6	5.66	36.1	5.80	34.2	6.08	32.9	6.48
		13.8(230.5)	37.2	5.51	36.9	5.68	36.6	5.86	34.7	6.17	33.4	6.53
60	15	4.6(76.8)	28.3	4.21	27.8	4.28	27.3	4.36	26.3	3.83	25.2	3.29
		9.22(153.7)	29.0	4.29	28.6	4.35	28.1	4.41	27.1	4.61	26.1	4.81
		13.8(230.5)	29.5	4.38	29.1	4.42	28.7	4.46	28.0	4.72	27.3	4.97
	20	4.6(76.8)	29.9	4.21	29.8	4.35	29.7	4.50	28.0	4.87	26.4	5.24
		9.22(153.7)	30.1	4.28	30.0	4.40	30.0	4.53	28.3	4.69	26.7	4.85
		13.8(230.5)	30.2	4.28	30.1	4.44	30.1	4.60	28.4	4.72	26.8	5.22
	25	4.6(76.8)	30.5	4.28	30.3	4.44	30.1	4.60	28.4	4.91	27.2	5.14
		9.22(153.7)	31.0	4.36	30.6	4.52	30.2	4.67	28.7	4.91	27.4	5.23
		13.8(230.5)	31.3	4.44	30.8	4.56	30.3	4.67	28.9	4.95	27.5	5.22
	30	4.6(76.8)	31.1	4.44	30.8	4.56	30.4	4.67	29.0	4.95	27.7	5.22
		9.22(153.7)	31.7	4.52	31.3	4.63	31.0	4.75	29.3	4.98	28.2	5.31
		13.8(230.5)	31.9	4.52	31.6	4.66	31.3	4.80	29.8	5.05	28.7	5.35
50	15	4.6(76.8)	23.6	3.29	23.2	3.35	22.8	3.41	21.9	2.99	21.0	2.58
		9.22(153.7)	24.2	3.36	23.8	3.40	23.4	3.45	22.6	3.61	21.7	3.76
		13.8(230.5)	24.6	3.43	24.2	3.46	23.9	3.49	23.3	3.69	22.8	3.89
	20	4.6(76.8)	24.9	3.29	24.8	3.41	24.8	3.52	23.4	3.81	22.0	4.10
		9.22(153.7)	25.1	3.35	25.0	3.45	25.0	3.54	23.6	3.67	22.2	3.80
		13.8(230.5)	25.2	3.35	25.1	3.47	25.1	3.60	23.7	3.70	22.3	4.09
	25	4.6(76.8)	25.4	3.35	25.3	3.47	25.1	3.60	23.7	3.84	22.7	4.02
		9.22(153.7)	25.9	3.41	25.5	3.53	25.2	3.66	23.9	3.84	22.9	4.09
		13.8(230.5)	26.1	3.47	25.7	3.57	25.2	3.66	24.0	3.87	22.9	4.08
	30	4.6(76.8)	26.0	3.47	25.6	3.57	25.3	3.66	24.1	3.87	23.1	4.08
		9.22(153.7)	26.4	3.54	26.1	3.63	25.8	3.72	24.4	3.90	23.5	4.15
		13.8(230.5)	26.6	3.54	26.3	3.64	26.1	3.75	24.8	3.95	23.9	4.19

Outdoor Unit:18HP (AVWW-170U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate		Ti (Indoor Unit Temp.)								
		m³/h (l/min.)	16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	5.2(86.4)	57.0	8.33	56.1	8.48	55.1	8.64	53.0	9.03	50.9	9.42
		10.37(172.8)	58.6	8.50	57.6	8.61	56.6	8.73	54.6	9.22	52.6	9.71
		15.6(259.3)	59.5	8.67	58.7	8.75	57.8	8.84	56.4	9.56	55.1	10.29
	20	5.2(86.4)	60.3	8.33	60.1	8.62	59.9	8.91	56.5	9.24	53.2	9.56
		10.37(172.8)	60.7	8.48	60.6	8.72	60.5	8.96	57.1	9.57	53.8	10.18
		15.6(259.3)	60.9	8.48	60.8	8.79	60.7	9.10	57.2	9.64	54.0	10.18
	25	5.2(86.4)	61.5	8.48	61.1	8.79	60.7	9.10	57.3	9.64	54.9	10.18
		10.37(172.8)	62.6	8.64	61.7	8.94	60.9	9.25	57.9	9.71	55.3	10.33
		15.6(259.3)	63.2	8.79	62.1	9.02	61.1	9.25	58.2	9.79	55.5	10.33
	30	5.2(86.4)	62.8	8.79	62.0	9.02	61.2	9.25	58.4	9.79	55.9	10.33
		10.37(172.8)	63.9	8.94	63.2	9.17	62.4	9.41	59.1	9.87	56.8	10.49
		15.6(259.3)	64.3	8.94	63.7	9.22	63.2	9.50	60.0	9.99	57.8	10.49
120	15	5.2(86.4)	55.6	8.66	54.7	8.82	53.7	8.98	51.7	9.39	49.6	9.80
		10.37(172.8)	57.1	8.84	56.2	8.96	55.2	9.08	53.3	9.59	51.3	10.11
		15.6(259.3)	58.1	9.02	57.2	9.10	56.4	9.19	55.1	9.95	53.7	10.70
	20	5.2(86.4)	58.8	8.66	58.6	8.97	58.4	9.27	55.2	9.61	51.9	9.95
		10.37(172.8)	59.2	8.82	59.1	9.07	59.0	9.32	55.7	9.95	52.4	10.59
		15.6(259.3)	59.4	8.82	59.3	9.14	59.2	9.47	55.8	10.03	52.6	10.59
	25	5.2(86.4)	60.0	8.82	59.6	9.14	59.2	9.47	55.9	10.03	53.6	10.59
		10.37(172.8)	61.1	8.98	60.2	9.30	59.4	9.63	56.5	10.11	53.9	10.75
		15.6(259.3)	61.6	9.14	60.6	9.38	59.6	9.63	56.7	10.19	54.1	10.75
	30	5.2(86.4)	61.2	9.14	60.5	9.38	59.7	9.63	56.9	10.19	54.5	10.75
		10.37(172.8)	62.4	9.30	61.6	9.54	60.9	9.79	57.7	10.27	55.4	10.91
		15.6(259.3)	62.7	9.30	62.2	9.59	61.6	9.88	58.5	10.40	56.4	10.91
110	15	5.2(86.4)	54.2	8.98	53.3	9.15	52.4	9.32	50.4	9.74	48.4	10.16
		10.37(172.8)	55.7	9.17	54.8	9.29	53.8	9.42	51.9	9.95	50.0	10.48
		15.6(259.3)	56.6	9.35	55.8	9.44	54.9	9.53	53.7	10.31	52.4	11.10
	20	5.2(86.4)	57.3	8.98	57.1	9.30	56.9	9.62	53.8	9.96	50.6	10.31
		10.37(172.8)	57.7	9.15	57.6	9.41	57.5	9.67	54.3	10.32	51.1	10.98
		15.6(259.3)	57.9	9.15	57.8	9.48	57.7	9.82	54.4	10.40	51.3	10.98
	25	5.2(86.4)	58.5	9.15	58.1	9.48	57.7	9.82	54.5	10.40	52.2	10.98
		10.37(172.8)	59.5	9.32	58.7	9.65	57.9	9.98	55.0	10.48	52.6	11.15
		15.6(259.3)	60.1	9.48	59.0	9.73	58.0	9.98	55.3	10.56	52.7	11.15
	30	5.2(86.4)	59.7	9.48	59.0	9.73	58.2	9.98	55.5	10.56	53.1	11.15
		10.37(172.8)	60.8	9.65	60.0	9.90	59.3	10.15	56.2	10.65	54.0	11.31
		15.6(259.3)	61.1	9.65	60.6	9.95	60.1	10.25	57.0	10.78	54.9	11.31

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	5.2(86.4)	52.8	9.30	51.9	9.48	51.0	9.65	49.1	10.09	47.1	10.53
		10.37(172.8)	54.2	9.49	53.3	9.62	52.4	9.75	50.6	10.30	48.7	10.85
		15.6(259.3)	55.1	9.68	54.3	9.78	53.5	9.87	52.3	10.68	51.0	11.49
	20	5.2(86.4)	55.8	9.30	55.6	9.63	55.5	9.96	52.4	10.32	49.2	10.68
		10.37(172.8)	56.2	9.48	56.1	9.74	56.0	10.01	52.9	10.69	49.8	11.37
		15.6(259.3)	56.4	9.48	56.3	9.82	56.2	10.17	53.0	10.77	50.0	11.37
	25	5.2(86.4)	57.0	9.48	56.6	9.82	56.2	10.17	53.1	10.77	50.9	11.37
		10.37(172.8)	58.0	9.65	57.2	9.99	56.4	10.34	53.6	10.85	51.2	11.54
		15.6(259.3)	58.5	9.82	57.5	10.08	56.5	10.34	53.9	10.94	51.4	11.54
	30	5.2(86.4)	58.1	9.82	57.4	10.08	56.7	10.34	54.0	10.94	51.7	11.54
		10.37(172.8)	59.2	9.99	58.5	10.25	57.8	10.51	54.8	11.03	52.6	11.72
		15.6(259.3)	59.6	9.99	59.0	10.30	58.5	10.61	55.6	11.16	53.5	11.72
90	15	5.2(86.4)	47.5	8.26	46.7	8.41	45.9	8.57	44.2	8.96	42.4	9.35
		10.37(172.8)	48.8	8.43	48.0	8.54	47.2	8.66	45.5	9.15	43.8	9.64
		15.6(259.3)	49.6	8.60	48.9	8.68	48.2	8.77	47.0	9.49	45.9	10.20
	20	5.2(86.4)	50.2	8.26	50.1	8.55	49.9	8.84	47.1	9.16	44.3	9.49
		10.37(172.8)	50.6	8.41	50.5	8.65	50.4	8.89	47.6	9.49	44.8	10.10
		15.6(259.3)	50.7	8.41	50.6	8.72	50.6	9.03	47.7	9.56	45.0	10.10
	25	5.2(86.4)	51.3	8.41	50.9	8.72	50.6	9.03	47.8	9.56	45.8	10.10
		10.37(172.8)	52.2	8.57	51.4	8.87	50.7	9.18	48.2	9.64	46.1	10.25
		15.6(259.3)	52.6	8.72	51.8	8.95	50.9	9.18	48.5	9.72	46.2	10.25
	30	5.2(86.4)	52.3	8.72	51.7	8.95	51.0	9.18	48.6	9.72	46.6	10.25
		10.37(172.8)	53.3	8.87	52.6	9.10	52.0	9.33	49.3	9.79	47.4	10.40
		15.6(259.3)	53.6	8.87	53.1	9.15	52.6	9.42	50.0	9.91	48.2	10.40
80	15	5.2(86.4)	42.2	7.21	41.5	7.34	40.8	7.48	39.3	7.82	37.7	8.16
		10.37(172.8)	43.4	7.36	42.7	7.46	42.0	7.56	40.5	7.98	39.0	8.41
		15.6(259.3)	44.1	7.50	43.4	7.58	42.8	7.65	41.8	8.28	40.8	8.91
	20	5.2(86.4)	44.7	7.21	44.5	7.46	44.4	7.72	41.9	8.00	39.4	8.28
		10.37(172.8)	44.9	7.34	44.9	7.55	44.8	7.76	42.3	8.29	39.8	8.81
		15.6(259.3)	45.1	7.34	45.0	7.61	44.9	7.88	42.4	8.35	40.0	8.81
	25	5.2(86.4)	45.6	7.34	45.3	7.61	45.0	7.88	42.5	8.35	40.7	8.81
		10.37(172.8)	46.4	7.48	45.7	7.74	45.1	8.01	42.9	8.41	41.0	8.95
		15.6(259.3)	46.8	7.61	46.0	7.81	45.2	8.01	43.1	8.48	41.1	8.95
	30	5.2(86.4)	46.5	7.61	45.9	7.81	45.4	8.01	43.2	8.48	41.4	8.95
		10.37(172.8)	47.4	7.74	46.8	7.94	46.2	8.14	43.8	8.55	42.1	9.08
		15.6(259.3)	47.6	7.74	47.2	7.98	46.8	8.23	44.4	8.65	42.8	9.08

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	5.2(86.4)	37.0	6.12	36.3	6.23	35.7	6.34	34.3	6.63	33.0	6.92
		10.37(172.8)	38.0	6.24	37.3	6.33	36.7	6.41	35.4	6.77	34.1	7.14
		15.6(259.3)	38.6	6.37	38.0	6.43	37.5	6.49	36.6	7.02	35.7	7.56
	20	5.2(86.4)	39.1	6.12	39.0	6.33	38.8	6.55	36.6	6.79	34.5	7.02
		10.37(172.8)	39.3	6.23	39.3	6.40	39.2	6.58	37.0	7.03	34.8	7.48
		15.6(259.3)	39.4	6.23	39.4	6.46	39.3	6.68	37.1	7.08	35.0	7.48
	25	5.2(86.4)	39.9	6.23	39.6	6.46	39.4	6.68	37.2	7.08	35.6	7.48
		10.37(172.8)	40.6	6.34	40.0	6.57	39.4	6.80	37.5	7.14	35.8	7.59
		15.6(259.3)	40.9	6.46	40.3	6.63	39.6	6.80	37.7	7.19	36.0	7.59
	30	5.2(86.4)	40.7	6.46	40.2	6.63	39.7	6.80	37.8	7.19	36.2	7.59
		10.37(172.8)	41.4	6.57	40.9	6.74	40.4	6.91	38.3	7.25	36.8	7.70
		15.6(259.3)	41.7	6.57	41.3	6.77	40.9	6.98	38.9	7.34	37.5	7.70
60	15	5.2(86.4)	31.7	5.01	31.1	5.10	30.6	5.20	29.4	5.43	28.3	5.67
		10.37(172.8)	32.5	5.11	32.0	5.18	31.5	5.25	30.3	5.55	29.2	5.85
		15.6(259.3)	33.1	5.22	32.6	5.27	32.1	5.32	31.4	5.75	30.6	6.19
	20	5.2(86.4)	33.5	5.01	33.4	5.19	33.3	5.36	31.4	5.56	29.5	5.75
		10.37(172.8)	33.7	5.10	33.7	5.25	33.6	5.39	31.7	5.76	29.9	6.13
		15.6(259.3)	33.8	5.10	33.8	5.29	33.7	5.48	31.8	5.80	30.0	6.13
	25	5.2(86.4)	34.2	5.10	34.0	5.29	33.7	5.48	31.9	5.80	30.5	6.13
		10.37(172.8)	34.8	5.20	34.3	5.38	33.8	5.57	32.2	5.85	30.7	6.22
		15.6(259.3)	35.1	5.29	34.5	5.43	33.9	5.57	32.3	5.89	30.8	6.22
	30	5.2(86.4)	34.9	5.29	34.5	5.43	34.0	5.57	32.4	5.89	31.0	6.22
		10.37(172.8)	35.5	5.38	35.1	5.52	34.7	5.66	32.9	5.94	31.6	6.31
		15.6(259.3)	35.7	5.38	35.4	5.55	35.1	5.72	33.3	6.01	32.1	6.31
50	15	5.2(86.4)	26.4	3.92	26.0	3.99	25.5	4.07	24.5	4.25	23.6	4.44
		10.37(172.8)	27.1	4.00	26.7	4.06	26.2	4.11	25.3	4.34	24.4	4.58
		15.6(259.3)	27.6	4.08	27.2	4.12	26.8	4.16	26.1	4.50	25.5	4.84
	20	5.2(86.4)	27.9	3.92	27.8	4.06	27.7	4.20	26.2	4.35	24.6	4.50
		10.37(172.8)	28.1	4.00	28.0	4.11	28.0	4.22	26.4	4.51	24.9	4.79
		15.6(259.3)	28.2	4.00	28.1	4.14	28.1	4.29	26.5	4.54	25.0	4.79
	25	5.2(86.4)	28.5	4.00	28.3	4.14	28.1	4.29	26.5	4.54	25.4	4.79
		10.37(172.8)	29.0	4.07	28.6	4.21	28.2	4.36	26.8	4.58	25.6	4.87
		15.6(259.3)	29.2	4.14	28.8	4.25	28.3	4.36	26.9	4.61	25.7	4.87
	30	5.2(86.4)	29.1	4.14	28.7	4.25	28.4	4.36	27.0	4.61	25.9	4.87
		10.37(172.8)	29.6	4.21	29.2	4.32	28.9	4.43	27.4	4.65	26.3	4.94
		15.6(259.3)	29.8	4.21	29.5	4.34	29.2	4.47	27.8	4.71	26.8	4.94

Outdoor Unit:20HP (AVWW-190U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate		Ti (Indoor Unit Temp.)								
		m³/h (l/min.)	16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	5.76(96)	64.2	9.67	63.1	9.84	62.0	10.02	59.6	10.48	57.2	10.94
		11.52(192)	65.9	9.86	64.8	10.00	63.7	10.13	61.5	10.70	59.2	11.28
		17.28(288)	67.0	10.06	66.0	10.16	65.0	10.26	63.5	11.10	62.0	11.94
	20	5.76(96)	67.8	9.67	67.6	10.00	67.4	10.35	63.6	10.72	59.8	11.10
		11.52(192)	68.3	9.85	68.1	10.12	68.0	10.40	64.3	11.11	60.5	11.81
		17.28(288)	68.5	9.85	68.4	10.20	68.3	10.56	64.4	11.19	60.7	11.81
	25	5.76(96)	69.2	9.85	68.8	10.20	68.3	10.56	64.5	11.19	61.8	11.81
		11.52(192)	70.4	10.02	69.4	10.38	68.5	10.74	65.1	11.28	62.2	11.99
		17.28(288)	71.1	10.20	69.9	10.47	68.7	10.74	65.4	11.37	62.4	11.99
	30	5.76(96)	70.6	10.20	69.8	10.47	68.9	10.74	65.7	11.37	62.9	11.99
		11.52(192)	71.9	10.38	71.1	10.65	70.2	10.92	66.5	11.46	63.9	12.17
		17.28(288)	72.4	10.38	71.7	10.70	71.1	11.03	67.5	11.60	65.0	12.17
120	15	5.76(96)	62.6	10.06	61.5	10.24	60.5	10.43	58.1	10.90	55.8	11.38
		11.52(192)	64.3	10.26	63.2	10.40	62.2	10.54	59.9	11.14	57.7	11.73
		17.28(288)	65.3	10.47	64.4	10.57	63.4	10.67	61.9	11.55	60.5	12.42
	20	5.76(96)	66.2	10.06	65.9	10.41	65.7	10.76	62.0	11.16	58.4	11.55
		11.52(192)	66.6	10.24	66.5	10.53	66.4	10.82	62.7	11.56	59.0	12.29
		17.28(288)	66.8	10.24	66.7	10.61	66.6	10.99	62.8	11.64	59.2	12.29
	25	5.76(96)	67.5	10.24	67.1	10.61	66.7	10.99	62.9	11.64	60.3	12.29
		11.52(192)	68.7	10.43	67.7	10.80	66.8	11.17	63.5	11.73	60.7	12.48
		17.28(288)	69.3	10.62	68.2	10.89	67.0	11.17	63.8	11.83	60.9	12.48
	30	5.76(96)	68.9	10.62	68.0	10.89	67.2	11.17	64.0	11.83	61.3	12.48
		11.52(192)	70.2	10.80	69.3	11.08	68.5	11.36	64.9	11.92	62.4	12.66
		17.28(288)	70.6	10.80	69.9	11.13	69.3	11.47	65.8	12.07	63.4	12.66
110	15	5.76(96)	61.0	10.43	60.0	10.62	58.9	10.81	56.7	11.31	54.4	11.80
		11.52(192)	62.6	10.64	61.6	10.79	60.6	10.93	58.4	11.55	56.3	12.17
		17.28(288)	63.7	10.85	62.7	10.96	61.8	11.07	60.4	11.97	58.9	12.88
	20	5.76(96)	64.5	10.43	64.3	10.79	64.1	11.16	60.5	11.57	56.9	11.97
		11.52(192)	64.9	10.62	64.8	10.92	64.7	11.22	61.1	11.98	57.5	12.75
		17.28(288)	65.1	10.62	65.0	11.00	64.9	11.39	61.2	12.07	57.7	12.75
	25	5.76(96)	65.8	10.62	65.4	11.00	65.0	11.39	61.3	12.07	58.7	12.75
		11.52(192)	66.9	10.81	66.0	11.20	65.1	11.59	61.9	12.17	59.1	12.94
		17.28(288)	67.6	11.01	66.4	11.30	65.3	11.59	62.2	12.26	59.3	12.94
	30	5.76(96)	67.1	11.01	66.3	11.30	65.5	11.59	62.4	12.26	59.8	12.94
		11.52(192)	68.4	11.20	67.6	11.49	66.7	11.78	63.2	12.36	60.8	13.13
		17.28(288)	68.8	11.20	68.2	11.55	67.6	11.90	64.2	12.51	61.8	13.13

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	5.76(96)	59.4	10.80	58.4	11.00	57.4	11.20	55.2	11.71	53.0	12.22
		11.52(192)	61.0	11.02	60.0	11.17	59.0	11.32	56.9	11.96	54.8	12.60
		17.28(288)	62.0	11.24	61.1	11.35	60.2	11.46	58.8	12.40	57.4	13.34
	20	5.76(96)	62.8	10.80	62.6	11.18	62.4	11.56	58.9	11.98	55.4	12.40
		11.52(192)	63.2	11.00	63.1	11.31	63.0	11.62	59.5	12.41	56.0	13.20
		17.28(288)	63.4	11.00	63.3	11.40	63.2	11.80	59.6	12.50	56.2	13.20
	25	5.76(96)	64.1	11.00	63.7	11.40	63.3	11.80	59.7	12.50	57.2	13.20
		11.52(192)	65.2	11.20	64.3	11.60	63.4	12.00	60.3	12.60	57.6	13.40
		17.28(288)	65.8	11.40	64.7	11.70	63.6	12.00	60.6	12.70	57.8	13.40
	30	5.76(96)	65.4	11.40	64.6	11.70	63.8	12.00	60.8	12.70	58.2	13.40
		11.52(192)	66.6	11.60	65.8	11.90	65.0	12.20	61.6	12.80	59.2	13.60
		17.28(288)	67.0	11.60	66.4	11.96	65.8	12.32	62.5	12.96	60.2	13.60
90	15	5.76(96)	53.5	9.59	52.6	9.77	51.7	9.95	49.7	10.40	47.7	10.85
		11.52(192)	54.9	9.79	54.0	9.92	53.1	10.05	51.2	10.62	49.3	11.19
		17.28(288)	55.8	9.98	55.0	10.08	54.2	10.18	52.9	11.01	51.7	11.85
	20	5.76(96)	56.5	9.59	56.3	9.93	56.2	10.27	53.0	10.64	49.9	11.01
		11.52(192)	56.9	9.77	56.8	10.04	56.7	10.32	53.6	11.02	50.4	11.72
		17.28(288)	57.1	9.77	57.0	10.12	56.9	10.48	53.6	11.10	50.6	11.72
	25	5.76(96)	57.7	9.77	57.3	10.12	56.9	10.48	53.8	11.10	51.5	11.72
		11.52(192)	58.7	9.95	57.9	10.30	57.1	10.66	54.3	11.19	51.8	11.90
		17.28(288)	59.2	10.12	58.2	10.39	57.2	10.66	54.5	11.28	52.0	11.90
	30	5.76(96)	58.9	10.12	58.1	10.39	57.4	10.66	54.7	11.28	52.4	11.90
		11.52(192)	59.9	10.30	59.2	10.57	58.5	10.83	55.4	11.37	53.3	12.08
		17.28(288)	60.3	10.30	59.8	10.62	59.2	10.94	56.3	11.51	54.2	12.08
80	15	5.76(96)	47.5	8.37	46.7	8.52	45.9	8.68	44.2	9.08	42.4	9.47
		11.52(192)	48.8	8.54	48.0	8.66	47.2	8.77	45.5	9.27	43.8	9.77
		17.28(288)	49.6	8.71	48.9	8.80	48.2	8.88	47.0	9.61	45.9	10.34
	20	5.76(96)	50.2	8.37	50.1	8.66	49.9	8.96	47.1	9.28	44.3	9.61
		11.52(192)	50.6	8.53	50.5	8.76	50.4	9.01	47.6	9.62	44.8	10.23
		17.28(288)	50.7	8.53	50.6	8.83	50.6	9.15	47.7	9.69	45.0	10.23
	25	5.76(96)	51.3	8.53	50.9	8.83	50.6	9.15	47.8	9.69	45.8	10.23
		11.52(192)	52.2	8.68	51.4	8.99	50.7	9.30	48.2	9.77	46.1	10.39
		17.28(288)	52.6	8.84	51.8	9.07	50.9	9.30	48.5	9.84	46.2	10.39
	30	5.76(96)	52.3	8.84	51.7	9.07	51.0	9.30	48.6	9.84	46.6	10.39
		11.52(192)	53.3	8.99	52.6	9.22	52.0	9.46	49.3	9.92	47.4	10.54
		17.28(288)	53.6	8.99	53.1	9.27	52.6	9.55	50.0	10.04	48.2	10.54

Combination (%)	Water Temp. (Inlet) °C	Flow rate m ³ /h (l/min.)	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	5.76(96)	41.6	7.10	40.9	7.23	40.2	7.36	38.6	7.70	37.1	8.03
		11.52(192)	42.7	7.25	42.0	7.34	41.3	7.44	39.8	7.86	38.4	8.28
		17.28(288)	43.4	7.39	42.8	7.46	42.1	7.53	41.2	8.15	40.2	8.77
	20	5.76(96)	44.0	7.10	43.8	7.35	43.7	7.60	41.2	7.88	38.8	8.15
		11.52(192)	44.2	7.23	44.2	7.44	44.1	7.64	41.7	8.16	39.2	8.68
		17.28(288)	44.4	7.23	44.3	7.49	44.2	7.76	41.7	8.22	39.3	8.68
	25	5.76(96)	44.9	7.23	44.6	7.49	44.3	7.76	41.8	8.22	40.0	8.68
		11.52(192)	45.6	7.36	45.0	7.63	44.4	7.89	42.2	8.28	40.3	8.81
		17.28(288)	46.1	7.50	45.3	7.69	44.5	7.89	42.4	8.35	40.5	8.81
	30	5.76(96)	45.8	7.50	45.2	7.69	44.7	7.89	42.6	8.35	40.7	8.81
		11.52(192)	46.6	7.63	46.1	7.82	45.5	8.02	43.1	8.42	41.4	8.94
		17.28(288)	46.9	7.63	46.5	7.86	46.1	8.10	43.8	8.52	42.1	8.94
60	15	5.76(96)	35.6	5.82	35.0	5.93	34.4	6.03	33.1	6.31	31.8	6.58
		11.52(192)	36.6	5.94	36.0	6.02	35.4	6.10	34.1	6.44	32.9	6.79
		17.28(288)	37.2	6.05	36.7	6.11	36.1	6.17	35.3	6.68	34.4	7.19
	20	5.76(96)	37.7	5.82	37.6	6.02	37.4	6.23	35.3	6.45	33.2	6.68
		11.52(192)	37.9	5.93	37.9	6.09	37.8	6.26	35.7	6.69	33.6	7.11
		17.28(288)	38.0	5.93	38.0	6.14	37.9	6.36	35.8	6.73	33.7	7.11
	25	5.76(96)	38.4	5.93	38.2	6.14	38.0	6.36	35.8	6.73	34.3	7.11
		11.52(192)	39.1	6.03	38.6	6.25	38.0	6.46	36.2	6.79	34.6	7.22
		17.28(288)	39.5	6.14	38.8	6.30	38.2	6.46	36.4	6.84	34.7	7.22
	30	5.76(96)	39.2	6.14	38.8	6.30	38.3	6.46	36.5	6.84	34.9	7.22
		11.52(192)	40.0	6.25	39.5	6.41	39.0	6.57	37.0	6.90	35.5	7.33
		17.28(288)	40.2	6.25	39.8	6.44	39.5	6.64	37.5	6.98	36.1	7.33
50	15	5.76(96)	29.7	4.55	29.2	4.64	28.7	4.72	27.6	4.94	26.5	5.15
		11.52(192)	30.5	4.65	30.0	4.71	29.5	4.77	28.5	5.04	27.4	5.31
		17.28(288)	31.0	4.74	30.5	4.79	30.1	4.83	29.4	5.23	28.7	5.62
	20	5.76(96)	31.4	4.55	31.3	4.71	31.2	4.87	29.5	5.05	27.7	5.23
		11.52(192)	31.6	4.64	31.6	4.77	31.5	4.90	29.8	5.23	28.0	5.57
		17.28(288)	31.7	4.64	31.7	4.81	31.6	4.97	29.8	5.27	28.1	5.57
	25	5.76(96)	32.0	4.64	31.8	4.81	31.6	4.97	29.9	5.27	28.6	5.57
		11.52(192)	32.6	4.72	32.1	4.89	31.7	5.06	30.2	5.31	28.8	5.65
		17.28(288)	32.9	4.81	32.3	4.93	31.8	5.06	30.3	5.35	28.9	5.65
	30	5.76(96)	32.7	4.81	32.3	4.93	31.9	5.06	30.4	5.35	29.1	5.65
		11.52(192)	33.3	4.89	32.9	5.02	32.5	5.14	30.8	5.40	29.6	5.73
		17.28(288)	33.5	4.89	33.2	5.04	32.9	5.19	31.3	5.46	30.1	5.73

Outdoor Unit:24HP (AVWW-229U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		Q	P	Q	P	Q	P	Q	P	Q	P	
m ³ /h (l/min.)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
130	15	6.9(115)	76.4	12.59	75.2	12.38	73.8	12.19	71.0	11.70	68.2	11.24
		13.8(230)	78.4	12.93	77.1	12.72	75.9	12.50	73.2	12.07	70.6	11.61
		20.7(288)	79.7	13.16	78.7	12.95	77.4	12.77	75.7	12.47	73.8	12.17
	20	6.9(115)	80.7	13.31	80.6	13.26	80.3	13.21	75.8	12.47	71.2	11.77
		13.8(230)	81.3	13.40	81.2	13.37	81.0	13.35	76.5	12.60	72.0	11.86
		20.7(288)	81.5	13.43	81.5	13.41	81.3	13.42	76.7	12.65	72.3	11.91
	25	6.9(115)	82.4	13.59	82.0	13.49	81.3	13.41	76.8	12.67	73.5	12.13
		13.8(230)	83.9	13.81	82.7	13.63	81.5	13.43	77.6	12.79	74.2	12.22
		20.7(288)	84.6	13.95	83.3	13.72	81.8	13.48	77.9	12.84	74.3	12.27
	30	6.9(115)	84.2	13.88	83.2	13.72	82.1	13.51	78.2	12.89	74.9	12.35
		13.8(230)	85.7	14.12	84.6	13.93	83.6	13.78	79.3	13.06	76.1	12.55
		20.7(288)	86.1	14.21	85.4	14.09	84.6	13.94	80.4	13.24	77.4	12.77
120	15	6.9(115)	74.6	12.33	73.3	12.12	72.0	11.94	69.1	11.49	66.5	11.04
		13.8(230)	76.5	12.69	75.3	12.49	73.9	12.27	71.4	11.85	68.8	11.40
		20.7(288)	77.7	12.90	76.7	12.71	75.5	12.54	73.9	12.25	72.0	11.95
	20	6.9(115)	78.8	13.05	78.5	13.01	78.4	12.97	73.9	12.25	69.5	11.52
		13.8(230)	79.2	13.17	79.3	13.13	79.1	13.11	74.6	12.37	70.2	11.64
		20.7(288)	79.6	13.20	79.4	13.16	79.2	13.15	74.8	12.40	70.5	11.69
	25	6.9(115)	80.5	13.36	79.9	13.25	79.4	13.15	74.9	12.42	71.7	11.90
		13.8(230)	81.8	13.55	80.7	13.36	79.6	13.17	75.7	12.54	72.4	11.97
		20.7(288)	82.5	13.66	81.2	13.44	79.9	13.25	76.1	12.62	72.5	12.02
	30	6.9(115)	82.1	13.59	81.1	13.44	80.0	13.25	76.3	12.67	73.0	12.10
		13.8(230)	83.6	13.87	82.5	13.66	81.5	13.51	77.3	12.81	74.2	12.32
		20.7(288)	84.0	13.95	83.3	13.82	82.5	13.66	78.5	13.00	75.5	12.54
110	15	6.9(115)	72.7	12.10	71.5	11.90	70.2	11.71	67.5	11.25	64.9	10.81
		13.8(230)	74.5	12.43	73.4	12.23	72.2	12.02	69.6	11.61	67.1	11.17
		20.7(288)	75.7	12.66	74.8	12.45	73.7	12.28	71.9	12.00	70.2	11.71
	20	6.9(115)	76.8	12.81	76.6	12.77	76.3	12.71	72.1	12.01	67.7	11.31
		13.8(230)	77.3	12.91	77.2	12.88	77.0	12.84	72.8	12.12	68.4	11.41
		20.7(288)	77.6	12.94	77.4	12.89	77.3	12.92	73.0	12.17	68.7	11.46
	25	6.9(115)	78.4	13.09	77.9	12.97	77.4	12.91	73.0	12.19	69.9	11.67
		13.8(230)	79.7	13.29	78.6	13.12	77.6	12.94	73.7	12.32	70.4	11.75
		20.7(288)	80.4	13.41	79.1	13.20	77.8	12.99	74.2	12.37	70.7	11.80
	30	6.9(115)	80.0	13.34	79.0	13.20	78.0	13.01	74.3	12.42	71.1	11.87
		13.8(230)	81.5	13.58	80.4	13.42	79.5	13.27	75.4	12.57	72.3	12.07
		20.7(288)	81.9	13.67	81.2	13.55	80.4	13.42	76.3	12.75	73.7	12.28

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	6.9(115)	70.7	11.87	69.5	11.67	68.4	11.49	65.7	11.04	63.2	10.61
		13.8(230)	72.6	12.20	71.4	12.00	70.2	11.79	67.8	11.39	65.3	10.96
		20.7(288)	73.8	12.40	72.8	12.22	71.7	12.05	70.1	11.77	68.4	11.49
	20	6.9(115)	74.7	12.55	74.6	12.52	74.3	12.47	70.1	11.77	66.0	11.09
		13.8(230)	75.3	12.65	75.2	12.63	75.0	12.60	70.8	11.89	66.6	11.19
		20.7(288)	75.5	12.68	75.3	12.65	75.3	12.65	71.0	11.92	66.9	11.24
	25	6.9(115)	76.4	12.83	75.8	12.73	75.3	12.65	71.1	11.94	68.1	11.44
		13.8(230)	77.6	13.03	76.5	12.85	75.5	12.68	71.9	12.07	68.6	11.52
		20.7(288)	78.3	13.15	77.0	12.93	75.8	12.73	72.2	12.12	68.9	11.57
	30	6.9(115)	77.9	13.08	77.0	12.93	75.9	12.75	72.5	12.17	69.3	11.64
		13.8(230)	79.4	13.33	78.3	13.15	77.4	13.00	73.4	12.32	70.5	11.84
		20.7(288)	79.8	13.41	79.1	13.28	78.3	13.15	74.4	12.50	71.7	12.05
90	15	6.9(115)	63.6	10.53	62.6	10.36	61.5	10.20	59.1	9.81	56.9	9.43
		13.8(230)	65.4	10.82	64.4	10.66	63.2	10.48	60.9	10.11	58.7	9.73
		20.7(288)	66.5	11.01	65.4	10.86	64.5	10.71	63.0	10.45	61.5	10.21
	20	6.9(115)	67.4	11.14	67.1	11.13	66.9	11.07	63.2	10.45	59.4	9.85
		13.8(230)	67.7	11.23	67.7	11.22	67.5	11.19	63.8	10.55	60.0	9.94
		20.7(288)	68.0	11.26	67.8	11.24	67.7	11.23	63.9	10.59	60.2	9.98
	25	6.9(115)	68.7	11.39	68.3	11.31	67.8	11.23	64.1	10.60	61.4	10.16
		13.8(230)	69.9	11.57	68.9	11.41	68.0	11.26	64.7	10.72	61.7	10.24
		20.7(288)	70.5	11.68	69.3	11.48	68.1	11.31	65.0	10.76	62.0	10.27
	30	6.9(115)	70.1	11.62	69.2	11.48	68.4	11.32	65.1	10.80	62.4	10.33
		13.8(230)	71.4	11.84	70.5	11.68	69.6	11.54	66.0	10.95	63.5	10.52
		20.7(288)	71.9	11.91	71.1	11.80	70.5	11.67	66.9	11.10	64.5	10.70
80	15	6.9(115)	56.6	9.20	55.7	9.04	54.6	8.89	52.5	8.55	50.6	8.23
		13.8(230)	58.1	9.44	57.2	9.31	56.3	9.14	54.2	8.82	52.2	8.49
		20.7(288)	59.1	9.61	58.2	9.48	57.3	9.34	56.0	9.12	54.6	8.91
	20	6.9(115)	59.9	9.72	59.6	9.70	59.4	9.67	56.1	9.13	52.8	8.59
		13.8(230)	60.2	9.80	60.2	9.80	60.0	9.77	56.7	9.21	53.4	8.67
		20.7(288)	60.5	9.83	60.3	9.81	60.2	9.80	56.7	9.24	53.6	8.71
	25	6.9(115)	61.1	9.94	60.6	9.87	60.3	9.80	56.9	9.25	54.5	8.87
		13.8(230)	62.1	10.09	61.2	9.97	60.5	9.83	57.5	9.35	54.9	8.93
		20.7(288)	62.7	10.20	61.7	10.01	60.6	9.87	57.8	9.39	55.1	8.97
	30	6.9(115)	62.3	10.14	61.5	10.01	60.8	9.88	57.9	9.44	55.5	9.02
		13.8(230)	63.5	10.33	62.7	10.20	62.0	10.07	58.7	9.55	56.4	9.17
		20.7(288)	63.8	10.39	63.3	10.30	62.7	10.18	59.6	9.69	57.3	9.33

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	6.9(115)	49.5	7.80	48.6	7.68	47.9	7.55	46.1	7.26	44.1	6.98
		13.8(230)	50.9	8.02	50.0	7.90	49.2	7.75	47.4	7.49	45.6	7.20
		20.7(288)	51.6	8.14	50.9	8.03	50.1	7.93	49.1	7.73	47.9	7.55
	20	6.9(115)	52.4	8.24	52.2	8.23	52.1	8.19	49.1	7.75	46.2	7.29
		13.8(230)	52.7	8.32	52.7	8.30	52.5	8.28	49.7	7.81	46.7	7.35
		20.7(288)	52.8	8.34	52.8	8.32	52.7	8.32	49.7	7.84	46.8	7.39
	25	6.9(115)	53.4	8.44	53.1	8.37	52.8	8.32	49.8	7.85	47.7	7.52
		13.8(230)	54.3	8.56	53.6	8.45	52.8	8.34	50.3	7.94	48.0	7.58
		20.7(288)	54.9	8.65	53.9	8.50	53.0	8.37	50.6	7.97	48.2	7.61
	30	6.9(115)	54.5	8.60	53.9	8.50	53.1	8.38	50.7	8.01	48.5	7.65
		13.8(230)	55.5	8.75	54.9	8.65	54.2	8.55	51.3	8.10	49.4	7.79
		20.7(288)	55.8	8.81	55.4	8.73	54.9	8.65	52.1	8.22	50.1	7.92
60	15	6.9(115)	42.5	6.40	41.7	6.28	41.0	6.18	39.5	5.96	37.8	5.71
		13.8(230)	43.5	6.57	42.9	6.47	42.2	6.36	40.7	6.13	39.2	5.90
		20.7(288)	44.3	6.68	43.7	6.59	43.1	6.49	42.0	6.35	41.0	6.19
	20	6.9(115)	44.9	6.77	44.7	6.74	44.6	6.71	42.0	6.34	39.6	5.97
		13.8(230)	45.2	6.81	45.0	6.80	45.0	6.80	42.5	6.40	40.1	6.02
		20.7(288)	45.3	6.83	45.2	6.82	45.2	6.82	42.6	6.42	40.2	6.05
	25	6.9(115)	45.8	6.91	45.5	6.86	45.2	6.82	42.6	6.44	40.8	6.16
		13.8(230)	46.5	7.01	45.9	6.93	45.3	6.83	43.1	6.51	41.1	6.21
		20.7(288)	47.0	7.09	46.2	6.97	45.5	6.86	43.4	6.53	41.3	6.23
	30	6.9(115)	46.7	7.05	46.2	6.97	45.6	6.87	43.5	6.56	41.6	6.27
		13.8(230)	47.6	7.18	47.0	7.08	46.5	7.00	44.0	6.63	42.3	6.38
		20.7(288)	47.9	7.22	47.4	7.16	47.0	7.08	44.7	6.73	43.1	6.49
50	15	6.9(115)	35.4	5.00	34.8	4.92	34.2	4.84	32.9	4.65	31.5	4.48
		13.8(230)	36.3	5.14	35.7	5.06	35.1	4.97	33.9	4.80	32.6	4.61
		20.7(288)	36.9	5.23	36.3	5.16	35.9	5.08	35.0	4.96	34.2	4.85
	20	6.9(115)	37.4	5.29	37.2	5.28	37.2	5.25	35.1	4.96	33.0	4.67
		13.8(230)	37.7	5.33	37.5	5.33	37.5	5.31	35.4	5.01	33.3	4.72
		20.7(288)	37.8	5.34	37.7	5.33	37.7	5.34	35.6	5.03	33.5	4.74
	25	6.9(115)	38.1	5.41	38.0	5.36	37.7	5.34	35.6	5.03	34.1	4.82
		13.8(230)	38.9	5.49	38.3	5.41	37.8	5.35	35.9	5.09	34.4	4.86
		20.7(288)	39.2	5.54	38.6	5.46	37.8	5.37	36.0	5.10	34.4	4.87
	30	6.9(115)	39.0	5.51	38.4	5.46	38.0	5.38	36.2	5.13	34.7	4.90
		13.8(230)	39.6	5.62	39.2	5.55	38.7	5.48	36.6	5.19	35.3	4.99
		20.7(288)	39.9	5.66	39.5	5.59	39.2	5.53	37.2	5.26	35.9	5.08

Outdoor Unit:26HP (AVWW-250U(E/7/8)SB)												
Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		Q	P	Q	P	Q	P	Q	P	Q	P	
		m ³ /h (l/min.)	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	7.48(125)	83.0	14.20	81.7	13.95	80.2	13.74	77.1	13.18	74.0	12.67
		14.96(249)	85.3	14.57	83.8	14.33	82.5	14.09	79.6	13.61	76.6	13.08
		22.44(374)	86.6	14.82	85.5	14.59	84.1	14.39	82.1	14.05	80.2	13.72
	20	7.48(125)	87.7	15.00	87.5	14.95	87.2	14.90	82.3	14.05	77.4	13.26
		14.96(249)	88.3	15.11	88.2	15.07	88.0	15.05	83.1	14.21	78.3	13.37
		22.44(374)	88.5	15.13	88.5	15.11	88.3	15.13	83.3	14.25	78.6	13.43
	25	7.48(125)	89.5	15.31	89.0	15.20	88.3	15.12	83.5	14.28	79.9	13.66
		14.96(249)	91.1	15.56	89.8	15.36	88.5	15.14	84.3	14.41	80.5	13.77
		22.44(374)	91.9	15.72	90.4	15.46	88.8	15.19	84.6	14.47	80.7	13.83
	30	7.48(125)	91.4	15.64	90.3	15.46	89.2	15.23	84.9	14.53	81.3	13.92
		14.96(249)	93.0	15.91	91.9	15.70	90.8	15.53	86.1	14.72	82.6	14.15
		22.44(374)	93.5	16.01	92.7	15.88	91.9	15.71	87.3	14.93	84.1	14.39
120	15	7.48(125)	81.0	13.90	79.6	13.66	78.2	13.45	75.1	12.95	72.2	12.44
		14.96(249)	83.1	14.31	81.8	14.07	80.4	13.83	77.6	13.36	74.6	12.85
		22.44(374)	84.4	14.53	83.3	14.33	82.0	14.13	80.2	13.80	78.2	13.47
	20	7.48(125)	85.6	14.70	85.2	14.67	85.1	14.63	80.2	13.80	75.4	12.99
		14.96(249)	86.0	14.85	86.1	14.79	85.9	14.77	81.0	13.95	76.3	13.11
		22.44(374)	86.4	14.88	86.2	14.84	86.0	14.83	81.2	13.97	76.6	13.18
	25	7.48(125)	87.4	15.05	86.7	14.92	86.2	14.82	81.4	14.00	77.9	13.41
		14.96(249)	88.9	15.27	87.7	15.06	86.4	14.85	82.2	14.13	78.6	13.49
		22.44(374)	89.7	15.40	88.2	15.15	86.7	14.93	82.6	14.22	78.7	13.55
	30	7.48(125)	89.2	15.32	88.0	15.15	86.9	14.93	82.8	14.28	79.4	13.63
		14.96(249)	90.8	15.63	89.7	15.40	88.5	15.23	83.9	14.45	80.7	13.89
		22.44(374)	91.3	15.72	90.5	15.58	89.7	15.40	85.2	14.65	82.0	14.13
110	15	7.48(125)	78.9	13.64	77.6	13.41	76.3	13.20	73.4	12.68	70.4	12.19
		14.96(249)	81.0	14.01	79.7	13.78	78.4	13.55	75.7	13.09	72.9	12.59
		22.44(374)	82.3	14.27	81.2	14.03	80.0	13.84	78.1	13.51	76.3	13.20
	20	7.48(125)	83.5	14.44	83.1	14.39	82.8	14.33	78.2	13.53	73.5	12.74
		14.96(249)	83.9	14.55	83.8	14.51	83.6	14.47	79.0	13.66	74.4	12.86
		22.44(374)	84.3	14.58	84.1	14.53	83.9	14.56	79.2	13.71	74.7	12.92
	25	7.48(125)	85.1	14.76	84.6	14.61	84.1	14.56	79.4	13.74	76.0	13.15
		14.96(249)	86.6	14.97	85.4	14.79	84.3	14.58	80.1	13.88	76.5	13.23
		22.44(374)	87.4	15.11	85.9	14.88	84.4	14.63	80.5	13.94	76.8	13.30
	30	7.48(125)	86.9	15.03	85.7	14.88	84.8	14.67	80.7	14.00	77.3	13.38
		14.96(249)	88.5	15.31	87.4	15.13	86.4	14.95	81.8	14.17	78.6	13.61
		22.44(374)	89.0	15.40	88.2	15.27	87.4	15.13	82.9	14.37	80.0	13.84

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	7.48(125)	76.8	13.38	75.5	13.15	74.3	12.95	71.4	12.44	68.6	11.96
		14.96(249)	78.9	13.75	77.6	13.52	76.3	13.29	73.7	12.84	70.9	12.35
		22.44(374)	80.2	13.97	79.1	13.77	77.9	13.58	76.1	13.26	74.3	12.95
	20	7.48(125)	81.2	14.14	81.0	14.11	80.7	14.06	76.1	13.26	71.7	12.50
		14.96(249)	81.8	14.26	81.7	14.23	81.5	14.20	76.9	13.40	72.4	12.61
		22.44(374)	82.0	14.29	81.8	14.26	81.8	14.26	77.1	13.43	72.7	12.67
	25	7.48(125)	83.0	14.46	82.3	14.34	81.8	14.26	77.3	13.46	74.0	12.89
		14.96(249)	84.3	14.68	83.1	14.48	82.0	14.29	78.1	13.60	74.5	12.98
		22.44(374)	85.1	14.82	83.6	14.57	82.3	14.34	78.4	13.66	74.8	13.04
	30	7.48(125)	84.6	14.74	83.6	14.57	82.5	14.37	78.7	13.72	75.3	13.12
		14.96(249)	86.2	15.02	85.1	14.82	84.1	14.65	79.7	13.89	76.6	13.35
		22.44(374)	86.7	15.11	85.9	14.97	85.1	14.82	80.8	14.09	77.9	13.58
90	15	7.48(125)	69.1	11.87	68.0	11.68	66.8	11.50	64.2	11.06	61.8	10.63
		14.96(249)	71.1	12.20	69.9	12.01	68.6	11.81	66.2	11.40	63.7	10.97
		22.44(374)	72.2	12.41	71.1	12.24	70.1	12.07	68.4	11.77	66.8	11.50
	20	7.48(125)	73.2	12.55	72.9	12.54	72.7	12.48	68.6	11.78	64.5	11.10
		14.96(249)	73.5	12.66	73.5	12.65	73.4	12.61	69.2	11.89	65.2	11.20
		22.44(374)	73.8	12.69	73.7	12.67	73.5	12.66	69.4	11.93	65.4	11.24
	25	7.48(125)	74.7	12.84	74.2	12.74	73.7	12.66	69.6	11.95	66.7	11.44
		14.96(249)	76.0	13.03	74.8	12.86	73.8	12.69	70.3	12.08	67.0	11.53
		22.44(374)	76.6	13.17	75.3	12.93	74.0	12.74	70.6	12.13	67.3	11.57
	30	7.48(125)	76.1	13.09	75.1	12.93	74.3	12.76	70.7	12.18	67.8	11.64
		14.96(249)	77.6	13.34	76.6	13.17	75.6	13.01	71.7	12.34	68.9	11.86
		22.44(374)	78.1	13.42	77.3	13.31	76.6	13.16	72.7	12.51	70.1	12.06
80	15	7.48(125)	61.5	10.36	60.5	10.19	59.3	10.02	57.1	9.64	54.9	9.28
		14.96(249)	63.1	10.64	62.1	10.49	61.1	10.30	58.9	9.95	56.7	9.57
		22.44(374)	64.2	10.83	63.3	10.68	62.3	10.53	60.8	10.27	59.3	10.04
	20	7.48(125)	65.1	10.95	64.7	10.93	64.6	10.90	60.9	10.28	57.4	9.69
		14.96(249)	65.3	11.05	65.4	11.04	65.2	11.01	61.6	10.38	58.1	9.77
		22.44(374)	65.7	11.07	65.5	11.06	65.3	11.05	61.6	10.41	58.2	9.82
	25	7.48(125)	66.4	11.20	65.8	11.12	65.5	11.05	61.8	10.43	59.2	10.00
		14.96(249)	67.5	11.36	66.5	11.23	65.7	11.08	62.4	10.54	59.7	10.06
		22.44(374)	68.1	11.49	67.0	11.28	65.8	11.11	62.8	10.58	59.8	10.11
	30	7.48(125)	67.6	11.43	66.8	11.28	66.0	11.14	62.9	10.64	60.3	10.17
		14.96(249)	68.9	11.64	68.1	11.49	67.3	11.34	63.7	10.77	61.3	10.34
		22.44(374)	69.3	11.71	68.8	11.61	68.1	11.48	64.7	10.92	62.3	10.52

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m ³ /h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	7.48(125)	53.8	8.79	52.8	8.65	52.0	8.51	50.0	8.18	47.9	7.87
		14.96(249)	55.3	9.04	54.3	8.90	53.5	8.74	51.5	8.45	49.5	8.12
		22.44(374)	56.1	9.18	55.3	9.05	54.4	8.94	53.3	8.71	52.0	8.51
	20	7.48(125)	56.9	9.29	56.7	9.27	56.6	9.23	53.3	8.73	50.2	8.22
		14.96(249)	57.2	9.38	57.2	9.35	57.1	9.33	53.9	8.80	50.7	8.29
		22.44(374)	57.4	9.40	57.4	9.38	57.2	9.38	54.0	8.84	50.9	8.33
	25	7.48(125)	58.1	9.51	57.7	9.43	57.4	9.38	54.1	8.85	51.8	8.47
		14.96(249)	59.0	9.64	58.2	9.52	57.4	9.39	54.6	8.94	52.2	8.54
		22.44(374)	59.7	9.75	58.5	9.58	57.5	9.43	54.9	8.98	52.3	8.57
	30	7.48(125)	59.2	9.70	58.5	9.58	57.7	9.45	55.1	9.03	52.6	8.62
		14.96(249)	60.3	9.86	59.7	9.75	58.8	9.63	55.7	9.13	53.6	8.78
		22.44(374)	60.6	9.92	60.1	9.84	59.7	9.75	56.5	9.27	54.4	8.93
60	15	7.48(125)	46.1	7.21	45.3	7.08	44.5	6.97	42.9	6.71	41.1	6.44
		14.96(249)	47.3	7.40	46.6	7.29	45.8	7.16	44.2	6.92	42.5	6.65
		22.44(374)	48.1	7.53	47.5	7.42	46.8	7.31	45.6	7.15	44.5	6.98
	20	7.48(125)	48.8	7.62	48.6	7.60	48.4	7.57	45.6	7.14	43.0	6.73
		14.96(249)	49.0	7.68	48.9	7.66	48.9	7.66	46.1	7.22	43.5	6.79
		22.44(374)	49.2	7.69	49.0	7.68	49.0	7.69	46.3	7.23	43.7	6.83
	25	7.48(125)	49.7	7.78	49.4	7.73	49.0	7.69	46.3	7.25	44.3	6.94
		14.96(249)	50.5	7.90	49.9	7.81	49.2	7.70	46.8	7.33	44.7	7.00
		22.44(374)	51.0	7.99	50.2	7.85	49.4	7.72	47.1	7.36	44.8	7.02
	30	7.48(125)	50.7	7.94	50.2	7.85	49.6	7.74	47.3	7.40	45.1	7.07
		14.96(249)	51.7	8.09	51.0	7.98	50.5	7.89	47.8	7.48	46.0	7.20
		22.44(374)	52.0	8.14	51.5	8.07	51.0	7.98	48.5	7.59	46.8	7.32
50	15	7.48(125)	38.5	5.64	37.8	5.54	37.2	5.45	35.7	5.24	34.2	5.05
		14.96(249)	39.5	5.80	38.8	5.70	38.2	5.61	36.9	5.42	35.4	5.20
		22.44(374)	40.1	5.89	39.5	5.81	39.0	5.72	38.0	5.59	37.2	5.46
	20	7.48(125)	40.6	5.96	40.4	5.95	40.4	5.92	38.1	5.59	35.9	5.27
		14.96(249)	40.9	6.01	40.8	6.01	40.8	5.98	38.5	5.65	36.2	5.32
		22.44(374)	41.1	6.02	40.9	6.01	40.9	6.02	38.6	5.67	36.4	5.35
	25	7.48(125)	41.4	6.09	41.2	6.04	40.9	6.02	38.7	5.67	37.0	5.43
		14.96(249)	42.2	6.18	41.6	6.10	41.1	6.03	39.0	5.73	37.3	5.47
		22.44(374)	42.6	6.24	41.9	6.15	41.1	6.05	39.1	5.75	37.3	5.49
	30	7.48(125)	42.4	6.21	41.7	6.15	41.3	6.07	39.3	5.78	37.7	5.52
		14.96(249)	43.0	6.34	42.6	6.26	42.1	6.18	39.8	5.86	38.3	5.62
		22.44(374)	43.4	6.38	42.9	6.31	42.6	6.24	40.4	5.93	39.0	5.73

Outdoor Unit:28HP (AVWW-268U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	8.06(134)	89.6	15.79	88.2	15.52	86.6	15.28	83.3	14.67	79.9	14.09
		16.12(269)	92.1	16.20	90.5	15.94	89.1	15.68	85.9	15.13	82.8	14.57
		24.18(403)	93.5	16.50	92.3	16.24	90.8	16.01	88.7	15.64	86.6	15.27
	20	8.06(134)	94.6	16.69	94.5	16.64	94.1	16.57	88.9	15.63	83.6	14.75
		16.12(269)	95.4	16.80	95.2	16.76	95.0	16.74	89.8	15.82	84.4	14.87
		24.18(403)	95.5	16.83	95.6	16.81	95.4	16.83	89.9	15.86	84.8	14.94
	25	8.06(134)	96.6	17.03	96.1	16.91	95.4	16.82	90.1	15.89	86.2	15.21
		16.12(269)	98.4	17.32	97.0	17.10	95.5	16.84	91.0	16.04	86.9	15.32
		24.18(403)	99.3	17.51	97.7	17.19	95.9	16.90	91.4	16.10	87.1	15.38
	30	8.06(134)	98.7	17.40	97.5	17.19	96.3	16.95	91.7	16.16	87.8	15.49
		16.12(269)	100.5	17.72	99.3	17.48	98.0	17.29	93.0	16.38	89.2	15.74
		24.18(403)	101.0	17.81	100.2	17.67	99.3	17.49	94.3	16.60	90.8	16.00
120	15	8.06(134)	87.5	15.46	85.9	15.20	84.5	14.97	81.1	14.40	78.0	13.83
		16.12(269)	89.8	15.91	88.4	15.65	86.8	15.40	83.8	14.86	80.7	14.30
		24.18(403)	91.2	16.17	90.0	15.95	88.5	15.72	86.6	15.36	84.5	14.99
	20	8.06(134)	92.3	16.36	92.1	16.33	91.9	16.27	86.6	15.37	81.4	14.44
		16.12(269)	93.0	16.51	93.0	16.45	92.8	16.44	87.5	15.53	82.3	14.59
		24.18(403)	93.3	16.54	93.2	16.51	93.0	16.49	87.6	15.55	82.7	14.65
	25	8.06(134)	94.4	16.74	93.7	16.61	93.2	16.49	87.8	15.58	84.1	14.92
		16.12(269)	95.9	16.99	94.7	16.76	93.3	16.51	88.7	15.73	84.8	15.01
		24.18(403)	96.8	17.14	95.2	16.85	93.7	16.61	89.3	15.82	85.0	15.07
	30	8.06(134)	96.2	17.04	95.1	16.85	93.9	16.61	89.4	15.88	85.7	15.17
		16.12(269)	98.0	17.40	96.8	17.14	95.6	16.95	90.7	16.07	87.1	15.45
		24.18(403)	98.5	17.49	97.7	17.33	96.8	17.14	92.1	16.29	88.5	15.71
110	15	8.06(134)	85.2	15.17	83.8	14.91	82.4	14.69	79.2	14.11	76.0	13.55
		16.12(269)	87.5	15.58	86.1	15.33	84.7	15.08	81.7	14.55	78.7	14.01
		24.18(403)	88.9	15.88	87.7	15.62	86.4	15.39	84.3	15.04	82.4	14.69
	20	8.06(134)	90.1	16.07	89.8	16.02	89.4	15.94	84.5	15.06	79.3	14.17
		16.12(269)	90.7	16.19	90.5	16.14	90.3	16.10	85.4	15.21	80.2	14.31
		24.18(403)	91.0	16.22	90.9	16.16	90.7	16.19	85.5	15.26	80.6	14.37
	25	8.06(134)	91.9	16.41	91.4	16.27	90.9	16.19	85.7	15.29	82.0	14.64
		16.12(269)	93.5	16.67	92.3	16.46	91.0	16.22	86.4	15.45	82.5	14.72
		24.18(403)	94.4	16.82	92.8	16.55	91.2	16.29	87.0	15.51	82.9	14.78
	30	8.06(134)	93.8	16.72	92.6	16.55	91.6	16.32	87.1	15.57	83.4	14.89
		16.12(269)	95.6	17.04	94.4	16.84	93.3	16.65	88.4	15.76	84.8	15.14
		24.18(403)	96.1	17.13	95.3	16.99	94.4	16.84	89.6	15.98	86.4	15.39

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	8.06(134)	82.9	14.88	81.5	14.63	80.3	14.41	77.1	13.84	74.1	13.30
		16.12(269)	85.2	15.29	83.8	15.04	82.4	14.79	79.6	14.28	76.6	13.75
		24.18(403)	86.6	15.55	85.4	15.33	84.1	15.10	82.2	14.76	80.3	14.41
	20	8.06(134)	87.6	15.74	87.5	15.71	87.1	15.64	82.2	14.76	77.4	13.90
		16.12(269)	88.4	15.86	88.2	15.83	88.0	15.80	83.1	14.92	78.1	14.03
		24.18(403)	88.5	15.89	88.4	15.86	88.4	15.86	83.2	14.95	78.5	14.09
	25	8.06(134)	89.6	16.08	88.9	15.96	88.4	15.86	83.4	14.98	79.9	14.35
		16.12(269)	91.0	16.34	89.8	16.12	88.5	15.89	84.3	15.14	80.4	14.44
		24.18(403)	91.9	16.50	90.3	16.21	88.9	15.96	84.7	15.20	80.8	14.50
	30	8.06(134)	91.3	16.40	90.3	16.21	89.1	15.99	85.0	15.26	81.3	14.60
		16.12(269)	93.1	16.72	91.9	16.50	90.8	16.31	86.1	15.45	82.7	14.85
		24.18(403)	93.6	16.81	92.8	16.65	91.9	16.50	87.3	15.67	84.1	15.10
90	15	8.06(134)	74.6	13.20	73.4	12.99	72.2	12.79	69.4	12.30	66.7	11.82
		16.12(269)	76.8	13.56	75.5	13.36	74.1	13.14	71.5	12.68	68.9	12.21
		24.18(403)	78.0	13.81	76.8	13.63	75.7	13.42	73.9	13.11	72.2	12.80
	20	8.06(134)	79.0	13.97	78.7	13.96	78.5	13.88	74.1	13.11	69.7	12.34
		16.12(269)	79.4	14.08	79.4	14.07	79.2	14.03	74.8	13.24	70.4	12.46
		24.18(403)	79.7	14.11	79.6	14.09	79.4	14.08	74.9	13.28	70.6	12.51
	25	8.06(134)	80.6	14.28	80.1	14.18	79.6	14.08	75.1	13.30	72.0	12.74
		16.12(269)	82.0	14.50	80.8	14.31	79.7	14.11	75.9	13.44	72.3	12.83
		24.18(403)	82.7	14.66	81.3	14.39	79.9	14.17	76.2	13.50	72.7	12.87
	30	8.06(134)	82.2	14.57	81.1	14.39	80.3	14.20	76.4	13.55	73.2	12.96
		16.12(269)	83.8	14.85	82.7	14.66	81.6	14.48	77.5	13.73	74.4	13.19
		24.18(403)	84.3	14.93	83.5	14.80	82.7	14.65	78.5	13.92	75.7	13.41
80	15	8.06(134)	66.4	11.53	65.3	11.34	64.1	11.15	61.6	10.72	59.3	10.32
		16.12(269)	68.1	11.84	67.1	11.67	66.0	11.46	63.6	11.06	61.3	10.66
		24.18(403)	69.4	12.05	68.3	11.89	67.2	11.71	65.7	11.44	64.1	11.17
	20	8.06(134)	70.2	12.19	69.9	12.17	69.7	12.12	65.8	11.45	61.9	10.77
		16.12(269)	70.6	12.29	70.6	12.28	70.4	12.25	66.6	11.56	62.6	10.87
		24.18(403)	70.9	12.31	70.8	12.30	70.6	12.29	66.5	11.59	62.8	10.92
	25	8.06(134)	71.6	12.46	71.1	12.38	70.8	12.29	66.7	11.61	63.9	11.13
		16.12(269)	72.9	12.65	71.8	12.50	70.9	12.32	67.4	11.73	64.4	11.19
		24.18(403)	73.6	12.80	72.3	12.55	71.1	12.37	67.8	11.78	64.6	11.24
	30	8.06(134)	73.0	12.72	72.2	12.55	71.3	12.39	67.9	11.84	65.1	11.32
		16.12(269)	74.4	12.95	73.6	12.80	72.7	12.63	68.8	11.98	66.2	11.50
		24.18(403)	74.8	13.02	74.3	12.91	73.6	12.78	69.9	12.15	67.2	11.69

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	8.06(134)	58.1	9.77	57.0	9.62	56.2	9.46	54.0	9.10	51.7	8.75
		16.12(269)	59.7	10.05	58.6	9.90	57.8	9.73	55.6	9.39	53.5	9.04
		24.18(403)	60.5	10.21	59.7	10.08	58.8	9.94	57.6	9.70	56.2	9.47
	20	8.06(134)	61.4	10.34	61.3	10.32	61.1	10.27	57.6	9.71	54.2	9.14
		16.12(269)	61.8	10.43	61.8	10.40	61.6	10.38	58.3	9.80	54.7	9.22
		24.18(403)	61.9	10.45	62.0	10.43	61.8	10.43	58.2	9.84	54.9	9.26
	25	8.06(134)	62.7	10.58	62.3	10.50	62.0	10.43	58.4	9.85	56.0	9.43
		16.12(269)	63.7	10.73	62.9	10.60	61.9	10.45	59.0	9.95	56.3	9.50
		24.18(403)	64.4	10.85	63.2	10.65	62.1	10.49	59.3	9.99	56.5	9.53
	30	8.06(134)	63.9	10.79	63.2	10.65	62.3	10.51	59.5	10.04	56.8	9.60
		16.12(269)	65.1	10.98	64.4	10.86	63.5	10.73	60.2	10.16	57.9	9.77
		24.18(403)	65.4	11.04	65.0	10.95	64.4	10.85	61.1	10.31	58.8	9.93
60	15	8.06(134)	49.8	8.02	48.9	7.88	48.1	7.76	46.3	7.47	44.4	7.16
		16.12(269)	51.0	8.23	50.4	8.11	49.5	7.97	47.7	7.69	46.0	7.41
		24.18(403)	51.9	8.38	51.2	8.26	50.5	8.13	49.3	7.96	48.1	7.77
	20	8.06(134)	52.6	8.48	52.5	8.46	52.3	8.42	49.3	7.95	46.4	7.49
		16.12(269)	53.0	8.54	52.8	8.53	52.8	8.52	49.8	8.03	47.0	7.55
		24.18(403)	53.1	8.55	53.0	8.55	53.0	8.55	50.0	8.05	47.2	7.59
	25	8.06(134)	53.7	8.66	53.3	8.60	53.0	8.55	50.0	8.07	47.9	7.73
		16.12(269)	54.6	8.80	53.9	8.69	53.1	8.56	50.5	8.16	48.2	7.79
		24.18(403)	55.1	8.89	54.2	8.74	53.3	8.60	50.9	8.19	48.4	7.81
	30	8.06(134)	54.7	8.84	54.2	8.74	53.5	8.61	51.0	8.23	48.7	7.87
		16.12(269)	55.8	9.01	55.1	8.88	54.6	8.78	51.6	8.32	49.6	8.01
		24.18(403)	56.1	9.06	55.6	8.98	55.1	8.89	52.5	8.44	50.5	8.14
50	15	8.06(134)	41.5	6.27	40.8	6.16	40.2	6.07	38.6	5.83	37.0	5.62
		16.12(269)	42.6	6.45	41.9	6.34	41.2	6.24	39.8	6.02	38.2	5.79
		24.18(403)	43.3	6.56	42.6	6.47	42.1	6.36	41.0	6.22	40.2	6.08
	20	8.06(134)	43.8	6.63	43.7	6.63	43.6	6.59	41.2	6.22	38.7	5.86
		16.12(269)	44.2	6.68	44.0	6.68	44.0	6.66	41.6	6.29	39.1	5.92
		24.18(403)	44.3	6.70	44.2	6.68	44.2	6.69	41.7	6.31	39.3	5.95
	25	8.06(134)	44.7	6.78	44.5	6.72	44.2	6.69	41.7	6.31	40.0	6.05
		16.12(269)	45.6	6.88	44.9	6.79	44.3	6.71	42.1	6.38	40.3	6.09
		24.18(403)	46.0	6.95	45.2	6.84	44.4	6.74	42.3	6.40	40.3	6.11
	30	8.06(134)	45.7	6.91	45.1	6.84	44.6	6.75	42.4	6.43	40.7	6.15
		16.12(269)	46.5	7.05	46.0	6.96	45.4	6.88	43.0	6.51	41.4	6.26
		24.18(403)	46.8	7.09	46.3	7.01	46.0	6.94	43.7	6.60	42.1	6.37

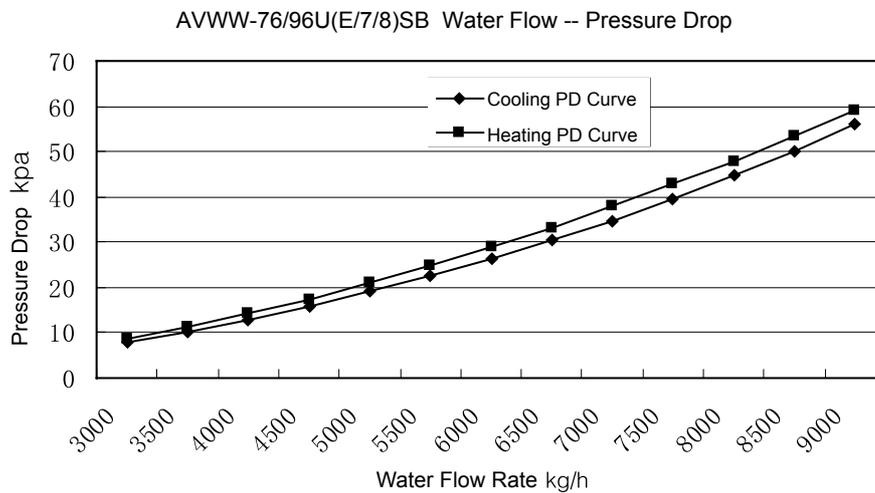
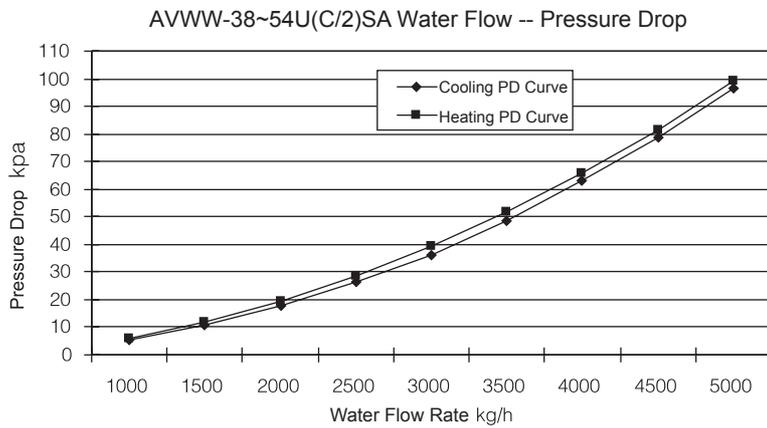
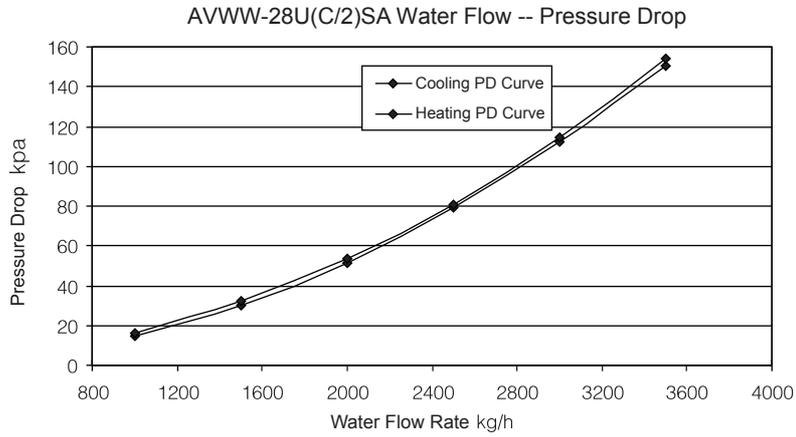
Outdoor Unit:30HP (AVWW-290U(E/7/8)SB)

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			16°C		18°C		20°C		22°C		24°C	
		m³/h (l/min.)	Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	15	8.64(144)	96.2	17.39	94.7	17.09	93.0	16.83	89.4	16.15	85.8	15.52
		17.28(288)	98.9	17.84	97.2	17.55	95.7	17.27	92.2	16.67	88.8	16.04
		25.92(432)	100.4	18.17	99.1	17.88	97.5	17.63	95.3	17.22	93.0	16.82
	20	8.64(144)	101.7	18.38	101.5	18.33	101.2	18.26	95.5	17.21	89.8	16.24
		17.28(288)	102.5	18.51	102.3	18.46	102.1	18.44	96.4	17.42	90.7	16.38
		25.92(432)	102.7	18.53	102.7	18.51	102.5	18.53	96.6	17.46	91.1	16.45
	25	8.64(144)	103.8	18.75	103.1	18.62	102.5	18.53	96.8	17.50	92.6	16.75
		17.28(288)	105.6	19.07	104.1	18.83	102.7	18.54	97.7	17.66	93.4	16.87
		25.92(432)	106.6	19.28	104.9	18.93	103.0	18.61	98.1	17.73	93.6	16.94
	30	8.64(144)	106.0	19.16	104.8	18.93	103.3	18.66	98.5	17.80	94.3	17.06
		17.28(288)	107.9	19.51	106.6	19.25	105.2	19.04	99.8	18.04	95.8	17.34
		25.92(432)	108.4	19.61	107.5	19.46	106.6	19.26	101.3	18.29	97.5	17.62
120	15	8.64(144)	93.9	17.03	92.2	16.74	90.7	16.49	87.1	15.86	83.8	15.24
		17.28(288)	96.4	17.52	94.9	17.23	93.2	16.96	89.9	16.37	86.5	15.75
		25.92(432)	97.9	17.80	96.6	17.56	95.0	17.31	93.0	16.91	90.7	16.51
	20	8.64(144)	99.2	18.01	98.8	17.98	98.7	17.93	93.0	16.92	87.5	15.91
		17.28(288)	99.8	18.19	99.8	18.11	99.6	18.10	93.9	17.10	88.4	16.07
		25.92(432)	100.2	18.22	100.0	18.18	99.8	18.17	94.1	17.12	88.8	16.14
	25	8.64(144)	101.3	18.44	100.5	18.28	100.0	18.16	94.3	17.16	90.3	16.43
		17.28(288)	103.0	18.71	101.7	18.46	100.2	18.18	95.2	17.32	91.1	16.52
		25.92(432)	104.0	18.88	102.3	18.56	100.5	18.29	95.8	17.43	91.3	16.60
	30	8.64(144)	103.4	18.76	102.1	18.56	100.7	18.30	96.0	17.50	92.0	16.71
		17.28(288)	105.3	19.16	104.0	18.88	102.6	18.67	97.3	17.70	93.5	17.02
		25.92(432)	105.8	19.26	104.9	19.09	104.0	18.88	98.8	17.94	95.0	17.30
110	15	8.64(144)	91.5	16.71	90.0	16.42	88.5	16.18	85.1	15.53	81.7	14.93
		17.28(288)	94.0	17.16	92.5	16.88	91.0	16.60	87.7	16.03	84.5	15.43
		25.92(432)	95.5	17.48	94.2	17.20	92.8	16.95	90.6	16.56	88.5	16.18
	20	8.64(144)	96.7	17.69	96.4	17.64	96.1	17.56	90.8	16.58	85.3	15.61
		17.28(288)	97.4	17.83	97.2	17.77	97.0	17.73	91.7	16.75	86.2	15.76
		25.92(432)	97.7	17.86	97.5	17.80	97.4	17.84	91.9	16.81	86.6	15.83
	25	8.64(144)	98.7	18.07	98.0	17.91	97.5	17.84	92.1	16.85	88.1	16.12
		17.28(288)	100.3	18.35	99.0	18.13	97.7	17.86	92.8	17.01	88.7	16.21
		25.92(432)	101.3	18.52	99.6	18.23	97.9	17.93	93.4	17.08	89.1	16.28
	30	8.64(144)	100.7	18.41	99.5	18.23	98.2	17.97	93.6	17.15	89.6	16.40
		17.28(288)	102.6	18.76	101.3	18.54	100.1	18.33	94.9	17.36	91.1	16.67
		25.92(432)	103.1	18.86	102.2	18.71	101.3	18.55	96.2	17.60	92.8	16.95

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
			m ³ /h (l/min.)	16°C		18°C		20°C		22°C		24°C
		Q		P	Q	P	Q	P	Q	P	Q	P
		kW		kW	kW	kW	kW	kW	kW	kW	kW	kW
100	15	8.64(144)	89.0	16.39	87.5	16.11	86.2	15.87	82.8	15.24	79.6	14.65
		17.28(288)	91.5	16.84	90.0	16.56	88.5	16.29	85.4	15.73	82.2	15.14
		25.92(432)	93.0	17.12	91.7	16.88	90.3	16.63	88.3	16.25	86.2	15.87
	20	8.64(144)	94.1	17.33	93.9	17.30	93.6	17.23	88.3	16.25	83.2	15.31
		17.28(288)	94.9	17.47	94.7	17.43	94.5	17.40	89.2	16.43	83.9	15.45
		25.92(432)	95.1	17.50	94.9	17.47	94.9	17.47	89.4	16.46	84.3	15.52
	25	8.64(144)	96.2	17.71	95.4	17.57	94.9	17.47	89.6	16.50	85.8	15.80
		17.28(288)	97.7	17.99	96.4	17.75	95.1	17.50	90.5	16.67	86.4	15.90
		25.92(432)	98.7	18.17	97.0	17.85	95.4	17.57	90.9	16.74	86.8	15.97
	30	8.64(144)	98.1	18.06	97.0	17.85	95.6	17.61	91.3	16.81	87.3	16.08
		17.28(288)	100.0	18.41	98.7	18.17	97.5	17.96	92.4	17.02	88.8	16.36
		25.92(432)	100.5	18.51	99.6	18.34	98.7	18.17	93.7	17.26	90.3	16.63
90	15	8.64(144)	80.1	14.54	78.8	14.31	77.5	14.09	74.5	13.54	71.7	13.02
		17.28(288)	82.4	14.94	81.1	14.71	79.6	14.48	76.7	13.97	73.9	13.44
		25.92(432)	83.7	15.20	82.4	15.01	81.2	14.78	79.4	14.43	77.5	14.10
	20	8.64(144)	84.8	15.38	84.5	15.37	84.3	15.29	79.6	14.43	74.9	13.59
		17.28(288)	85.3	15.51	85.2	15.49	85.1	15.45	80.3	14.58	75.6	13.72
		25.92(432)	85.6	15.54	85.4	15.52	85.3	15.50	80.5	14.62	75.8	13.77
	25	8.64(144)	86.6	15.73	86.0	15.61	85.4	15.50	80.7	14.65	77.3	14.03
		17.28(288)	88.1	15.97	86.8	15.76	85.6	15.54	81.4	14.80	77.7	14.13
		25.92(432)	88.9	16.14	87.4	15.85	85.8	15.60	81.8	14.86	78.1	14.17
	30	8.64(144)	88.3	16.04	87.2	15.85	86.2	15.64	82.0	14.92	78.6	14.27
		17.28(288)	90.0	16.35	88.9	16.14	87.7	15.94	83.1	15.12	79.9	14.53
		25.92(432)	90.5	16.44	89.6	16.30	88.9	16.13	84.3	15.33	81.2	14.77
80	15	8.64(144)	71.2	12.70	70.1	12.48	68.8	12.28	66.2	11.81	63.7	11.37
		17.28(288)	73.2	13.04	72.0	12.85	70.9	12.63	68.2	12.18	65.8	11.73
		25.92(432)	74.5	13.27	73.4	13.09	72.2	12.89	70.5	12.59	68.8	12.31
	20	8.64(144)	75.4	13.42	75.0	13.40	74.9	13.36	70.7	12.60	66.6	11.86
		17.28(288)	75.8	13.54	75.8	13.53	75.6	13.49	71.4	12.73	67.3	11.97
		25.92(432)	76.2	13.56	76.0	13.55	75.8	13.54	71.4	12.76	67.5	12.03
	25	8.64(144)	76.9	13.72	76.3	13.63	76.0	13.54	71.6	12.79	68.6	12.26
		17.28(288)	78.2	13.93	77.1	13.77	76.2	13.56	72.4	12.92	69.2	12.33
		25.92(432)	79.0	14.09	77.7	13.82	76.3	13.62	72.8	12.97	69.4	12.38
	30	8.64(144)	78.4	14.01	77.5	13.82	76.5	13.65	73.0	13.04	69.9	12.46
		17.28(288)	80.0	14.26	79.0	14.09	78.0	13.91	73.9	13.19	71.0	12.67
		25.92(432)	80.3	14.34	79.8	14.22	79.0	14.07	75.0	13.38	72.2	12.88

Combination (%)	Water Temp. (Inlet) °C	Flow rate	Ti (Indoor Unit Temp.)									
		m ³ /h (l/min.)	16°C		18°C		20°C		22°C		24°C	
			Q	P	Q	P	Q	P	Q	P	Q	P
			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
70	15	8.64(144)	62.4	10.77	61.2	10.60	60.3	10.42	58.0	10.02	55.6	9.64
		17.28(288)	64.1	11.07	63.0	10.90	62.0	10.71	59.7	10.35	57.4	9.95
		25.92(432)	65.0	11.24	64.1	11.10	63.1	10.95	61.8	10.68	60.3	10.43
	20	8.64(144)	65.9	11.38	65.7	11.37	65.6	11.31	61.8	10.70	58.2	10.07
		17.28(288)	66.4	11.49	66.3	11.46	66.2	11.43	62.6	10.79	58.8	10.15
		25.92(432)	66.6	11.51	66.5	11.49	66.4	11.49	62.6	10.83	59.0	10.20
	25	8.64(144)	67.3	11.65	66.9	11.56	66.5	11.49	62.8	10.85	60.1	10.38
		17.28(288)	68.4	11.82	67.5	11.67	66.6	11.51	63.3	10.96	60.5	10.46
		25.92(432)	69.2	11.95	67.9	11.73	66.7	11.55	63.7	11.00	60.7	10.50
	30	8.64(144)	68.6	11.88	67.9	11.73	66.9	11.58	63.9	11.06	61.0	10.57
		17.28(288)	69.9	12.09	69.2	11.96	68.2	11.81	64.6	11.19	62.2	10.76
		25.92(432)	70.3	12.16	69.7	12.06	69.2	11.95	65.6	11.35	63.1	10.94
60	15	8.64(144)	53.5	8.84	52.5	8.67	51.6	8.54	49.7	8.22	47.6	7.89
		17.28(288)	54.8	9.06	54.1	8.93	53.1	8.78	51.2	8.47	49.3	8.15
		25.92(432)	55.8	9.22	55.0	9.10	54.2	8.96	52.9	8.77	51.6	8.55
	20	8.64(144)	56.5	9.34	56.3	9.31	56.2	9.27	52.9	8.75	49.9	8.25
		17.28(288)	56.9	9.41	56.7	9.39	56.7	9.38	53.5	8.85	50.5	8.32
		25.92(432)	57.1	9.42	56.9	9.41	56.9	9.42	53.7	8.86	50.7	8.36
	25	8.64(144)	57.6	9.53	57.2	9.47	56.9	9.42	53.7	8.89	51.4	8.51
		17.28(288)	58.6	9.68	57.8	9.57	57.1	9.43	54.2	8.98	51.8	8.57
		25.92(432)	59.2	9.79	58.2	9.62	57.2	9.46	54.6	9.02	52.0	8.60
	30	8.64(144)	58.8	9.73	58.2	9.62	57.4	9.49	54.8	9.06	52.3	8.66
		17.28(288)	59.9	9.92	59.2	9.78	58.6	9.67	55.4	9.16	53.3	8.82
		25.92(432)	60.3	9.97	59.7	9.89	59.2	9.79	56.3	9.29	54.2	8.96
50	15	8.64(144)	44.6	6.90	43.8	6.79	43.1	6.68	41.4	6.42	39.7	6.19
		17.28(288)	45.8	7.10	45.0	6.98	44.3	6.87	42.7	6.63	41.0	6.37
		25.92(432)	46.5	7.22	45.8	7.12	45.2	7.01	44.1	6.85	43.1	6.70
	20	8.64(144)	47.1	7.30	46.9	7.30	46.9	7.25	44.2	6.85	41.6	6.45
		17.28(288)	47.5	7.36	47.3	7.36	47.3	7.33	44.6	6.92	42.0	6.52
		25.92(432)	47.6	7.37	47.5	7.36	47.5	7.37	44.8	6.94	42.2	6.55
	25	8.64(144)	48.0	7.46	47.8	7.40	47.5	7.37	44.8	6.95	42.9	6.66
		17.28(288)	48.9	7.57	48.2	7.48	47.6	7.39	45.2	7.03	43.3	6.70
		25.92(432)	49.4	7.65	48.6	7.53	47.6	7.42	45.4	7.05	43.3	6.72
	30	8.64(144)	49.1	7.61	48.4	7.53	47.8	7.43	45.6	7.09	43.7	6.77
		17.28(288)	49.9	7.77	49.4	7.67	48.8	7.57	46.1	7.18	44.4	6.89
		25.92(432)	50.3	7.81	49.7	7.73	49.4	7.65	46.9	7.27	45.2	7.02

4.4 Water flow-pressure drop diagram



4.5 Correction Factor According to Piping Length

< Cooling Capacity >

Correction Factor for Cooling Capacity According to Piping Length

The cooling capacity should be corrected according to the following formula:

$$CCA = CC \times F$$

CCA: Actual Corrected Cooling Capacity

CC: Cooling Capacity in the Performance Table

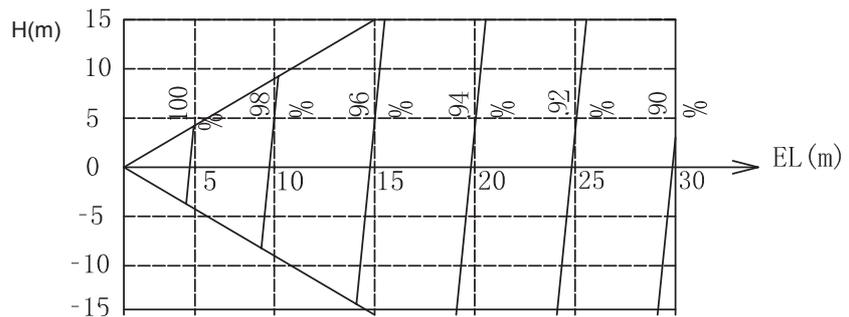
F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the following figure

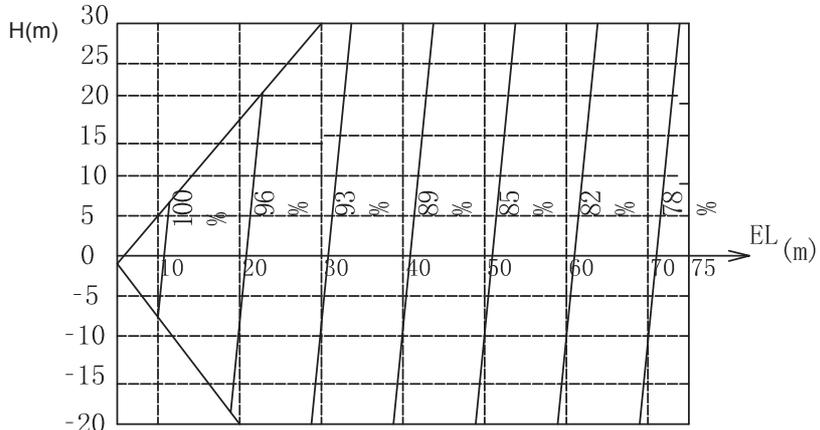
Equivalent Piping Length for

- One 90° Elbow is 0.5m.
- One 180° Bend is 1.5m.
- One branch pipe is 0.5m.

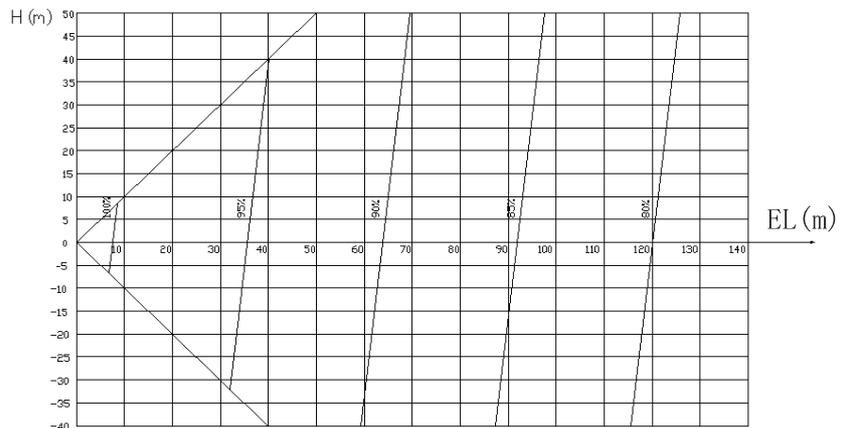
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<AVWW-38/48/54U(C/2)SA>



<AVWW-76~290U(E/7/8)SB>



< Heating Capacity >

Correction Factor for Heating Capacity According to Piping Length

The heating capacity should be corrected according to the following formula:

$$HCA = HC \times F$$

HCA: Actual Corrected Heating Capacity

HC: Heating Capacity in the Performance Table

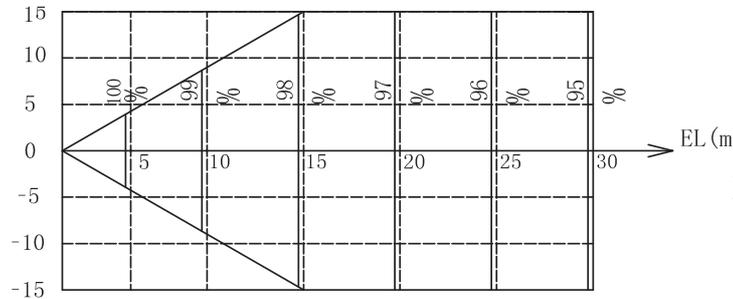
F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the following figure

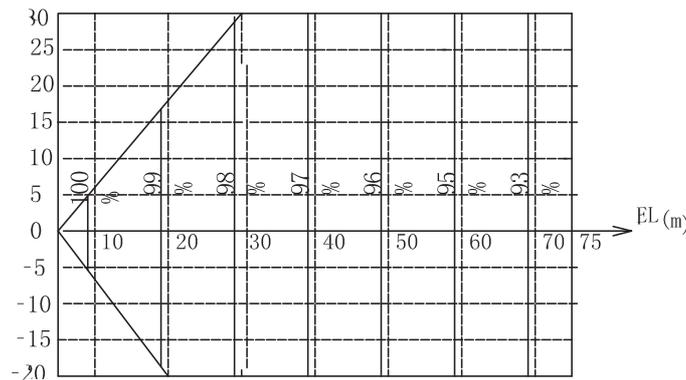
Equivalent Piping Length for

- One 90° Elbow is 0.5m.
- One 180° Bend is 1.5m.
- One branch pipe is 0.5m.

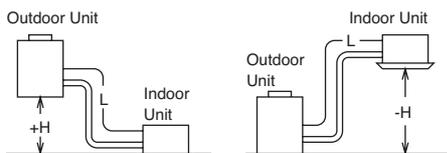
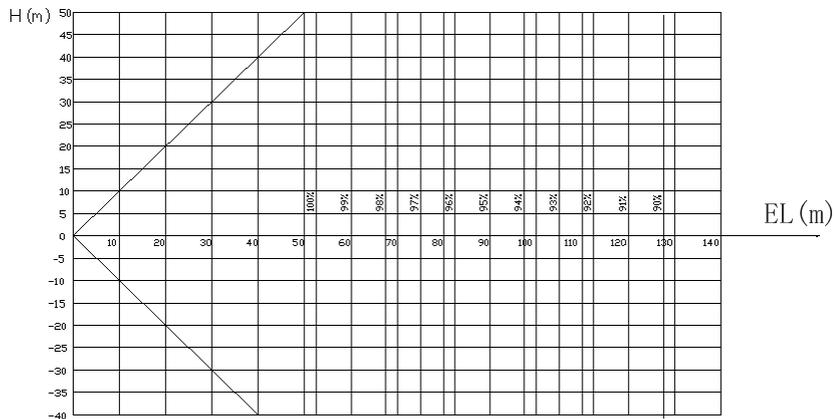
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<AVWW-38/48/54U(C/2)SA>



<AVWW-76~290U(E/7/8)SB>



H: Vertical Distance Between Indoor Unit and Chiller Unit in Meters

EL: Equivalent Total Distance Between Indoor Unit and Chiller Unit in Meters (Equivalent One-Way Piping Length)

H>0: Position of Chiller Unit Higher Than Position of Indoor Unit

L: Actual One-Way Piping Length Between Indoor Unit and Chiller Unit in Meters

4.6 Electrical Data

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		ELB		Maximum Current
	VOL	PH	Hz	Maximum	Minimum		RLA	IPT	RLA	IPT	Rated Current (A)	Sensitivity (mA)	MRC
AVWW-28UCSA	220 ~240	1	50	264	198	1	9.4	1.9	9.1	1.8	25	30	16.9
AVWW-38UCSA						1	12.8	2.6	12.1	2.4	30	30	26
AVWW-48UCSA						1	16.8	3.41	15.9	3.14	30	30	26
AVWW-54UCSA						1	19.2	3.88	18.2	3.6	30	30	26
AVWW-28U2SA	220	1	60	242	198	1	9.4	1.9	9.1	1.8	25	30	16.9
AVWW-38U2SA						1	12.8	2.6	12.1	2.4	30	30	26
AVWW-48U2SA						1	16.8	3.41	15.9	3.14	30	30	26
AVWW-54U2SA						1	19.2	3.88	18.2	3.6	30	30	26

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
AVWW-76UESB	380/415	3	50	456	342	1	7.9/7.2	4.42	7.5/6.9	4.2	16.3
AVWW-96UESB						1	11.2/10.3	6.26	10.4/9.5	5.81	18.0

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
AVWW-76U7SB	380	3	60	418	342	1	7.9	4.42	7.5	4.2	16.3
AVWW-96U7SB						1	11.2	6.26	10.4	5.81	18.0

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
AVWW-76U8SB	220	3	60	242	198	1	12.8	4.42	12.2	4.20	30
AVWW-96U8SB						1	18.2	6.26	16.9	5.81	37

VOL: Rated Unit Power Supply Voltage (Plated)(V)

HZ: Frequency (Hz)

STC: Starting Current (A)

ELB: Earth Leakage Circuit Breaker

RLA: Rated Load Current (A)

PH: Phase (ϕ)

IPT: Input (kW)

MRC: Maximum Running Current

NOTES:

1. The above compressor data is based on 100% capacity combination of the indoor units at rated operating frequency.
2. The above performance data is based on 7.5m equivalent piping length and 0m piping lift.
3. These data are based on the same conditions as the nominal heating and cooling capacities.
4. 120% of rated power consumption for power distribution is recommended.

ELB: Earth Leakage Circuit

Breaker Remarks:

- (1) The field wiring shall be conducted according to local laws.
- (2) The sizes of above power lines shall comply with relevant standards.
- (3) The shielded wire shall be used for the control system and be grounded.
- (4) The sheathed lines shall be used for power lines and shall be copper conductors.
- (5) In case of tandem connection of power lines, the current values shall be added up to select the electric wire.

Selection According to EN60 335-1

Current i (A)	Wire Size (mm ²)
$i \leq 3$	2.5
$3 < i \leq 6$	2.5
$6 < i \leq 10$	2.5
$10 < i \leq 16$	2.5
$16 < i \leq 25$	2.5
$25 < i \leq 32$	4.0
$32 < i \leq 50$	6.0
$50 < i \leq 63$	10.0
$63 < i$	*2

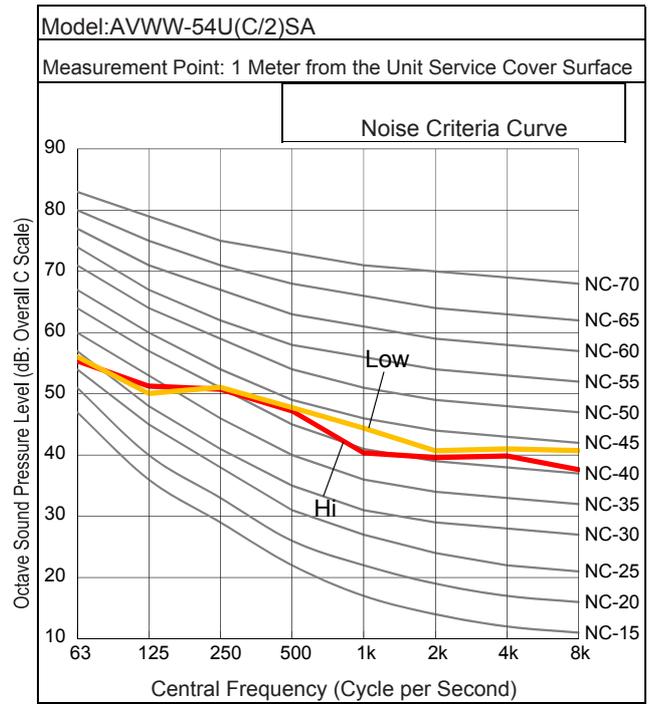
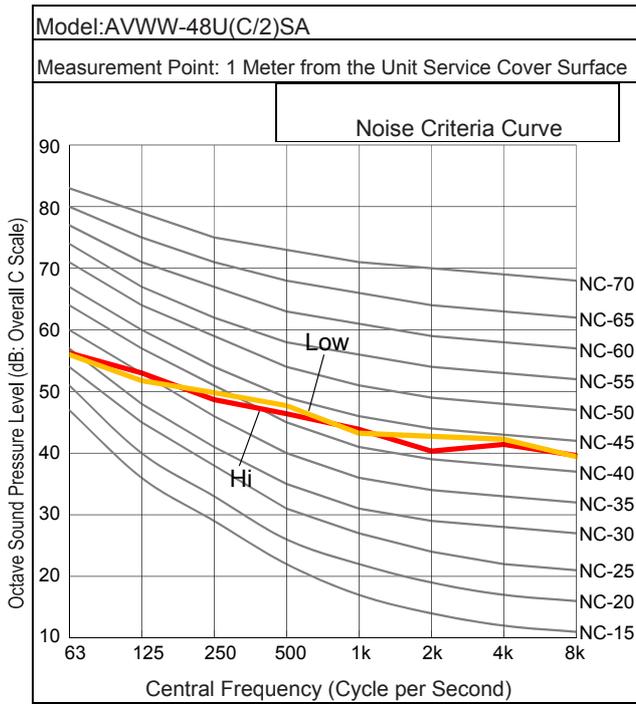
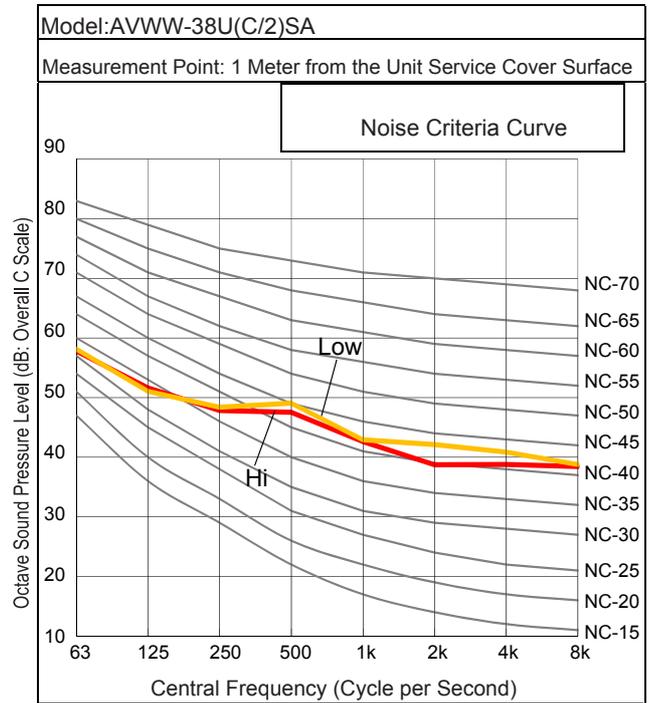
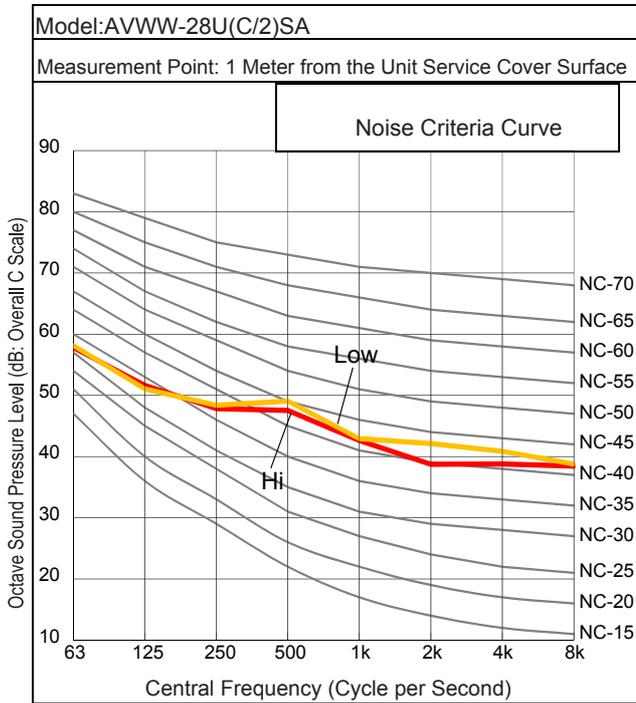
*1 When the current exceeds 63A, cascade connection is not allowed.

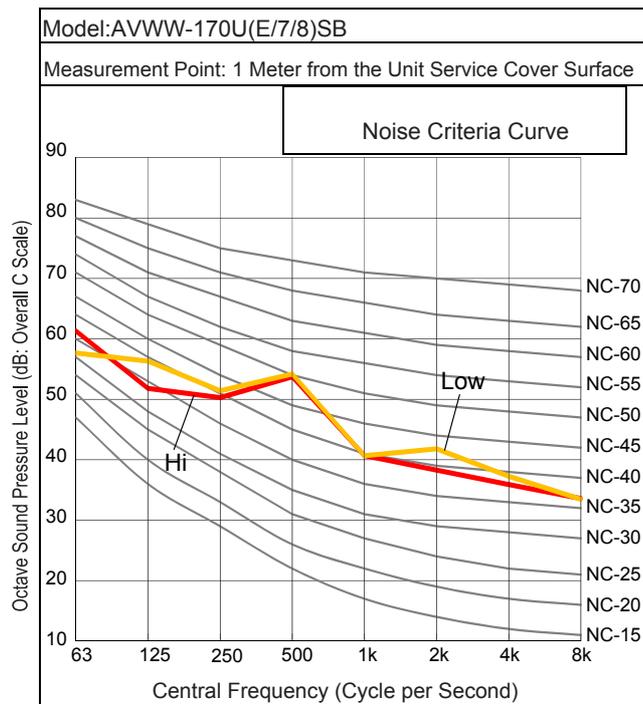
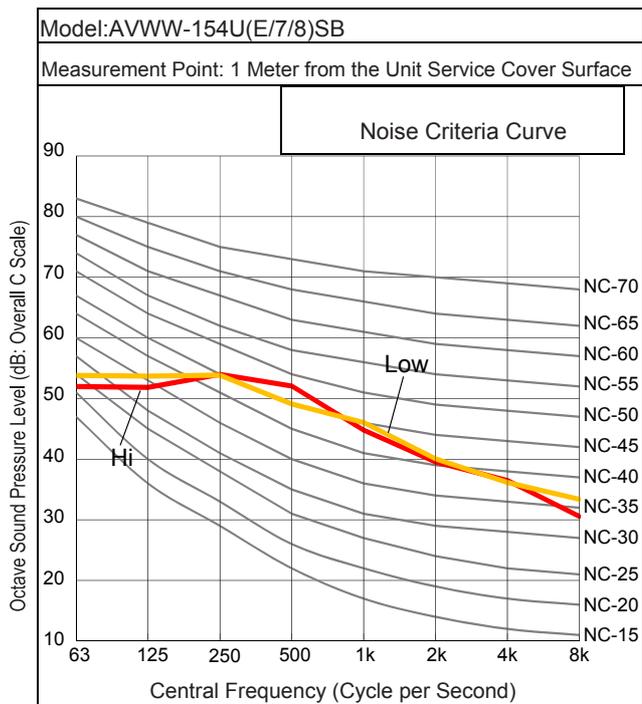
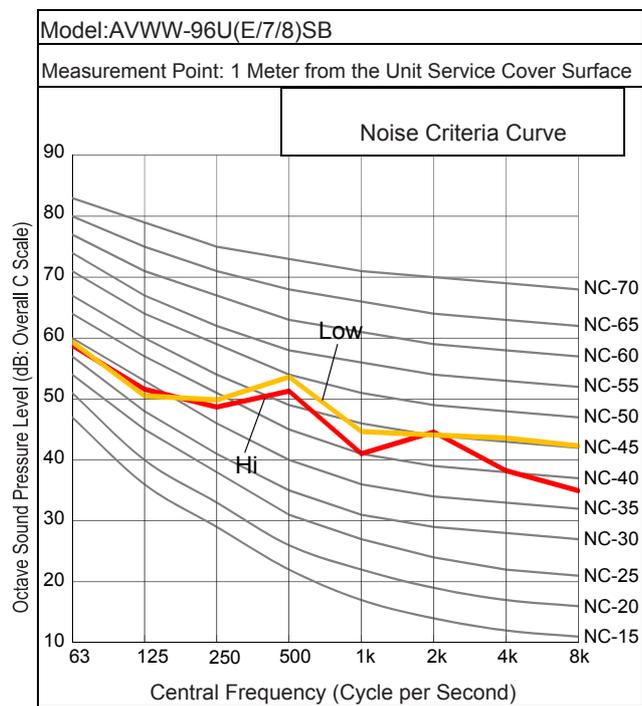
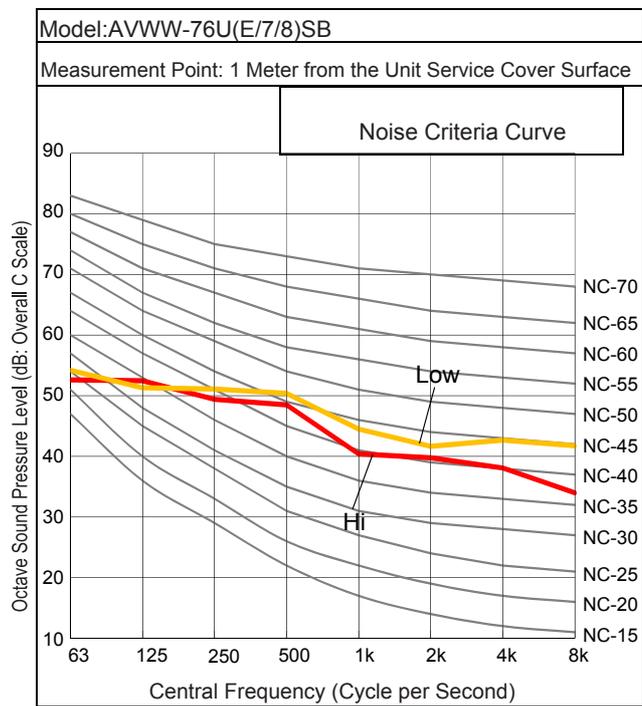
*2: In the case that current exceeds 63A, do not connect cables in series.

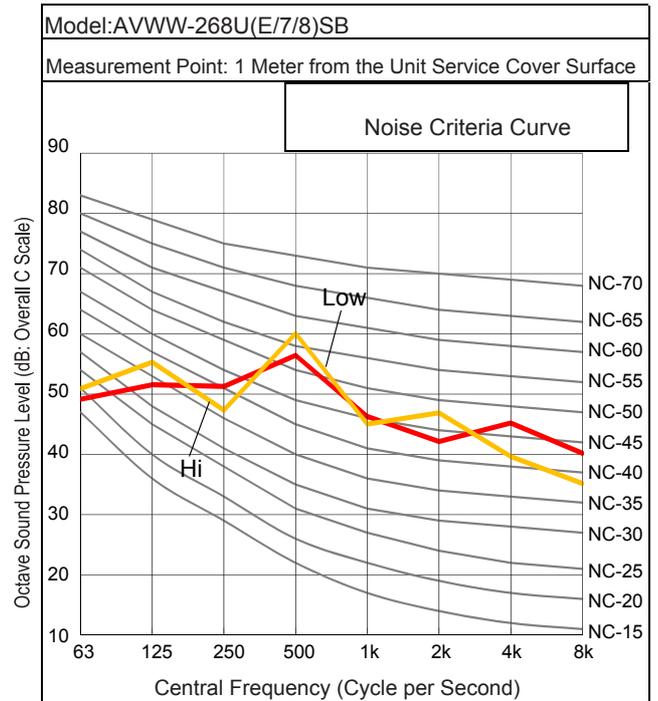
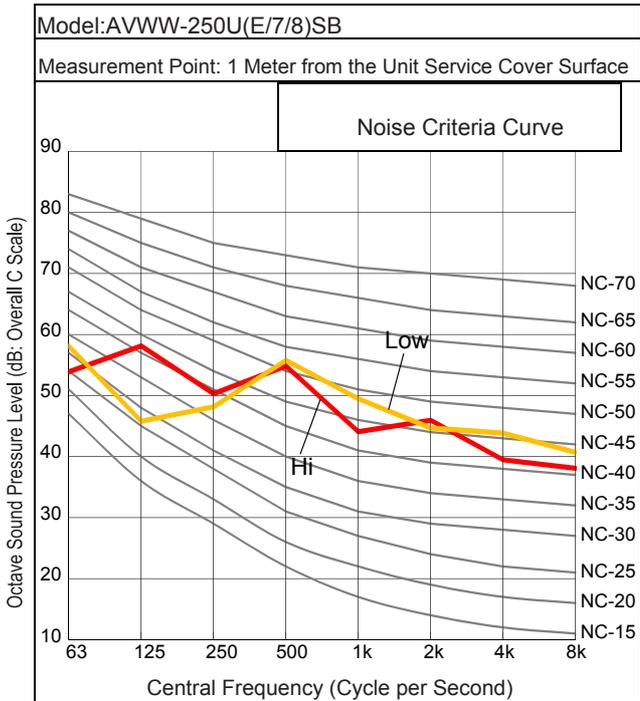
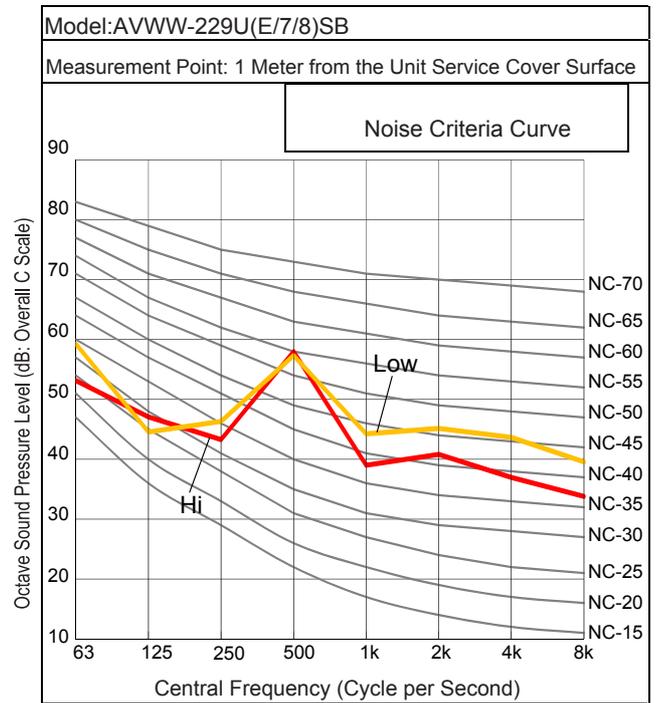
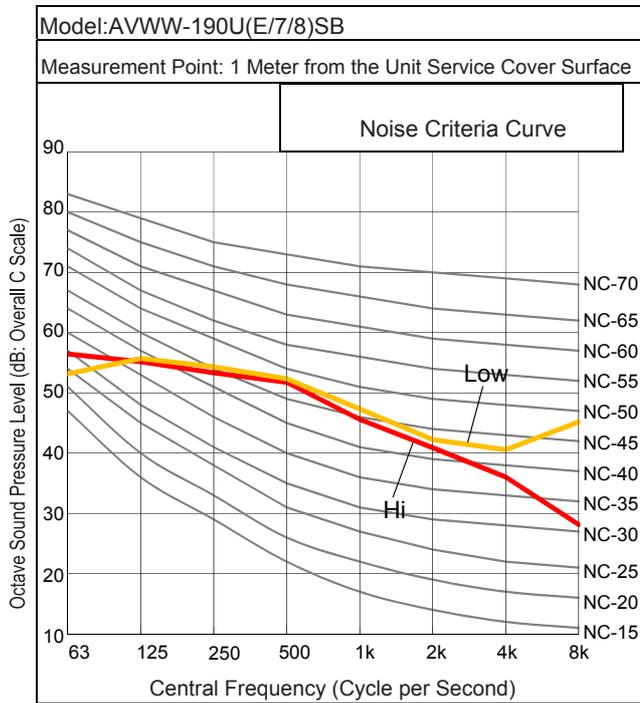


A multiple-pole master switch shall be installed between phases, with the distance of 3.5mm or larger.

4.7 Sound Data



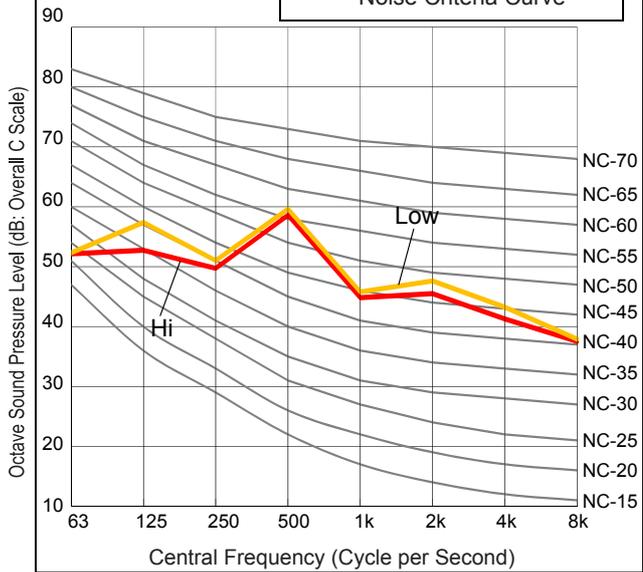




Model:AVWW-290U(E/7/8)SB

Measurement Point: 1 Meter from the Unit Service Cover Surface

Noise Criteria Curve



4.8 Working Range

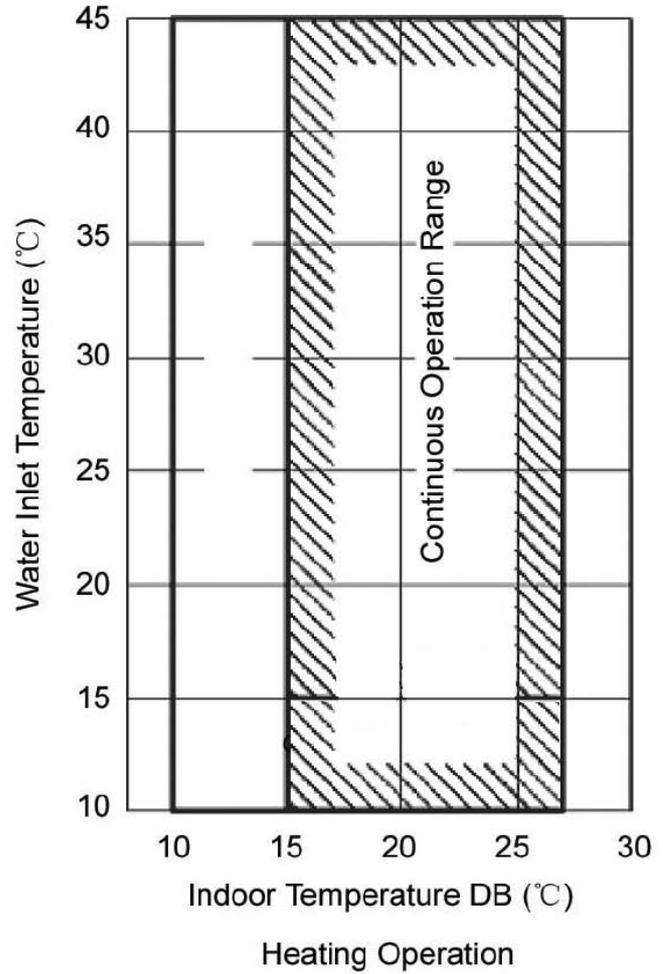
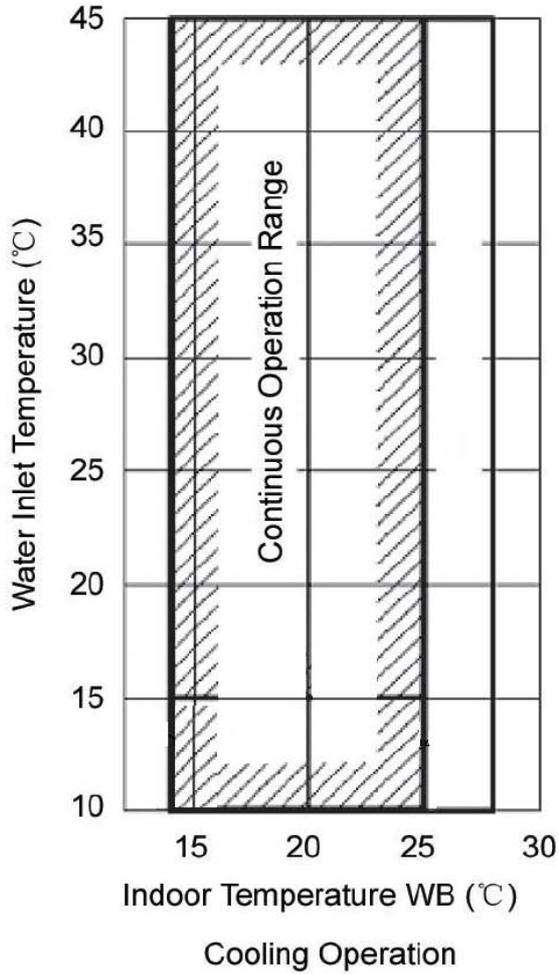
Power Supply

Working Voltage: 90% to 110% of the Rated Voltage

Voltage Imbalance: Within a 3% Deviation from Each Voltage at the Main Terminal of Chiller Unit

Starting Voltage: Higher than 85% of the Rated Voltage

Temperature Range



5. Component Data

Heat Exchanger Type		AVWW-28U(C/2)SA	AVWW-38/48/54U(C/2)SA
		Plate Heat Exchanger	Plate Heat Exchanger
Height	mm	526	526
Width	mm	112	112
Depth	mm	38.6	62
Face Area	m ²	0.51	1.04
Ref. Side Volume	L	0.475	0.95
Weight	kg	4.3	6

Heat Exchanger Type		AVWW-76U(E/7/8)SB	AVWW-96U(E/7/8)SB
		Plate Heat Exchanger	Plate Heat Exchanger
Height	mm	526	526
Width	mm	112	112
Depth	mm	135	135
Face Area	m ²	2.6	2.6
Ref. Side Volume	L	2.47	2.47
Weight	kg	12.4	12.4

Compressor Detailed Data

			AVWW-28U(C/2)SA	AVWW-38/48/54U(C/2)SA
Compressor Model			ATL232SDNC9AU	E500HHD-36A2
Type			Rotary Compressor	Scroll Compressor
Quantity		-	1	1
Air Tight Pressure	Discharge Pressure	MPa	4.2	4.2
	Suction Pressure	MPa	2.21	2.21
Motor	Type	-	Triphase Synchronous Motor	Triphase Synchronous Motor
	Start Type	-	Inverter-driven	Inverter-driven
	Poles	-	4	4
	Insulation Class	-	E	E
Refrigeration Oil	Model	-	a68HES-H	FVC68D
	Charge Volume	L	0.88	1.2

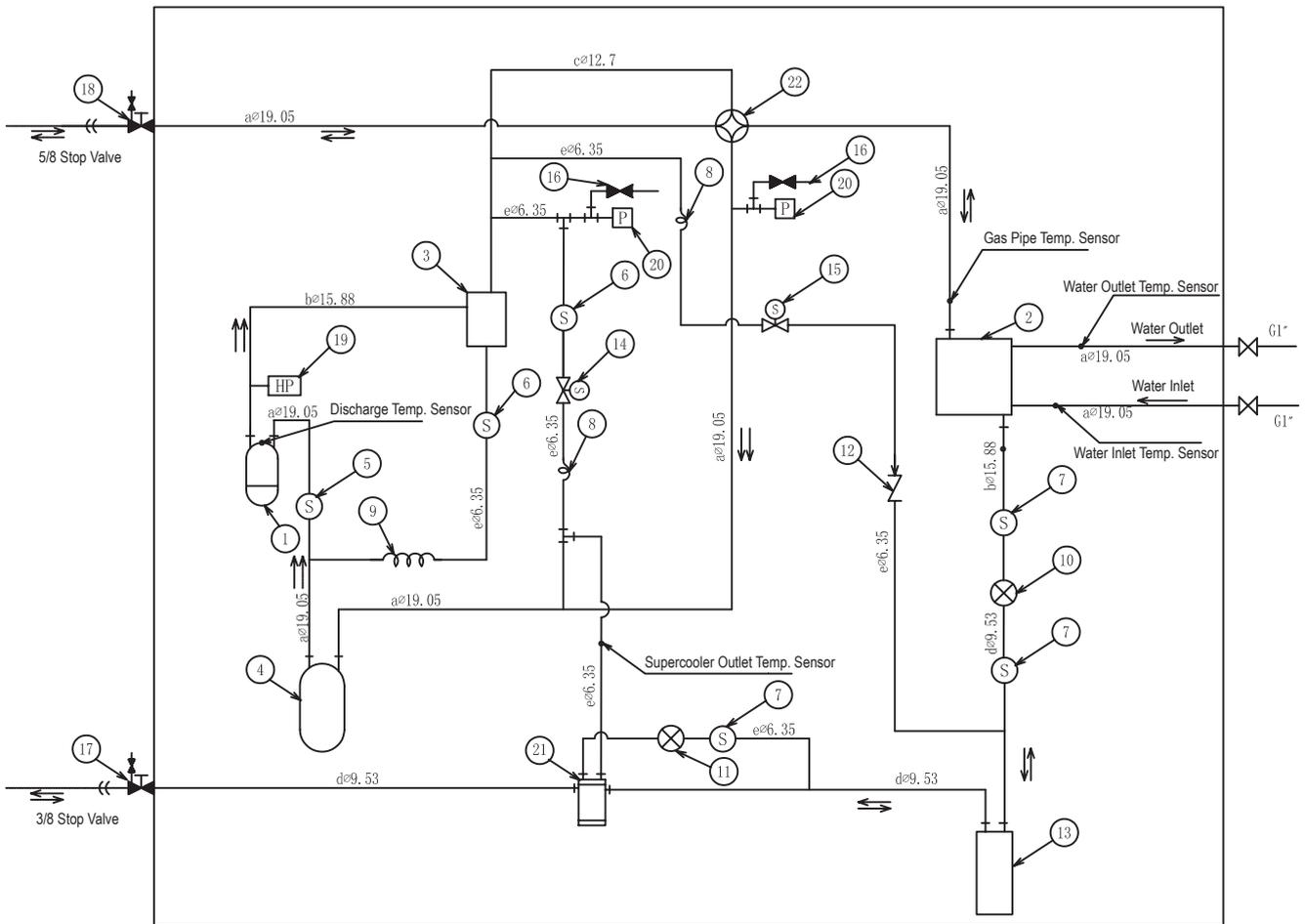
			AVWW-76U(E/7/8)SB	AVWW-96U(E/7/8)SB
Compressor Model			E656DHD	E656DHD
Type			Scroll Compressor	Scroll Compressor
Quantity		-	1	1
Air Tight Pressure	Discharge Pressure	MPa	4.2	4.2
	Suction Pressure	MPa	2.21	2.21
Motor	Type	-	Triphase Synchronous Motor	Triphase Synchronous Motor
	Start Type	-	Inverter-driven	Inverter-driven
	Poles	-	4	4
	Insulation Class	-	E	E
Refrigeration Oil	Model	-	FVC68D	FVC68D
	Charge Volume	L	1.1	1.1

Installation and Operation

1. Control System

1.1 Refrigerant Cycle

Model: AVWW-28~54U(C/2)SA

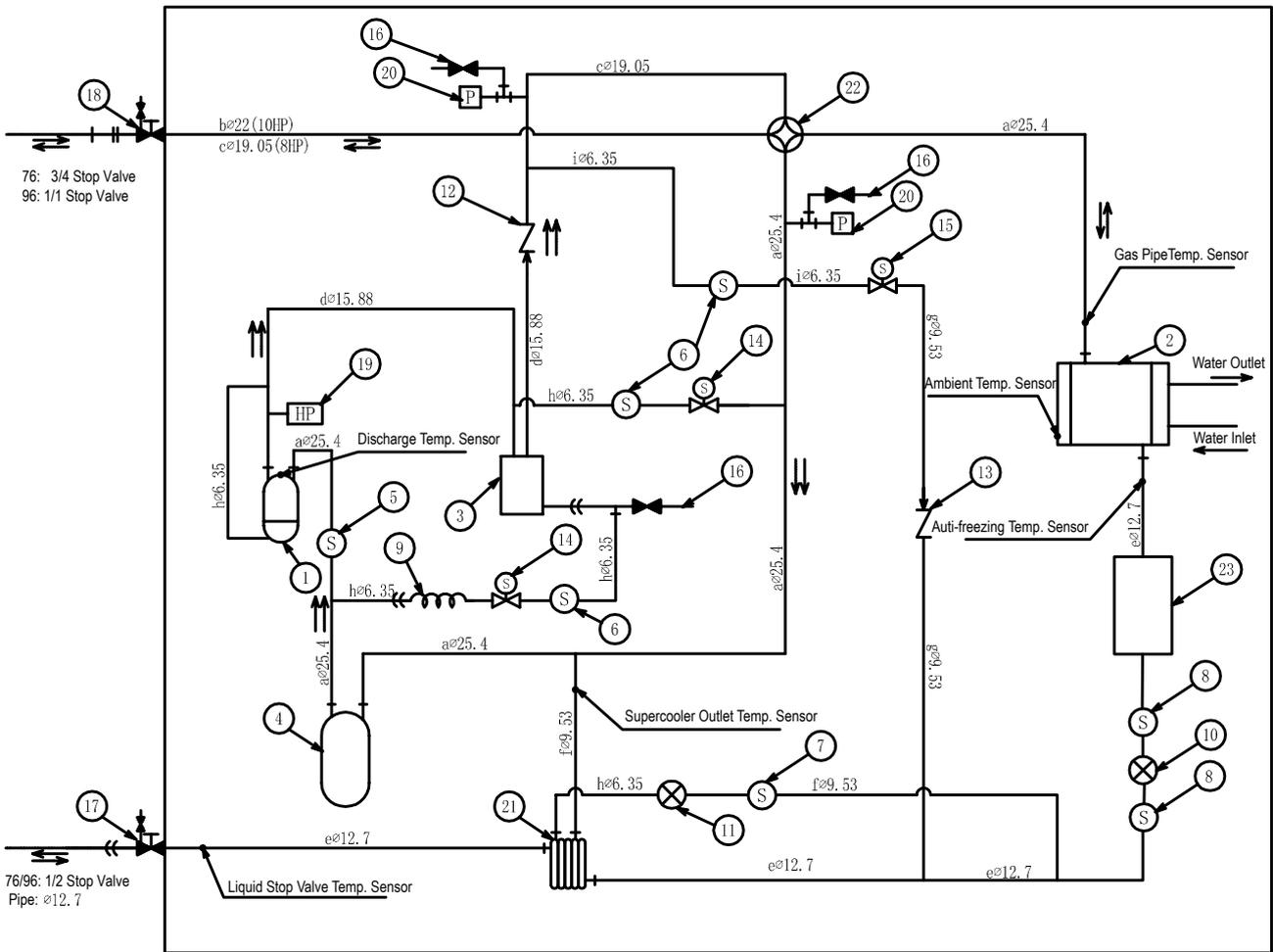


- ← : Refrigerant Flow Direction (Cooling)
- : Refrigerant Flow Direction (Heating)
- : Field Refrigerant Piping
- ⋈ : Flare Connection
- ⊥ : Brazing Connection

Mark	Part Name
1	Compressor
2	Plate Heat Exchanger
3	Oil Separator (AVWW-28*)
4	Gas-liquid separator
5	Strainer
6	Strainer (AVWW-28*)
7	Strainer
8	Capillary Tube
9	Capillary Tube (Except 3.0HP)
10	Electronic Expansion Valve (EVO)
11	Electronic Expansion Valve (EVB)
12	Check Valve
13	Accumulator
14	Solenoid Valve
15	Solenoid Valve
16	Check Joint
17	3/8 Stop Valve for Liquid Line
18	5/8 Stop Valve for Gas Line
19	High Pressure Switch
20	Pressure Sensor
21	Super-cooling Heat Exchanger
22	Reversing Valve

Mark	OD x T	Material
a	19.05 x 1.2	C1220T-O
b	15.88 x 1.2	
c	12.7 x 1.0	
d	9.53 x 0.8	
e	6.35 x 1.07	

Model: AVWW-76-96U(E/7/8)SB



- ← : Refrigerant Flow Direction (Cooling)
- : Refrigerant Flow Direction (Heating)
- : Field Refrigerant Piping
- ⋈ : Flare Connection
- ⊥ : Brazing Connection
- ⊥⊥ : Flange Connection

Mark	Part Name
1	Compressor
2	Plate Heat Exchanger
3	Oil Separator
4	Gas-liquid separator
5	Strainer
6	Strainer
7	Strainer
8	Strainer
9	Capillary Tube
10	Electronic Expansion Valve (EVO)
11	Electronic Expansion Valve (EVB)
12	Check Valve
13	Check Valve
14	Solenoid Valve
15	Solenoid Valve
16	Check Joint
17	Stop Valve for Liquid Line
18	Stop Valve for Gas Line
19	High Pressure Switch
20	Pressure Sensor
21	Super-cooling Heat Exchanger
22	Reversing Valve
23	Accumulator

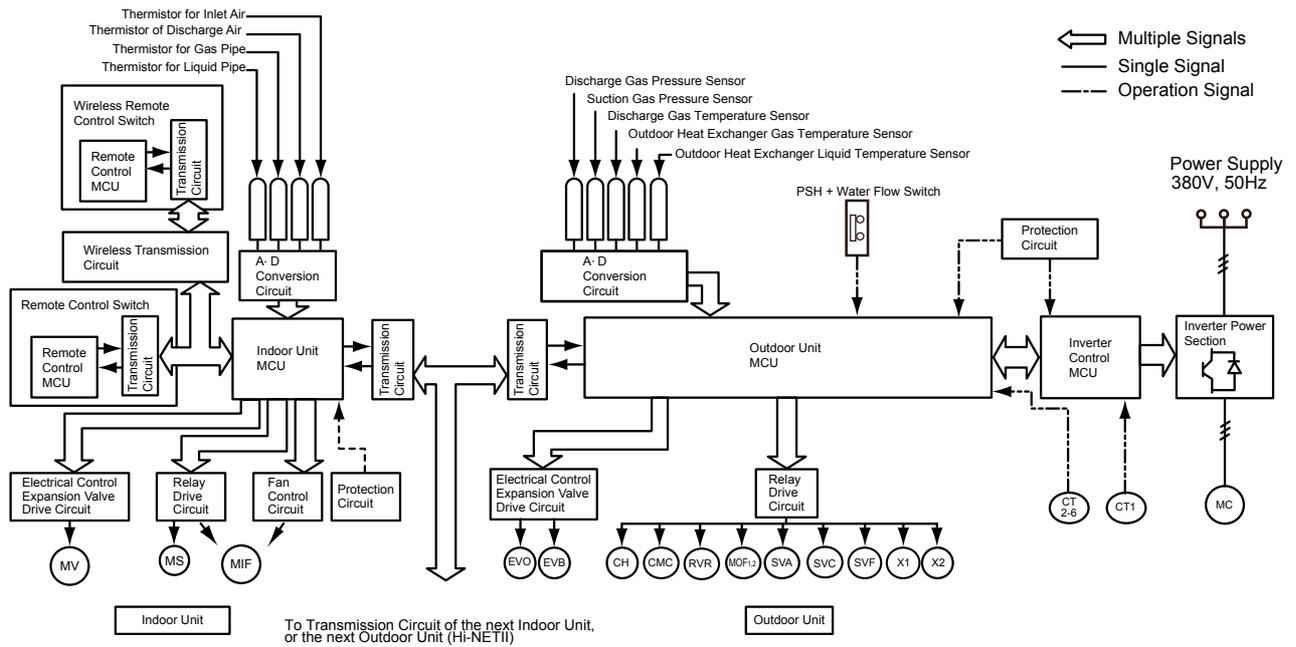
Mark	OD x T	Material
a	25.4 x 1.6	C1220T-O
b	22.0 x 1.5	
c	19.05 x 1.65	
d	15.88 x 1.2	
e	12.7 x 1.0	
f	9.53 x 1.0	
g	9.53 x 0.8	
h	6.35 x 1.07	
i	6.35 x 0.7	

1.2 Function Control Unit

Control Device	Control			
	Cooling Operation		Heating Operation	
	Purpose of Control	Contents	Purpose of Control	Contents
Inverter Frequency of Compressor	Total I.U. Operating Capacity	Capacity control is carried out to achieve the targeted value of Ps.	Total I.U. Operating Capacity	PI control is carried out to achieve the targeted value of Pd.
Electronic Expansion Valve for O.U. Heat Exchanger (EVO)	Capacity Control	Electronic expansion valve opening is depending on the water inlet temp. and indoor capacity, and it works with pressure solenoid valve.	Capacity Control	Ps is achieved the targeted value of 1.0MPa. (Water temperature accordingly)
Electronic Expansion Valve for Super Cooling Heat Exchanger (EVB)	TdSH Control	Control Td SH of compressor to achieve the targeted value of 30°C.	TdSH Control	Control Td SH of compressor to achieve the targeted value of 30°C.
Electronic Expansion Valve for I.U. Heat Exchanger (EVI)	I.U. Heat Exchanger SH	PI control is carried out to achieve the targeted value of I.U. heat exchanger SH.	I.U. Heat Exchanger SH	PI control is carried out to achieve the targeted value of I.U. heat exchanger SH.
Oil Return	Stable Operation	Frequency increases after one-hour low-frequency operation (less than 38Hz).	Stable Operation	Frequency increases after one-hour low-frequency operation (38Hz).
Freezing Protection Control			Freezing Protection	<ol style="list-style-type: none"> 1. Ambient Temperature Sensor on Plate Heat Exchanger 2. Freezing Protection Temperature Sensor 3. Gas Pipe Temperature Sensor

Pd: Discharge Pressure
 Ps: Suction Pressure
 SH: Superheat
 SC: Supercooling
 TdSH: Superheat of Discharge Gas Temperature
 I.U.: Indoor Unit
 O.U.: Outdoor Unit

Figure below shows the outline of the control system.



Symbol	Name
MC	DC Motor (for Compressor)
MIF	Fan Motor (for Indoor Unit)
MOF _{1,2}	Fan Motor (for Inverter)
MS	Motor (for Auto-Louver)
EVO	Electronic Expansion Valve (Main)
EVB	Electronic Expansion Valve (Sub)
CMC	Magnetic Contactor
RVR	Reversing Valve
SVA	Solenoid Valve (Hot-gas By-pass)
SVC	Solenoid Valve (Pressure By-pass)
SVF	Solenoid Valve (Oil Return By-pass)
X1	Solenoid Valve (Inverter Fan Motor)
X2	Solenoid Valve (Water Pump Output)
PSH	Pressure Switch + Water Flow Switch
CH	Crankcase Heater
CT	Current Sensor

2. Installation Of Outdoor Unit

2.1 Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool	No.	Tool	No.	Tool
1	Handsaw	6	Copper Pipe Bender	11	Spanner	16	Leveller
2	Phillips Screwdriver	7	Manual Water Pump	12	Charging Cylinder	17	Clamper for Solderless Terminals
3	Vacuum Pump	8	Pipe Cutter	13	Control Valve	18	Hoist (for Indoor Unit)
4	Refrigerant Gas Hose	9	Brazing Kit	14	Cutter for Wires	19	Ammeter
5	Megohmmeter	10	Hexagon Wrench	15	Gas Leak Detector	20	Voltage Meter

Use tools and measuring instruments only for the new refrigerant R410A which is directly touch to refrigerant.

◇ : Interchangeability is available with current R22

● : only for Refrigerant R410A (No Interchangeability with R22)

x: Prohibited

◆ : only for Refrigerant R407C (No Interchangeability with R22)

Measuring Instrument and Tool		Interchangeability with R22		Reason of Non-Interchangeability and Attention (★ : Strictly Required)	Use
		R410A	R407C		
Refrigerant Pipe	Pipe Cutter	◇	◇	-	Cutting Pipe
	Chamfering Reamer	◇	◇	-	Removing Burrs
	Flaring Tool	◇●	◇	* The flaring tools for R407C are applicable to R22	Flaring for Tubes
	Extrusion Adjustment Gauge	●	-	* If using flaring tube, make dimension of tube larger for R410A. * In case of material 1/2H, flaring is not available	Dimensional Control for Extruded Portion of Tube after Flaring
	Pipe Bender	◇	◇	* In case of material 1/2H, bending is not available. Use elbow for bend and braze.	Bending
	Expanding Tool	◇	◇	* In case of material 1/2H, expanding of tube is not available. Use socket for connecting tube.	Expanding Tubes
	Torque Wrench	●	◇	* For φ12.7, φ15.88, spanner size is up 2mm.	Connection of Flare Nut
		◇	◇	* For φ6.35, φ9.53, φ19.05, spanner size is the same.	
	Brazing Tool	◇	◇	* Perform correct brazing work.	Brazing for Tubes
Nitrogen Gas	◇	◇	* Strict Control against Contamin (Blow nitrogen during brazing.)	Prevention from Oxidation during Brazing	
Lubrication Oil (for Flare Surface)	●	◆	* Use a synthetic oil which is equivalent to the oil used in the refrigeration cycle. * Synthetic oil absorbs moisture quickly.	Applying Oil to the Flared Surface	
Refrigerant Charge	Refrigerant Cylinder	●	◆	* Check refrigerant cylinder color. ★ Liquid refrigerant charging is required regarding zeotropic refrigerant.	Refrigerant Charging
	Vacuum Pump	◇	◇	★ The current ones are applicable. However, it is required to mount a vacuum pump adapter which can prevent from reverse flow when a vacuum pump stops, resulting in no reverse oil flow.	Vacuum Pumping
	Adapter for Vacuum Pump	* ●	◆		
	Manifold Valve	●	◆	* No interchangeability is available due to higher pressures when compared with R22. ★ Do not use current ones to the different refrigerant. If used, mineral oil will flow into the cycle and cause sludges, resulting in clogging or compressor failure. Connection diameter is different; R410A: UNF1/2, R407C: UNF7/16.	Vacuum Pumping, Vacuum Holding, Refrigerant Charging and Check of Pressures
	Charging Hose	●	◆		
	Charging Cylinder	x	x	* Use the weight scale.	-
	Weight Scale	◇	◇	-	Measuring Instrument for Refrigerant Charging
Refrigerant Gas Leakage Detector	* ●	◆	* The current gas leakage detector (R22) is not applicable due to different detecting method.	Gas Leakage Check	

*: Interchangeability with R407C.

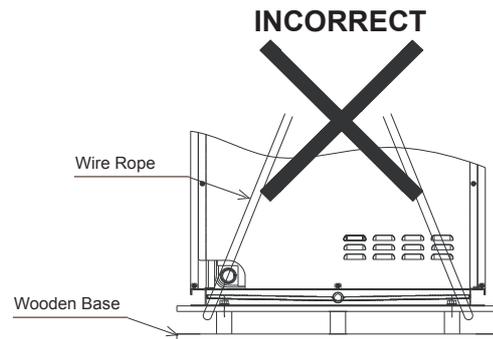
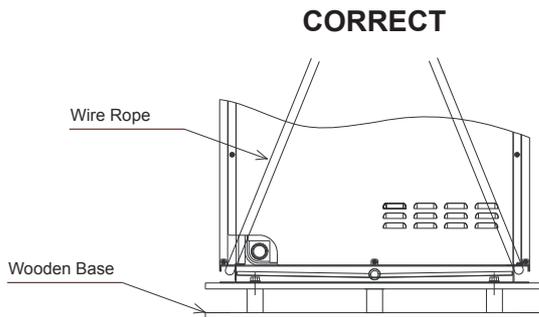
3. Transportation and Handling

3.1 Transportation

Transport the product as close to the installation location as practical before unpacking.

When using a crane, hang the unit according to the description of the label attached to the chiller unit.

⚠ DANGER



⚠ CAUTION

1. Transportation and Storage

The corrugated paper frame is not sufficiently strong, therefore pay attention to the followings in order to prevent the unit deformation.

- Do not step or put any material on the product.
- Apply two lifting wires onto the chiller unit, when lifting it by crane.

2. Transportation and Wire Rope

- To protect the unit, do not remove any packing.
- Do not stack or put any material on the product.
- Apply wire ropes on the both side of the unit as shown in the figure

- Hanging Method

When hanging the unit, ensure a balance of the unit, check safety and lift up smoothly.

- (1) Do not remove any packing materials.
- (2) Hang the unit under packing condition with two (2) wire ropes, as shown in Fig. 3.1.

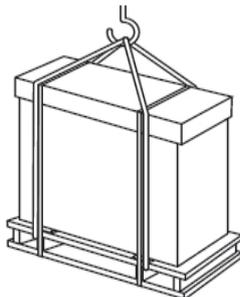


Fig. 3.1 Hanging Work for Transportation

⚠ CAUTION

If have no package to move, please protect with cloth or paper

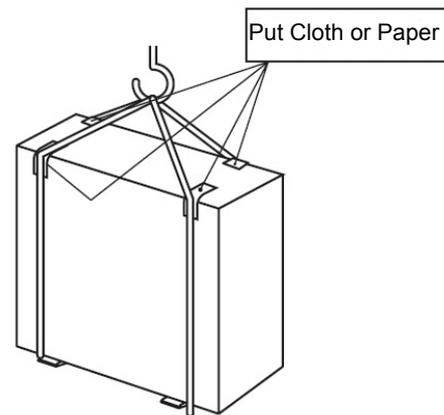


Fig. 3.2 Transportation for no wooden base

Outdoor Unit Model	Net Weight (kg)
AVWW-28	78
AVWW-38~54	100
AVWW-76~96	160

3.2 Handling of Chiller Unit

⚠ WARNING

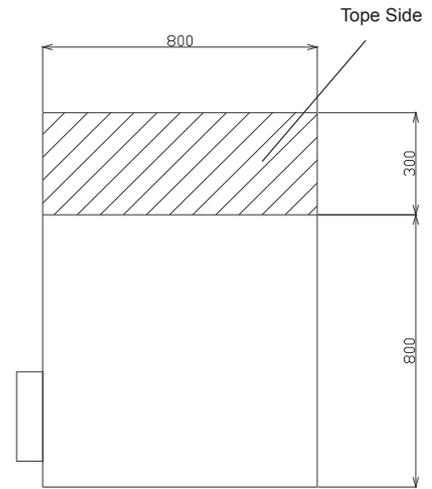
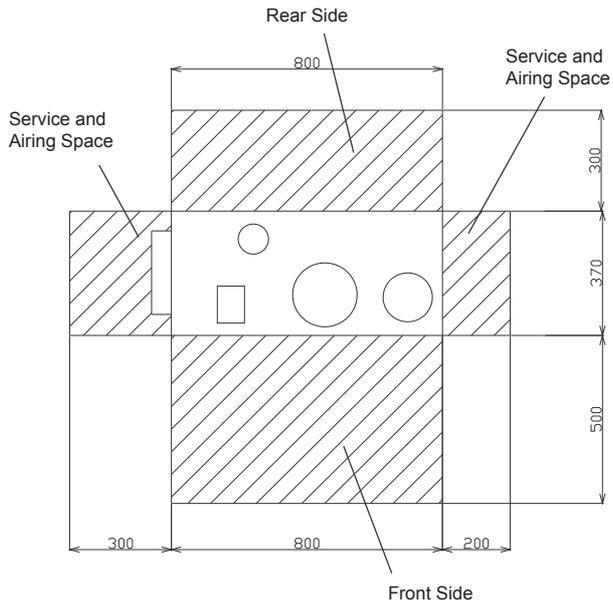
Do not put any foreign material into the chiller unit and check to ensure that none exists in the chiller unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

3.3 Service Space

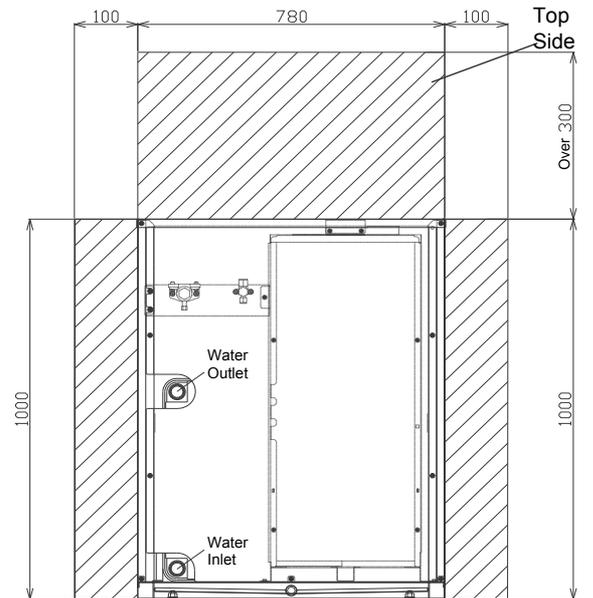
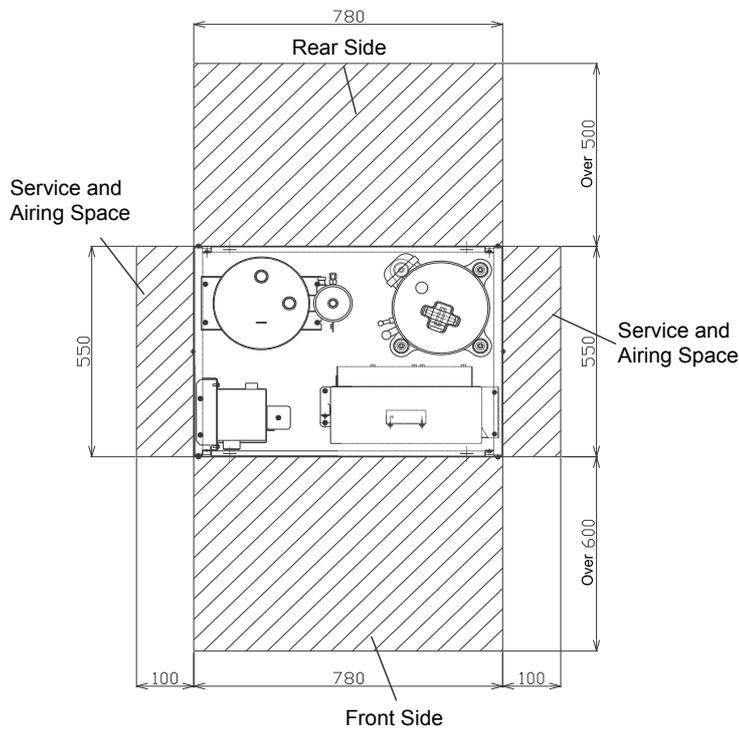
- Single Installation

Unit: mm

AVWW-28~54U(C/2)SA



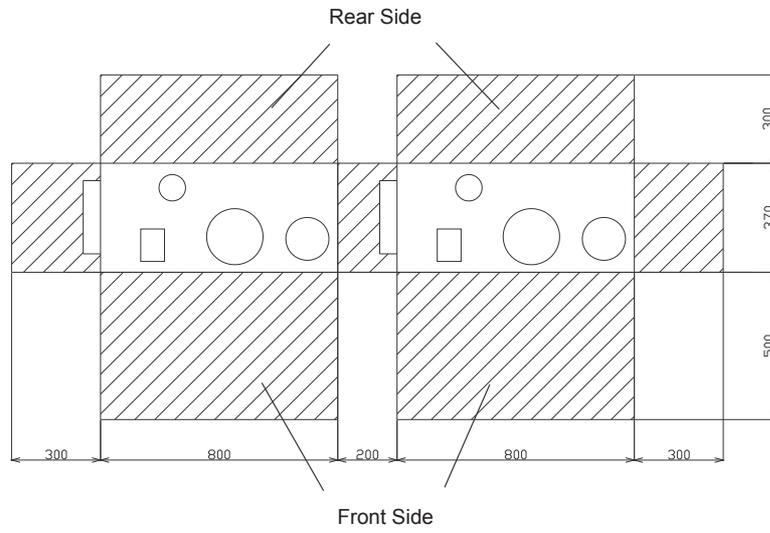
AVWW-76~96U(E/7/8)SB



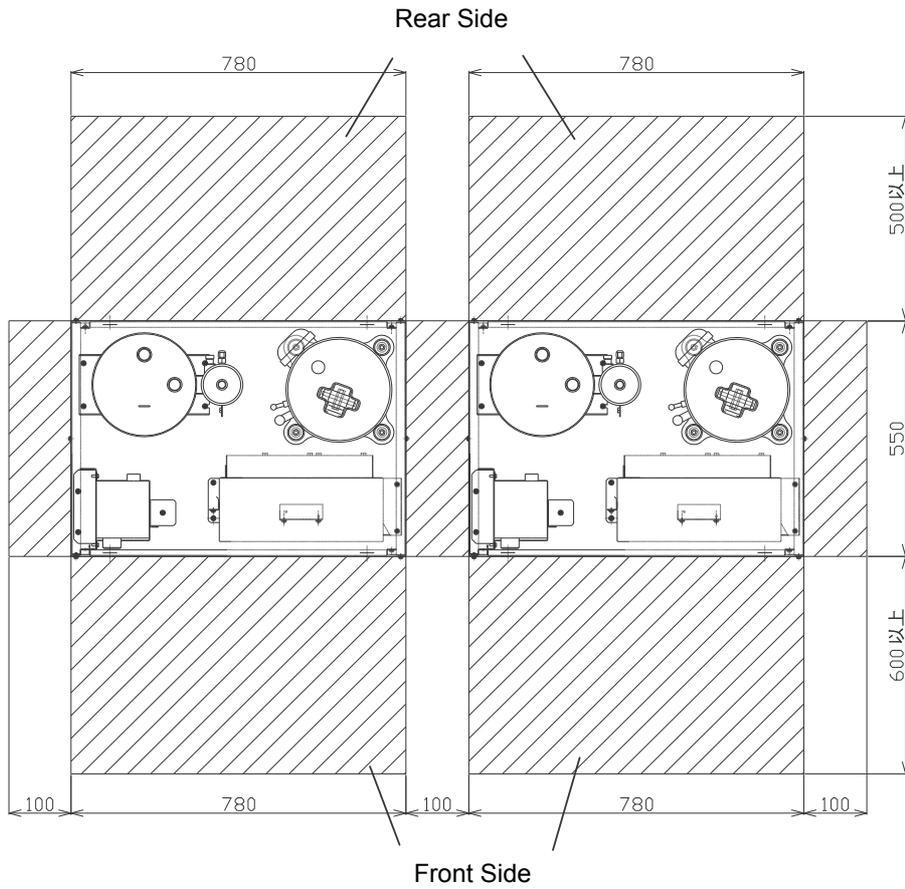
- Multiple Installation

AVWW-28~54U(C/2)SA

Unit: mm



AVWW-76~96U(E/7/8)SB



3.4 Chiller Unit Installation

Installation

- (1) Install the chiller unit indoors, machine room without water spray is required.
- (2) Install the chiller unit where it is in the shade or it will not be exposed to direct sunshine or direct radiation from high temperature heat source.
- (3) Install the chiller unit where the sound or the discharge air from the chiller unit does not affect neighbors or surrounding ventilation.
- (4) Install the chiller unit in a space with limited access to general public.
- (5) Check to ensure that the foundation is flat, level and sufficiently strong
- (6) Install the chiller unit in a space where ambient temperature is 0~40°C and relative humidity is lower than 80%
- (7) When install the chiller unit in enclosed room, vent should be set. Heat dissipating capacity is calculated according to 445W per unit.
- (8) Do not install the chiller unit where there is a high level of oil mist, flammable gases, salty air or harmful gases such as sulphur and an acid or alkaline environment.
- (9) Do not install the chiller unit where the electromagnetic wave is directly radiated to the electrical control box.
- (10) Install the chiller unit as far as possible, being at least 3 meters from the electromagnetic wave radiator.

4. Refrigerant Piping Work

⚠ DANGER

- Use the specified non-flammable refrigerant (R410A) to the chiller unit in the refrigerant cycle. Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing maintaining and moving. These flammables are extremely dangerous and may cause a explosion, a fire, and injur .
- Check to ensure that no pressure exists inside the stop valve before removing the flange

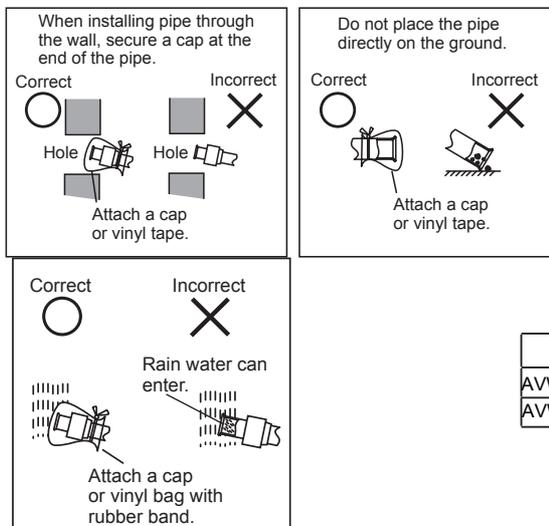
⚠ CAUTION

Ensure to connect the piping among the units in the same refrigerant cycle.

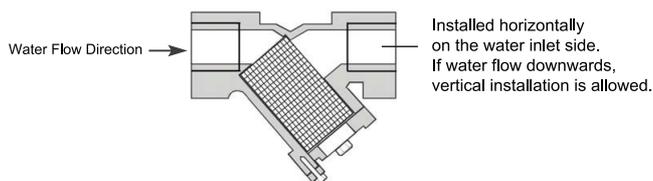
4.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the Table 4.1 and Table 4.2.
- (3) Select clean copper pipes. Make sure there is no dust and moisture inside of the pipes. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes. Do not use any tools which produce a lot of swarf such as a saw or a grinder.

● Cautions for Refrigerant Pipe Ends



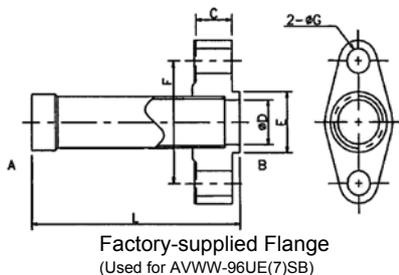
● Request of Water Inlet Filter (40 mesh recommended)



Model	DN	SIZE	Medium	Nominal Pressure
AVWW-28~54U(C/2)SA	25	1"	Water	2.0MPa
AVWW-76~96U(E/7/8)SB	32	1 1/4"	Water	2.0MPa

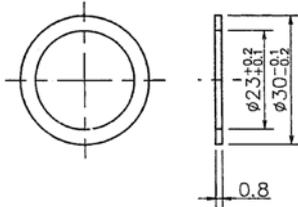
<AVWW-76~96U(E/7/8)SB> Flange Connection

- Connect ϕ 22.2 pipe and AVWW-96U(E/7/8)SB with factory-supplied piping flange

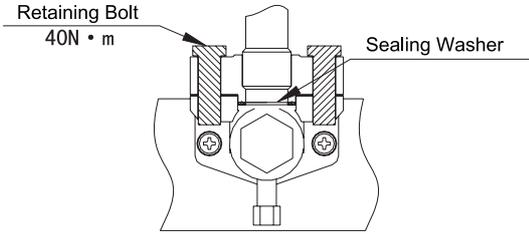


● Cautions for Flange Pipe Connection

- (1) Before use, look into the flange butt surface carefully for bumping or knocking, the damaged parts are not acceptable.
- (2) Before installation, remove the foreign matters such as dust on flange butt surface to ensure its cleanness.
- (3) Before installation, soak the flange sealing washer into R410A refrigeration oil for 10~15 min.
- (4) When installation, spread clean refrigeration oil on butt surface of flange stop valve an flange connection pipe.
- (5) Tighten the butt bolt with the specified tightening torque.

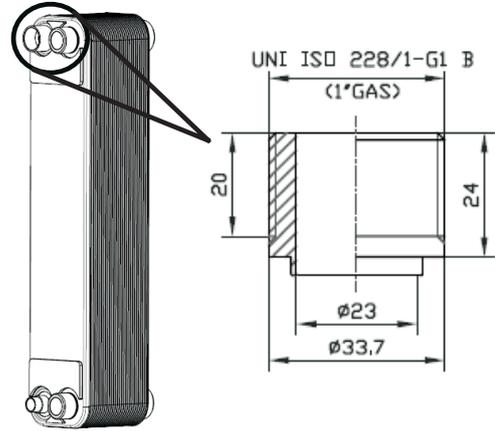


Factory-supplied Flange Sealing Washer
(Used for RAS-10FSNYW1Q)

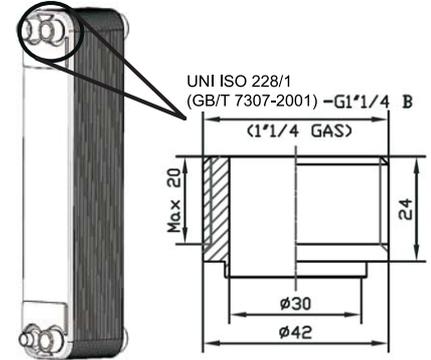


● Water Pipe Connector for Plate Heat Exchanger

<AVWW-28~54U(C/2)SA>



<AVWW-76~96U(E/7/8)SB>



Thread of Pipe Connector of Plate Heat Exchanger

Table 4.1 Piping Size of Chiller Unit
(mm)

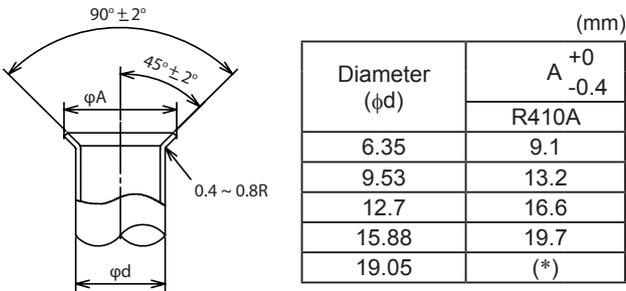
Model	Gas Line	Liquid Line	Branch Pipe
AVWW-28~54U(C/2)SA	$\phi 15.88$	$\phi 9.53$	HFQ-052F
AVWW-76U(E/7/8)SB	$\phi 19.05$	$\phi 12.7$	HFQ-052F
AVWW-96U(E/7/8)SB	$\phi 22.2$	$\phi 12.7$	HFQ-052F
AVWW-154U(E/7/8)SB	$\phi 28.6$	$\phi 15.88$	HFQ-052F
AVWW-170U(E/7/8)SB	$\phi 28.6$	$\phi 15.88$	HFQ-052F
AVWW-190U(E/7/8)SB	$\phi 28.6$	$\phi 15.88$	HFQ-052F

Table 4.2 Piping Size of Indoor Unit
(mm)

Indoor Unit kBtu/h	Gas Line	Liquid Line
05 to 14	$\phi 12.7$	$\phi 6.35$
17 and 18	$\phi 15.88$	$\phi 6.35$
22 to 54	$\phi 15.88$	$\phi 9.53$
76	$\phi 19.05$	$\phi 9.53$
96	$\phi 22.2$	$\phi 9.53$

● Flaring Dimension

Perform the flaring work as shown below.



(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe (with a flare)

● Piping Thickness and Material

Use the pipe as below.

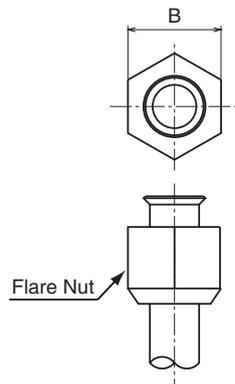
Diameter	R410A	
	Thickness	Material
$\phi 6.35$	0.8	O material
$\phi 9.53$	0.8	O material
$\phi 12.7$	0.8	O material
$\phi 15.88$	1.0	O material
$\phi 19.05$	1.0	1/2H material
$\phi 22.2$	1.0	1/2H material
$\phi 25.4$	1.0	1/2H material
$\phi 28.6$	1.0	1/2H material
$\phi 31.75$	1.1	1/2H material
$\phi 38.1$	1.4	1/2H material

● Joint Selection

If you use 1/2H material, you can not perform the flaring work. In this case, use a joint selected from the chart below.

< Minimum Thickness of Joint (mm) >

Diameter	R410A
$\phi 6.35$	0.5
$\phi 9.53$	0.6
$\phi 12.7$	0.7
$\phi 15.88$	0.8
$\phi 19.05$	0.8
$\phi 22.2$	0.9
$\phi 25.4$	0.95
$\phi 28.6$	1.0
$\phi 31.75$	1.1
$\phi 38.1$	1.35
$\phi 41.3$	1.45
$\phi 44.5$	1.55



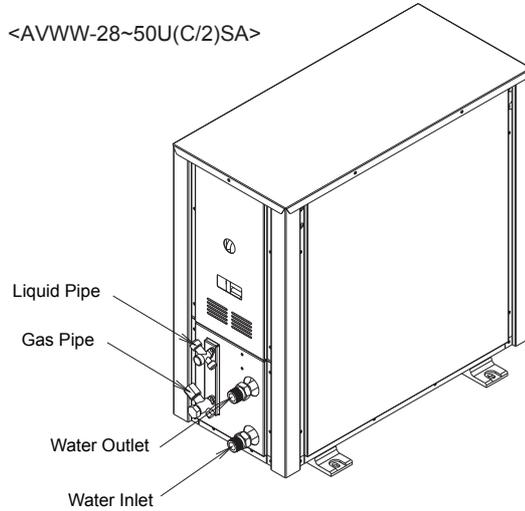
< Flare Nut Dimension B (mm) >

Diameter	R410A
$\phi 6.35$	17
$\phi 9.53$	22
$\phi 12.7$	26
$\phi 15.88$	29
$\phi 19.05$	36

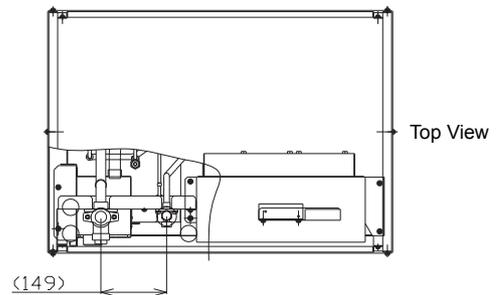
4.2 Piping Connection

● Position of Connection Pipe for Chiller Unit

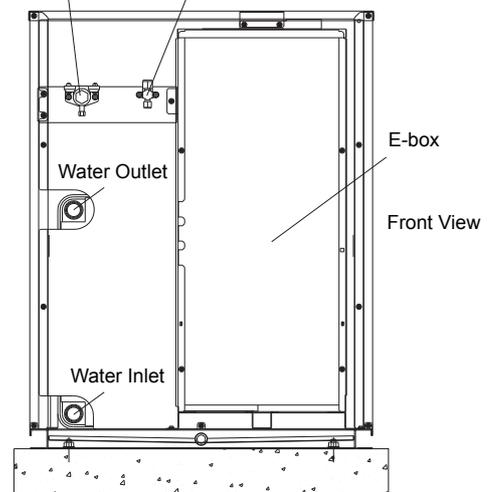
<AVWW-28~50U(C/2)SA>



<AVWW-76~96U(E/7/8)SB>



Gas Stop Valve Liquid Stop Valve



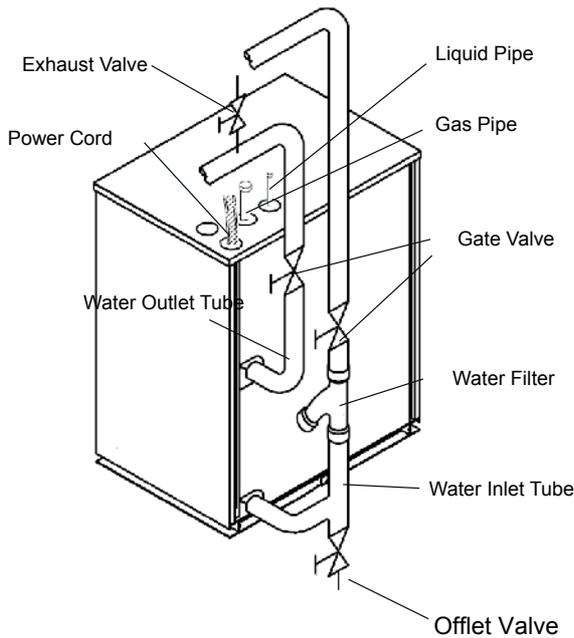


Fig. Position of Connection Pipes

● Water Piping Connection (recommended)

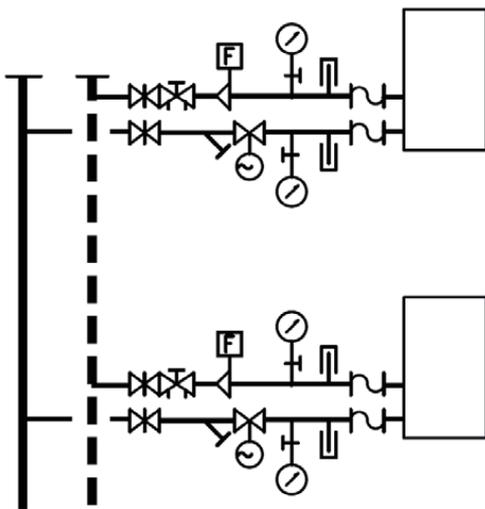


Figure	Parts
	Pressure Gauge
	Water Supply Tube
	Water Return Tube
	Soft Joint
	Water Filter
	Thermometer
	Gater Valve
	Electric Control Valve
	Water Flow Switch

Fig. Water Piping Connection

● Notice for Water Piping

- (1) Notice the position of connection pipe, don't connect inlet and outlet pipe reversely.
- (2) It is necessary to fix the gauze water filter in system. (40 mesh recommended)
- (3) Please check and ensure water filter in inlet pipe to be set close to unit side.
- (4) Please select the water pipe according to local or national regulation. Besides, the size of water pipe should not be less than that of pipe joint on unit.
- (5) Insulate water inlet and outlet pipe to avoid condensate water and prevent water from freezing.
- (6) Regularly clean water filter according to clogging degree of that.
- (7) Discharging water in heat exchanger and pipes is suggested throughout the long duration of stoppage in winter to prevent water from freezing.
- (8) Please check and clear unit and accessories in water system thoroughly before initial startup after long stoppage.

● Piping Works

- (1) Before installation, flush all water pipes thoroughly to ensure no foreign matters in that. Be careful not to flush any foreign matters into plate heat exchanger.
- (2) It is necessary to set a water flow switch on water outlet of heat exchanger to realize stop protection. Water flow switch should be connected to terminal TB3 on PCB with shielded cable. Adjust setting value of switch properly according to rated water flow.
- (3) There must be extra bracer but not just unit to support pipe and pipe joint.
- (4) Connection pipe and pipe joint on heat exchanger should be removed easily to make operation and clean work more convenient.
- (5) It is necessary to install sluice valves on water inlet and outlet of unit to cut off the water flow in heat exchange, so that there is no impact on the usage of other units during maintenance work.
- (6) Heat exchanger and connection pipe should be connected with flexible joint in order to lower vibration spread and avoid piping crack.
- (7) For easy inspection, thermometers and pressure gauges should be settled on water inlet and outlet. (Units are not equipped with thermometer and pressure gauge)
- (8) Drainage joints should be set on lower points in water system, so as to discharge water in evaporator and system thoroughly. All higher points should be installed with air exhaust valve in order to exhaust air in pipe. No need to insulate air exhaust valve and drainage joint for easy maintenance.

(9) Insulate all water pipes that have possibility to be iced up. Water pipe can be packed together with an auxiliary heater band in order to avoid frost crack. The heater power source should be equipped with individual fuse.

● Installation of Water Flow Switch

- (1) Terminals of water flow switch should be placed in proper position for easy wiring.
- (2) The direction arrow marked on water flow switch should be parallel to the direction of water flow, target paddle should be perpendicular to direction of water flow.
- (3) Water flow switch must be installed in straight pipe-line and at least 5 times as long as pipe diameter for straight pipes should be retained on two terminals of water flow switch
- (4) It can be fixed in horizontal pipe-line or vertical pipe in which water flows upward, but not vertical pipe in which water flows downward
- (5) It needs to be interlocked with control system.
- (6) Target paddle needs to be selected and cut on site.

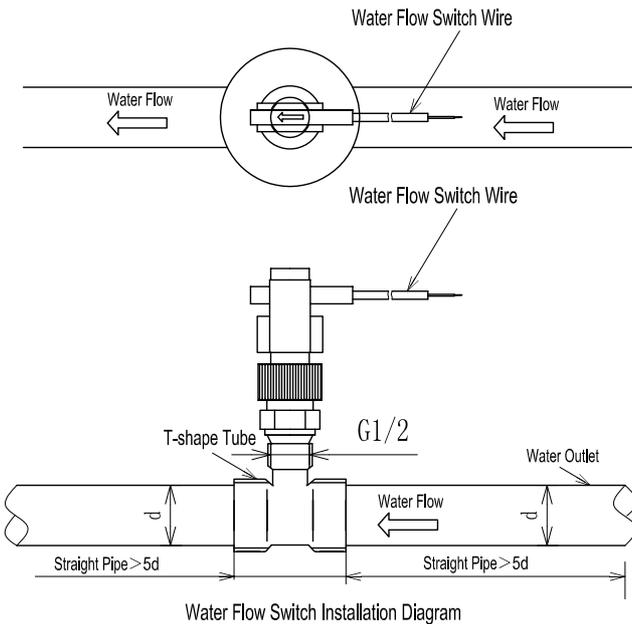


Fig. Water Flow Switch Connection

※ “A” must be at least 5 times as long as pipe diameter from the nearest elbow or valve to other pipe joint.

4.3 Electrical Wiring for Others

● Wiring of Terminal TB1

Do wiring work according to the following table, otherwise, PCB may be damaged and poor operation will occur.

Terminal	Control Object	Demand
TB 1 - PL,PN	Signal Output of Pump	AC 220 0.3A
TB 1 - FL,FN	Signal Input of Flow Switch	AC 220 10mA

● Water Flow Switch Connection

Water Flow Switch is used for water interception protection in water circulation and avoiding failures arise from water interception. TB1-FL, FN are the input terminals for water flow switch signal

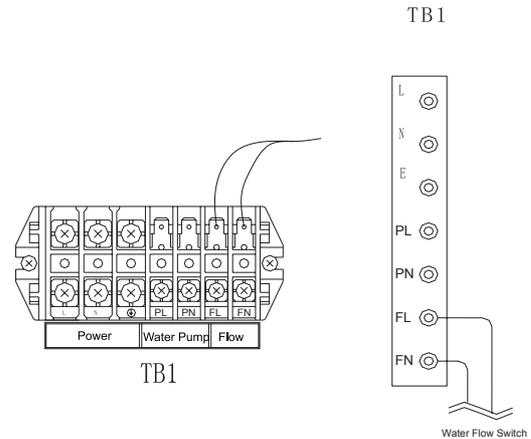


Fig. Water Flow Switch Connection

※ The wire between TB1 and Water Flow Switch should be as short as possible, and TB1 should be installed close to unit.

● Wiring of Water Pump

The running signal of water pump can be sent through terminal TB 1-PI,PN of the unit

CAUTION

Don't output multiple water pump signals in parallel, which will damage the electrical circuit board due to short circuit.

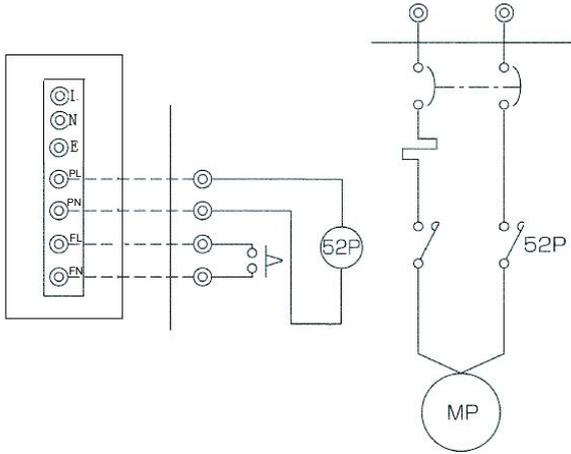


Fig. Water Pump Output Signal Control

● Wiring of Pump

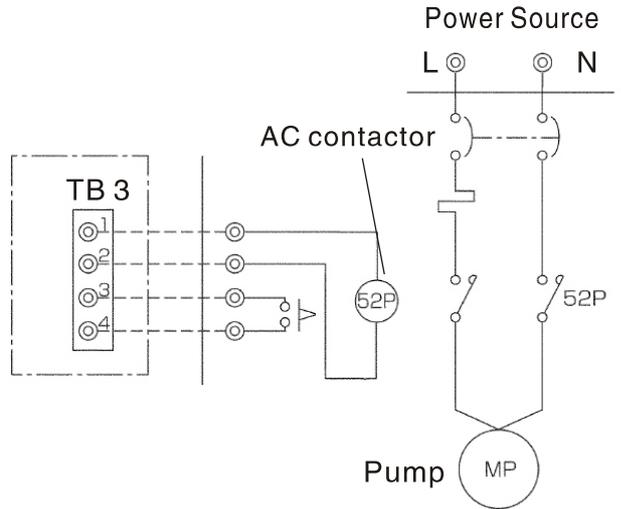


Fig. Wiring of Pump

CAUTION

※ It is forbidden to connect the outlet signal of the water pump in parallel, it may cause a damage to the PCB.

● Wiring of Terminal TB3

Please wiring as the following table, or, it will cause damage of PCB. Forbidden take terminal TB 3 as power source of pump.

Terminal	Control Object	Demand
TB 3-1, 2	Signal Output of Pump	AC 220 0.3A
TB 3-3, 4	Signal Input of Flow Switch	AC 220 10mA

● Wiring Connection of Flow Switch

Water flow switch is the component for avoiding flow reduction, the flow changes can cause the outdoor unit failure.

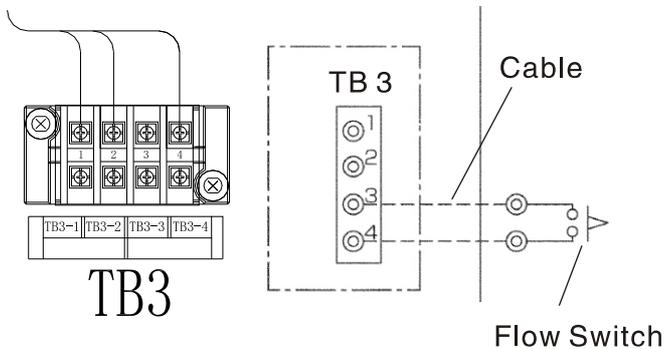


Fig. Water Flow Switch Wiring

Table 4.3 Reference Value Table for Middle-lower Temperature Water

	Item	Water		Trend	
		Recycle Water 20°C<T<60°C	Supplemental Water	Corrosion	Scale
	PH (25°C)	7.0 ~ 8.0	7.0 ~ 8.0	✓	✓
Standard Item	Conductivity (mS/m) (25°C)	<30	<30	✓	✓
	Cl ⁻ (mgCl ⁻ /L)	<50	<50	✓	
	SO ₄ ²⁻ (mgSO ₄ ²⁻ /L)	<50	<50	✓	
	Acid (PH4.8) (mgCaCO ₃ /L)	<50	<50		✓
	Total Hardness (mgCaCO ₃ /L)	<70	<70		✓
	Ca Hardness (mgCaCO ₃ /L)	<50	<50		✓
	Si ²⁺ (mgCaSiO ₂ /L)	<30	<30		✓
Reference Item	Fe (mgFe/L)	<1.0	<0.3	✓	✓
	Cu (mgCu/L)	<1.0	<0.1	✓	
	S ²⁻ (mgS ²⁻ /L)	NO Mensurate	NO Mensurate	✓	
	NH ₄ ⁺ (mgNH ₄ ⁺ /L)	<0.3	<0.1	✓	
	Cl ⁻ (mgCl/L)	<0.25	<0.3	✓	
	CO ₂ (mgCO ₂ /L)	<0.4	<4.0	✓	
	Stability index	-	-	✓	✓

● Water Treatment and Water Quality Management

Units are recommended to be used in the situation with circulating cooling water tower, and closed cooling tower is necessary.

Water pipes and plate heat exchanger that are used in the place with open cooling tower and poor quality-water would be faced with corrosion or sediment, therefore, water-line construction, water-quality monitoring and water treatment are necessary.

- (1) Make sure that any water scales inhibitor or preservative won't corrode stainless steel or copper product with water-treatment company.
- (2) Please refer to Water-quality Requirement (JRA-GL-02-1994) released by Japan Refrigeration and Air Conditioning Industry Association for water-quality management and benchmark. Reference Value Table for Middle-lower Temperature Water is applicable for units.

It is necessary to install water filter, otherwise impurities and water scales will damage heat exchanger. Installer and user must ensure circulating water quality and no air in water system to prevent the steel parts of heat exchanger from being oxidized by air.

● Refrigerant Piping Connection

- (1) Make sure that the stop valves are closed completely.
- (2) Prepare various of field-supplied pipes and elbows. Perform soldered connection according to operating requirements.
- (3) For pipe connection on stop valves, tightening work should be done with double spanner.

- When tightening the flare nut, use two spanners.

● Refrigerant Piping Connection

- (1) Confirm that the valve is closed.
- (2) The connection pipe is supplied by field. After performing the flaring work, connect the flare nut to stop valve tightly.

- (3) For 96, the adapter pipe accessories are supplied.
Weld the $\Phi 22$ pipe and adapter pipe accessories, and then connect the flare nut to gas stop valve tightly.

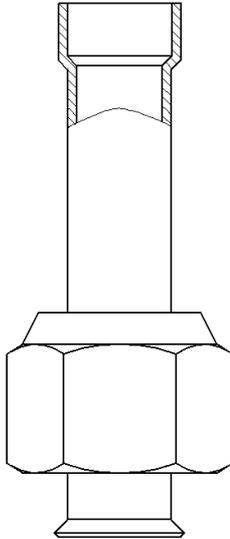
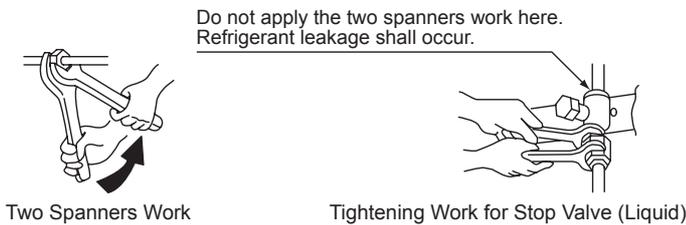


Diagram 96 Adapter Pipe Accessory



Two Spanners Work

Tightening Work for Stop Valve (Liquid)

Table Tightening Work of Flare Nut

Required Tightening Torque (JIS B8607)

Pipe Size	Tightening Torque
$\phi 6.35$ (1/4)	20 (N-m)
$\phi 9.53$ (3/8)	40 (N-m)
$\phi 12.7$ (1/2)	60 (N-m)
$\phi 15.88$ (5/8)	80 (N-m)
$\phi 19.05$ (3/4)	100 (N-m)
Flange Bolt	53~75 (N-m)

CAUTION

Check to ensure that no pressure increase is observed one hour after vacuum pumping completion

● Water Piping Connection

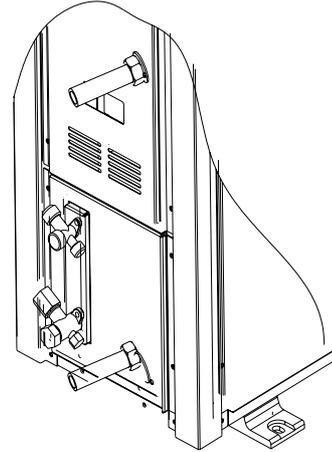


Fig. Water Piping Connection

● Pipe Connection of Plate Heat Exchanger

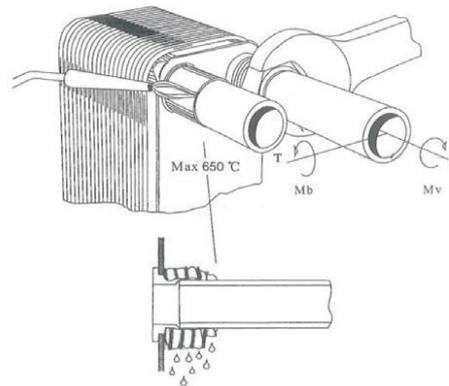


Fig. Plate Heat Exchanger Connection

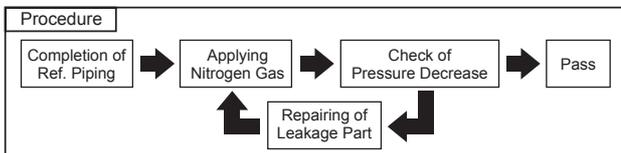
- (1) Use moment spanner to connect water pipes, any value above the upper limit value in the below table is not allowable, otherwise, the plate heat exchanger will be damaged.
- (2) Clean contact surface up while servicing braze welding copper pipe, get rid of grease, brush chlorate brazing flux and conduct welding with 40~55% silver content.
- (3) In process of welding, the allowable maximum blaze temperature is 650°C, nitrogen needs to be aerated into refrigerant side to avoid oxidization.

Table Tightening Work of Water Pipe Nut

T(kN)	F(kN)	Mb(N · m)	Mv(N · m)
24.7	9.6	61	385

● Additional Refrigerant Charge

- (1) Check to ensure that the stop valves are closed completely before air-tight test.
- (2) Connect the indoor unit and the chiller unit with field-supplied refrigerant piping
Suspend the refrigerant piping at specified points and prevent the refrigerant piping from touching weak parts of the building such as wall, ceiling, etc.
(Abnormal sound may occur due to the vibration of the piping. Pay special attention in case of short piping length.)
- (3) Connect the gauge manifold using charging hoses with a vacuum pump or a nitrogen cylinder to the check joints of the liquid line and the gas line stop valves.
Perform the air-tight test.
Connect a manifold gauge to the check joints of the liquid and gas stop valves in the chiller unit.
Do not open the stop valves. Apply nitrogen gas pressure of **4.15MPa**.
- (4) Check for any gas leakage at the flare nut connections, or brazed parts by gas leakage tester or by use of a foaming agent or gas leak detector.



- (5) Connect a manifold gauge and vacuum pump to the check joints.
- (6) Continue vacuum pumping work until the pressure reaches -0.1MPa (-756mmHg) or lower for one to two hours.
After vacuum pumping work, stop the manifold valve's valve, stop the vacuum pump and leave it for one hour. Check to ensure that the pressure in the manifold gauge does not increase.

NOTES:

1. If tools or measuring instruments come into contact with the refrigerant, use the tools or the measuring instruments exclusive for R410A.
2. If vacuum degree of -0.1MPa (-756mmHg) is not available, it is considered that there is a gas leakage.
Check for any gas leakage once again. If no leakage exists, operate the vacuum pump for one to two hours.

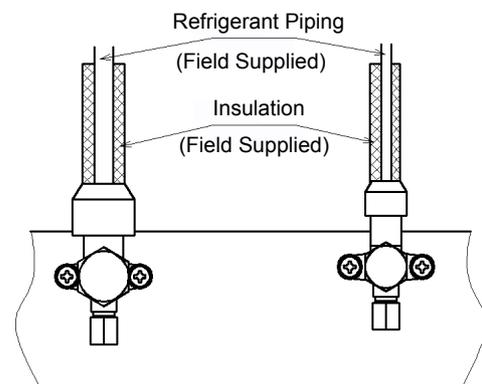
- (7) Connect gauge and refrigerant cylinder with check joint on liquid side by using charging hose.
- (8) Fully open gas valve, and slightly open liquid valve.
- (9) Operate the compressor at the cooling mode and add the refrigerant from the check joint of the liquid stop valve. (Charging Refrigerant Amount Tolerance: 0.5kg).
- (10) After refrigerant is charged, fully open the liquid stop valve.
- (11) Continuously operate at the cooling mode for over 10 min.

⚠ CAUTION

- Charge the correct refrigerant quantity according to Table 4.5.1. If not, a compressor may be damaged due to an excess or insufficient refrigerant charge
- Check to ensure that there is no gas leakage. If a large refrigerant leakage occurs, it will cause difficulty with breathing or harmful gases would occur if a fire was being used in the room

- Insulate the refrigerant pipes as shown in Fig.

After connecting the refrigerant piping, seal the refrigerant pipes by using the field-supplied insulation material. Insulate the unions and flare nuts at the piping connections completely. Insulate the liquid piping and gas piping completely to avoid decreasing of performance and dewing on the surface of the pipe.



4.4 Stop Valve

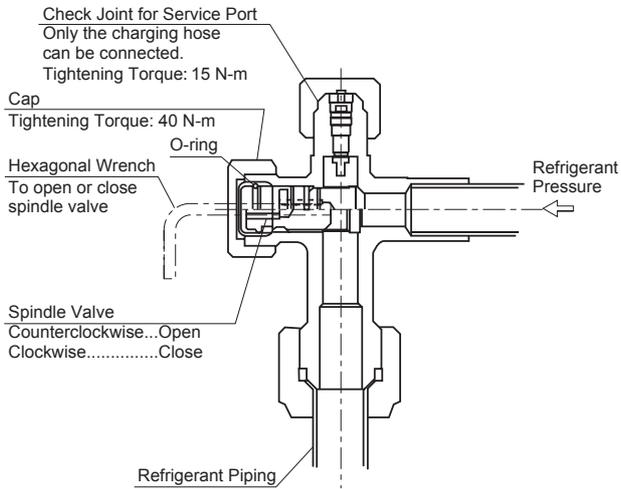


Table. Hexagonal Wrench Size

Model	Liquid Valve	Gas Valve
AVWW-28~54UCSA	8mm	4mm
AVWW-76~96UESB	5mm	5mm

Table. Stop Valve Tightening Torque

Tightening Torque of Valve Stem in Stop Valve	
Liquid Valve	Gas Valve
11-14	7-9

CAUTION

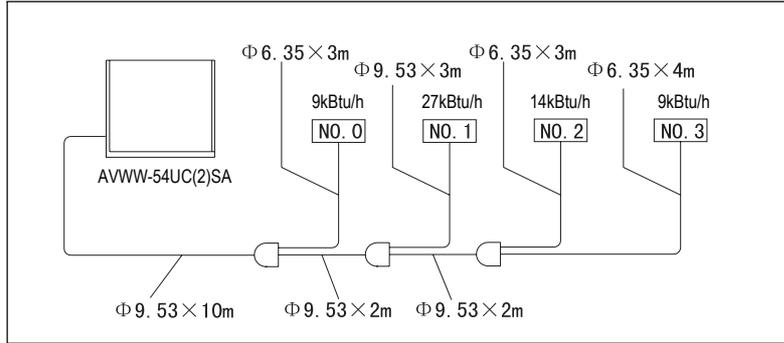
- Do not apply an abnormal big force to the spindle valve at the end of opening (5.0N.m or smaller)
The back seat construction is not provided.
- Do not loosen the stop ring. If the stop ring is loosened, it is dangerous, since the spindle will hop out.
- At the test run, fully open the spindle. If not fully opened, the devices will be damaged.

4.5 Additional Refrigerant Charge

Table 4.5.1 Additional Refrigerant Charge Calculation

Although refrigerant has been charged into this unit, additional refrigerant charge is required according to piping length.

- A: Determine the additional refrigerant quantity according to the following procedure, and charge it into the system.
 B: Record the additional refrigerant quantity to facilitate maintenance and servicing activities thereafter.



<AVWW-28~54U(C/2)SA>

1. Calculating Method of Additional Refrigerant Charge (W kg) Take

AVWW-54U(C/2)SA as an example and fill the following table

Pipe Diameter (mm)	Total Piping Length (mm)	Additional Charge (kg)
W11 = $\Phi 9.53 \dots$	(10+3+2+2)	$\times 0.05 = 0.85$
W12 = $\Phi 6.35 \dots$	(3+3+4)	$\times 0.025 = 0.25$
Total Piping Length 32m		Additional Charge W=W11+W12= 1.1 (kg)

Additional Charge for This System

Pipe Diameter (mm)	Total Piping Length (mm)	Additional Charge (kg)
W11 = $\Phi 9.53 \dots$	<input type="text"/>	$\times 0.05 =$ <input type="text"/>
W12 = $\Phi 6.35 \dots$	<input type="text"/>	$\times 0.025 =$ <input type="text"/>
Total Piping Length <input type="text"/> m		Additional Charge W= <input type="text"/> + <input type="text"/> = <input type="text"/> (kg)

2. Charging Work

Charge refrigerant (R410A) into the system according to Item 4.7.

3. Record of Additional Charge

Total refrigerant charge of this system is calculated in the following formula.

$$\begin{aligned} \text{Total Ref. Charge} &= W + W0 \\ \text{This System} &= \square + \square = \square \text{ kg} \end{aligned}$$

Ref. Charge Amount of O.U. Before Shipment (W0) kg

Chiller Unit	W0 Chiller Unit Ref. Charge (kg)
AVWW-28U(C/2)SA	2.2
AVWW-38U(C/2)SA	3.8
AVWW-48U(C/2)SA	3.8
AVWW-54U(C/2)SA	3.8

Total Additional Charge: W kg
 Total Ref. Charge: kg
 Date of Ref. Charge Work: / /

Calculation of Refrigerant Reloading Quantity (W kg) AVWW-76~96U(E/7/8)SB

1. Calculating Method of Additional Refrigerant Charge (W kg)

Take AVWW-76~96U(E/7/8)SB as an example and fill the following

Table No.	Symbol	Contents	Additional Charge (kg)			
1	W2	Additional Refrigerant Charge Calculation for Liquid Piping (W1 kg)		kg		
		Pipe Diameter	Total Piping Length (m)		Refrigerant Amount for 1m Pipe	Additional Charge (kg)
		φ22.2	m		×0.360 =	
		φ19.05	m		×0.250 =	
		φ15.88	m		×0.160 =	
		φ12.7	m		×0.100 =	
		φ9.53	m		×0.050 =	
		φ6.35	m		×0.25 =	
		Total Additional Charge For Liquid Piping =				
2	W3	Additional Refrigerant Charge Calculation for Indoor Unit (W2 kg) Additional refrigerant charge is 1kg/unit of 8HP and 10HP indoor unit. Additional refrigerant charge of less than 8HP indoor units is not needed.		kg		
		8 and 10HP Total Indoor Unit Numbers	Additional Charge			
		<input type="text"/>	× 1.0kg/unit = <input type="text"/>			
4	W	Calculation of Additional Charge (W kg) = W1 + W2+W3		kg		

Note:

Max. additional refrigerant charge quantity is 19.0kg.

2. Charging work

Charge refrigerant (R410A) into the system according to Item 4.7.

3. Record of Additional Charge

Total refrigerant charge of this system is calculated in the following formula.

Total Ref. Charge = W + Wo
 This System = + = kg

Ref. Charge Amount of O.U. Before Shipment (W0) kg

Total Additional Charge: W kg
 Total Ref. Charge: kg
 Date of Ref. Charge Work: / /

<Table>

Model (kBtu/h)	Outdoor unit Ref. Charge before shipment W0 (kg)	Outdoor unit Ref. Charge after shipment W1 (kg)
76	2.2	3.0
96	2.2	3.0
154	4.4	7.0
170	4.4	7.0
190	4.4	7.0
229	6.6	11.0
250	6.6	11.0
268	6.6	11.0
290	6.6	11.0

Note:

- W0 is chiller unit ref. charge before shipment
- In case of the combination of the base unit, calculate the total ref. charge before shipment of the chiller units to be combined.

4.5.1 Calculation of Additional Charge (W kg)

Put weight W1,W2 and W3 calculation in items 1.1 and 1.2 into the following formula.

Total Volume of Additional Charge W= W1 + W2 + W3
 (Example) W=3.0 + 1.24 + 0.0 = 4.24 kg
 This System W= + = kg



CAUTION

Charge the correct refrigerant quantity according to the result. An excess or a shortage of refrigerant can lead to decreased capability, even shut down protection.

4.6 Refrigerant Piping Work

① Outdoor Unit Pipe

② Piping Connection Kit to The First Branch (※ 1)

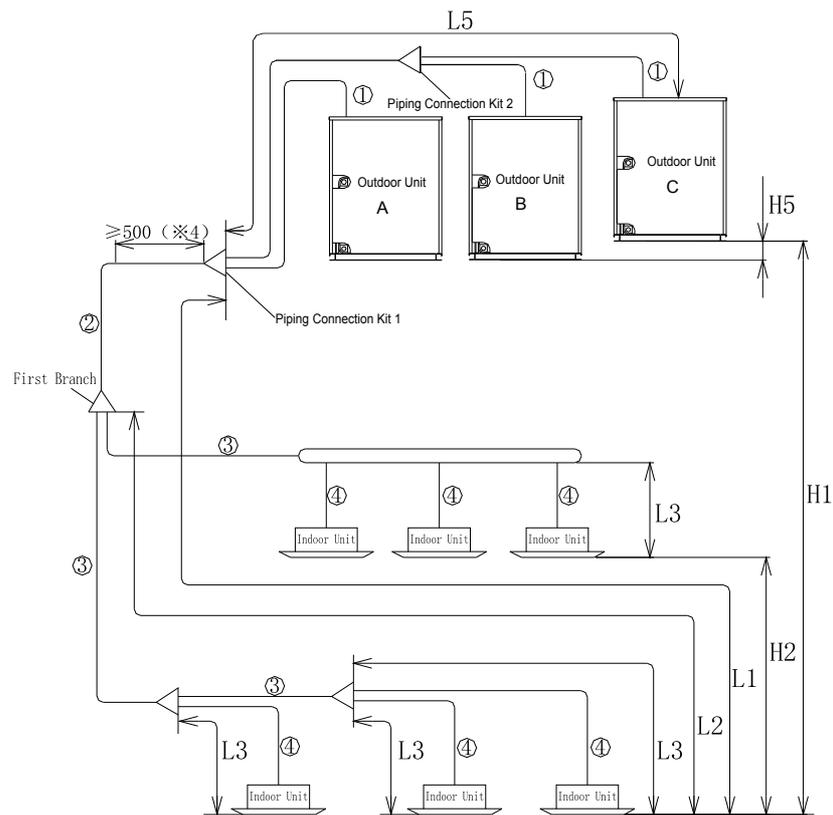
Outdoor Unit Capacity	Gas/Liquid(Φmm) (< 80M)	Gas/Liquid(Φmm) (≥ 80M)
76kBTu/h	19.05/12.7	19.05/12.7
96kBTu/h	22.2/12.7	22.2/12.7
154~190kBTu/h	28.6/15.88	28.6/19.05
229kBTu/h	28.6/19.05	28.6/22.2
250~290kBTu/h	31.75/19.05	31.75/22.2

③ First Branch to Last Branch (※ 2)

Total I.U. Capacity	Gas(Φmm)	Liquid(Φmm)
lower than 57kBTu/h	15.88	9.53
57~86kBTu/h	19.05	9.53
86~114kBTu/h	22.2	9.53
114~154kBTu/h	25.4	12.7
154~172kBTu/h	28.6	12.7
172~249kBTu/h	28.6	15.88
over 249kBTu/h	31.75	19.05

④ Last Branch to Indoor Unit (※ 3)

Indoor Unit Capacity	Gas(Φmm)	Liquid(Φmm)
05~14kBTu/h	12.7	6.35
18kBTu/h	15.88	6.35
24~28kBTu/h	15.88	9.53
76kBTu/h	19.05	9.53
96kBTu/h	22.2	9.53



Piping Connection Kit 1 and Kit 2

Outdoor Unit Capacity	Multi-kit Model
154~229kBTu/h	HFQ-242F
250~290kBTu/h	HFQ-302F

First Branch

Outdoor Unit Capacity	Multi-kit Model
76~96kBTu/h	HFQ-102F
154~229kBTu/h	HFQ-242F
250~290kBTu/h	HFQ-302F

Piping Size and Multi-kit after First Branch

Total I.U. Capacity	Gas/Liquid(Φmm)	Multi-kit Model
lower than 57kBTu/h	15.88/9.53	HFQ-102F
57~86kBTu/h	19.05/9.53	HFQ-102F
86~114kBTu/h	22.2/9.53	HFQ-102F
114~154kBTu/h	25.4/12.7	HFQ-162F
154~172kBTu/h	28.6/12.7	HFQ-162F
172~249kBTu/h	28.6/15.88	HFQ-242F
over 249kBTu/h	31.75/19.05	HFQ-302F

Table . Refrigerant Piping Work

Item		Symbol	Applicable Range
Ref. Pipe Length	Actual	L1	≤ 120m
	Equivalent		≤ 140m
Piping Length from 1st Branch to each I.U.		L2	≤ 40m
Piping Length from each Multi-kit to I.U.		L3	≤ 30m
Piping Length from Piping Connection Kit to O.U.		L5	≤ 10m
Lift between I.U. And O.U.		O.U. Is Higher	≤ 50m
		O.U. Is Lower	≤ 40m
Lift between Indoor Units		H2	≤ 15m
Lift between Outdoor Units		H5	≤ 0.1m
Total Length of I.U. Piping			≤ 300m

※ 1 The basic model such as 76kBTu/h and 96kBTu/h, that means outdoor unit pipe since there is no multi-kit 1.

※ 2 In the case that the selected pipe size after the first branch is bigger than the pipe size before the first branch, use the same size as before the branch.

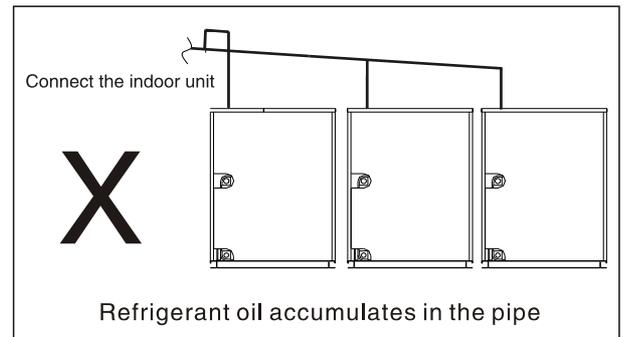
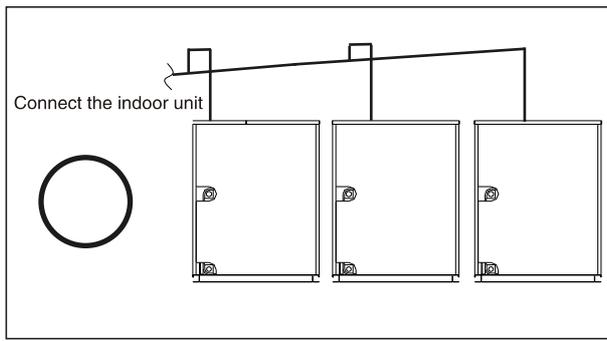
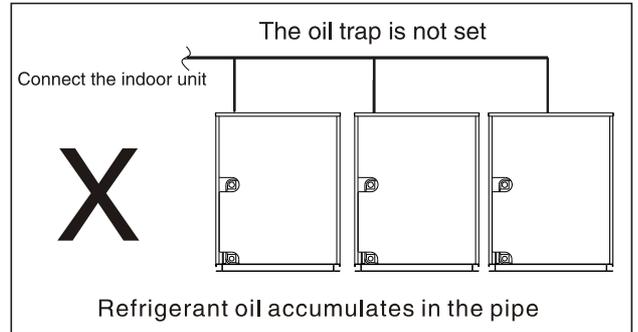
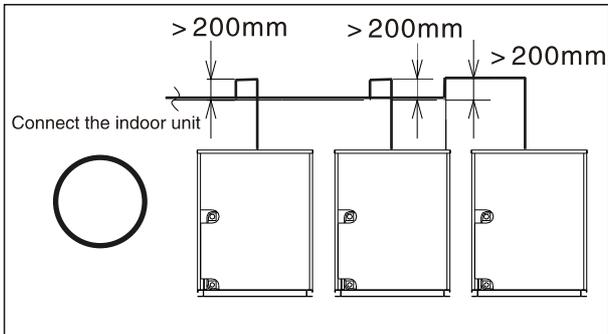
※ 3 If the pipe length from multi-kit to indoor unit is more than 15m, the pipe size must be increased from 6.35mm to 9.53mm.

※ 4 The linear pipe length after multi-kit should be more than 500mm.

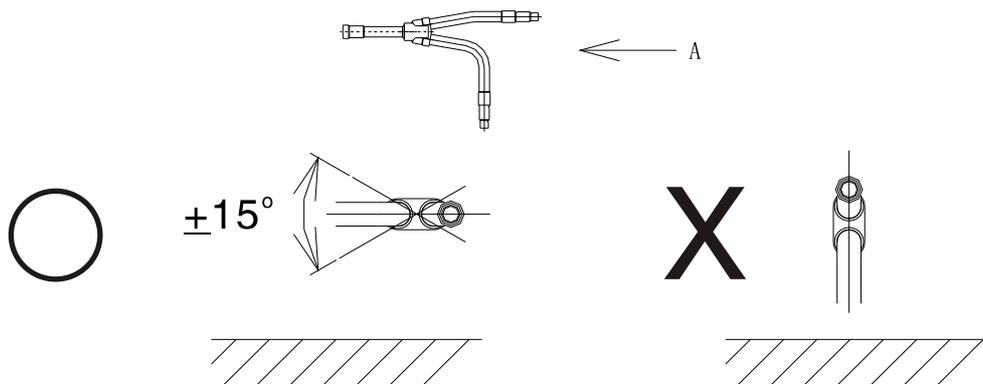
CAUTION: Place the multi-kit parallel to the ground (within ±15°).

Piping Work between Outdoor Unit

1. Place the outdoor unit pipe horizontally or with downward gradient towards the indoor unit side, and the oil trap should be provided for the gas, or refrigerant oil may accumulate in the pipe.



2. Place the multi-kit parallel to the ground (within $\pm 15^\circ$) as shown in the figure.



4.7 Special Attention Regarding Refrigerant Gas Leakage

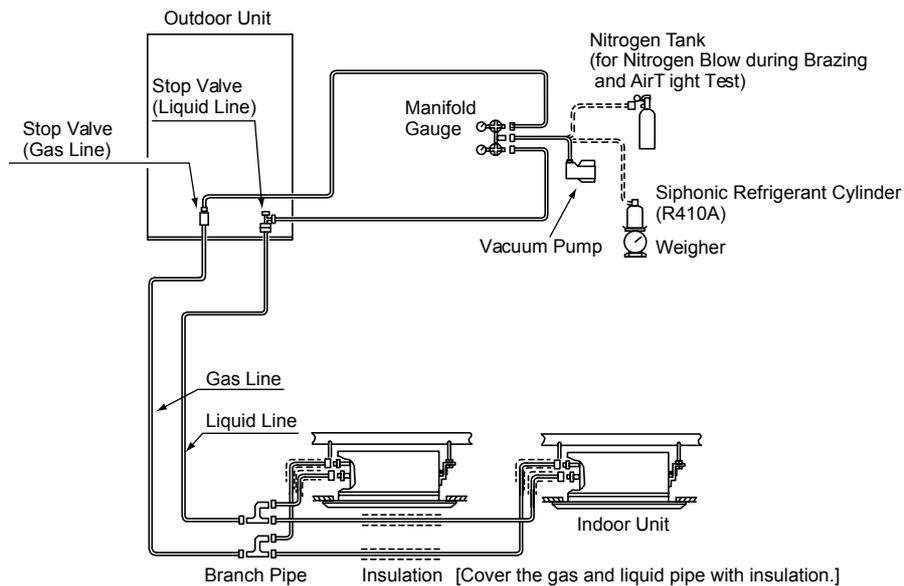
Pay attention to the critical gas concentration to avoid accidental refrigerant gas leakage before installing air conditioning systems.

$$\frac{\text{Totally Charged Refrigerant Quantity in System (kg)}}{\text{Room Space for each Indoor Unit (m}^3\text{)}} \leq \text{Critical Concentration (kg/m}^3\text{)}$$

$$0.3 \text{ kg/m}^3 *$$

In the case that the calculated critical concentration is higher than 0.3 kg/m^3 , take the following actions.

- 1) Provide a gas leakage detector and exhaust fan(s) controlled by its gas leakage detector.
- 2) Provide each effective opening at the wall or door for ventilation to next door so that the critical gas concentration can be maintained lower than the above value.
(Provide an opening more than 0.15% of floor surface at the lower part of a door .)



CAUTION

1. Maximum Permissible Concentration of HFC GAS R410A
The refrigerant R410A is an incombustible and non-toxic gas.
However, if leakage occurs and gas fills a room, it may cause suffocation. The maximum permissible concentration of HFC gas, R410A in air is 0.3 kg/m^3 , according to the refrigeration and air conditioning facility standard (KHK S 0010) by the KHK (High Pressure Gas Protection Association) Japan. Therefore, some effective measure must be taken to lower the R410A concentration in air below 0.3 kg/m^3 , in case of leakage. As for R410A, this consideration is applied similarly.

2. Calculation of Refrigerant Concentration

- (1) Calculate the total quantity of refrigerant R (kg) charged in the system connecting all the indoor units of objective rooms.
- (2) Calculate the room space where this unit is to be installed V (m^3) of each objective room.
- (3) Calculate the refrigerant concentration C (kg/m^3) of the room according to the following equation.

$$\frac{\text{R: Total Quantity of Charged Refrigerant (kg)}}{\text{V: Room Space Where This Unit Is to Be Installed (m}^3\text{)}} = \text{C: Refrigerant Concentration} \leq 0.3 \text{ (kg/m}^3\text{)} *$$

If local codes or regulations are specified, follow them <Example>

Japanese Standard KHK S 0010 C=0.3 (kg/m^3)

4.8 Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the chiller unit and wait for more than 3 minutes before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the chiller fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and which may lead to a fire
- Avoid the wirings from touching the refrigerant pipes, plate edges and electrical parts inside the unit. If not do, the wires will be damaged and at the worst, a fire will occur.
- Use a medium sensing speed type ELB (Earth Leakage Breaker, activation speed of 0.1 sec. or less). If not used, it will cause an electric shock or a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Tighten screws according to the following torque.
 - M4: 1.0 to 1.3 N-m
 - M5: 2.0 to 2.4 N-m
 - M6: 4.0 to 5.0 N-m
 - M8: 9.0 to 11.0 N-m
 - M10: 18.0 to 23.0 N-m

! CAUTION

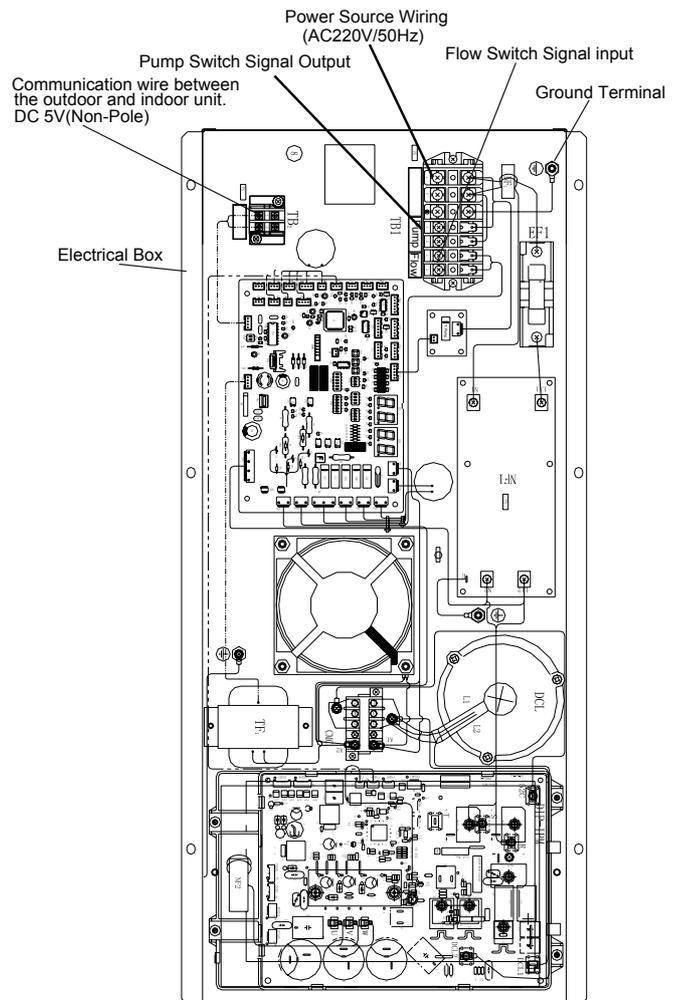
Tightly secure the power source wiring using the cord clamp inside the unit.

NOTE

Fix the rubber bushes with adhesive when conduit tubes to the chiller unit are not used.

- The power supply for the indoor unit and chiller unit should be provided separately. Connect a power supply wiring to each indoor unit group to be connected to the same chiller unit.
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage. If the power supply voltage is too low, the system cannot be started due to the voltage drop.
 - (3) Check to ensure that the earth wire of the chiller unit, indoor unit are connected.

<AVWW-28~54U(C/2)SA>



4.8.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data in Table 4.9.1. Make sure that the components comply with National Electrical Code (NEC).
 - Supply electrical power to each chiller unit. An ELB, fuse and main switch should be used for each chiller unit. If not, it will be cause of fire or electrical shock

<AVWW-76~96U(E7)SB>

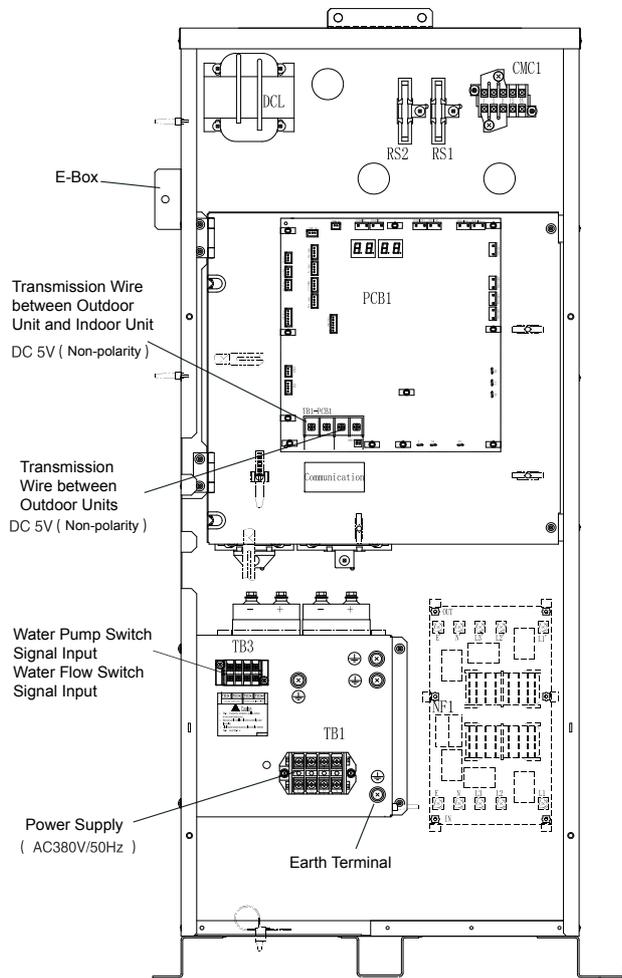


Fig. Wiring Connection for Outdoor Unit

<AVWW-76~96U8SB>

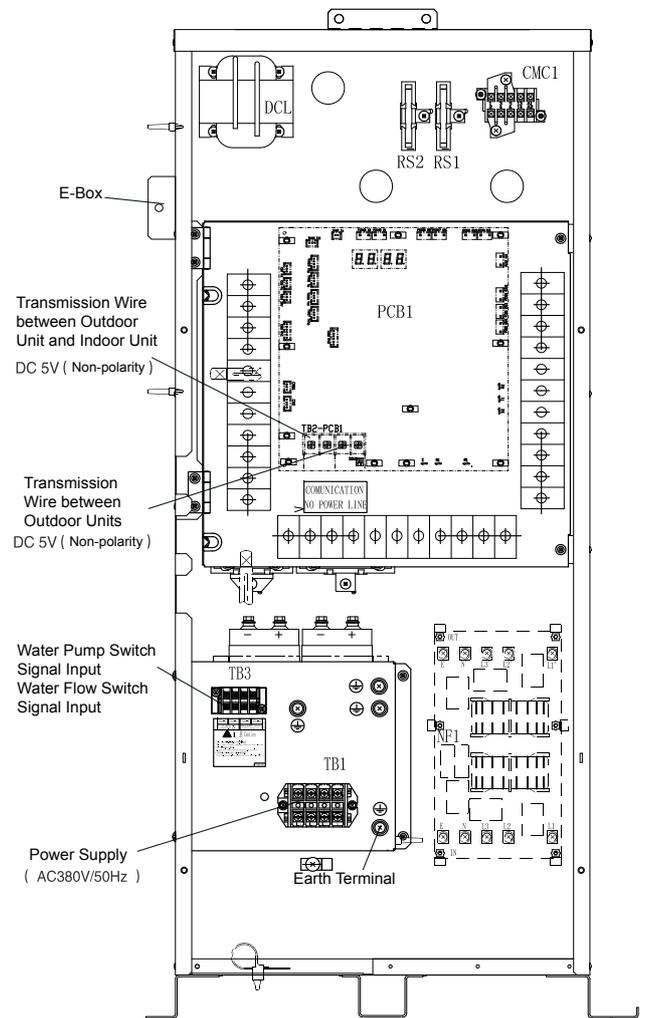
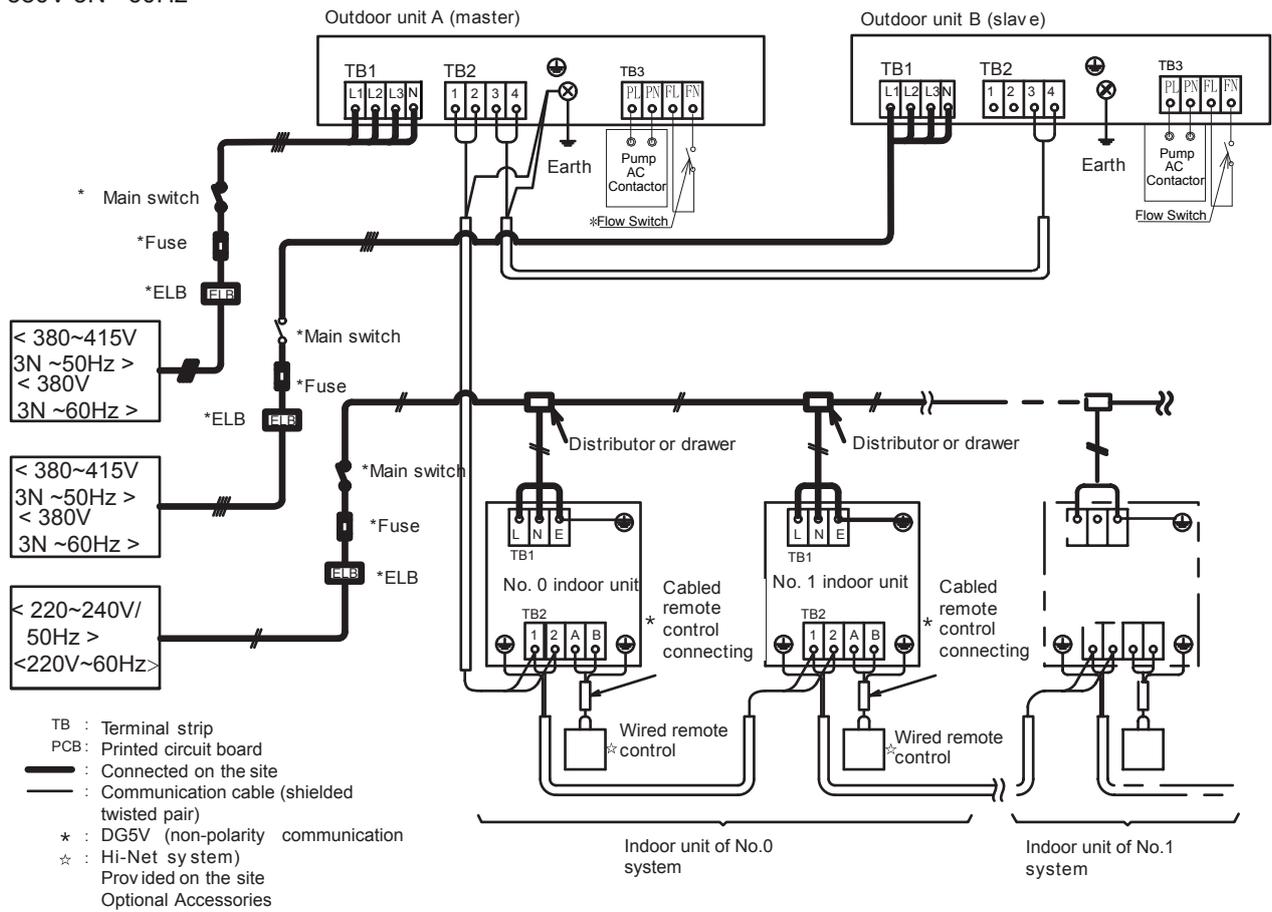


Fig. Wiring Connection for Outdoor Unit

4.9 Electrical Wiring Connection

< 380~415V 3N ~50Hz >

< 380V 3N ~60Hz >



3~220V/60Hz

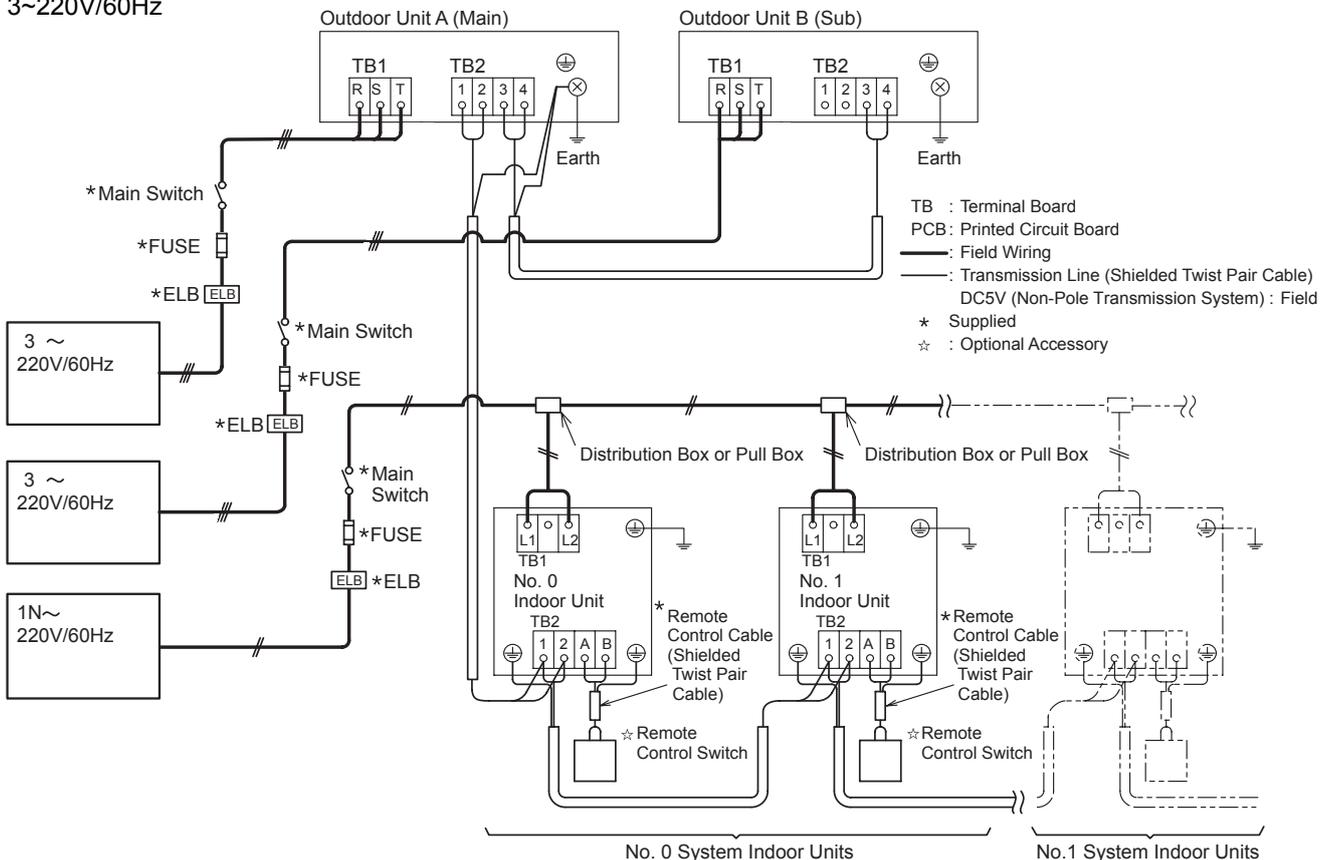


Figure 4.9.1 Electrical Wiring Description

220-240V/50Hz 220V/60Hz

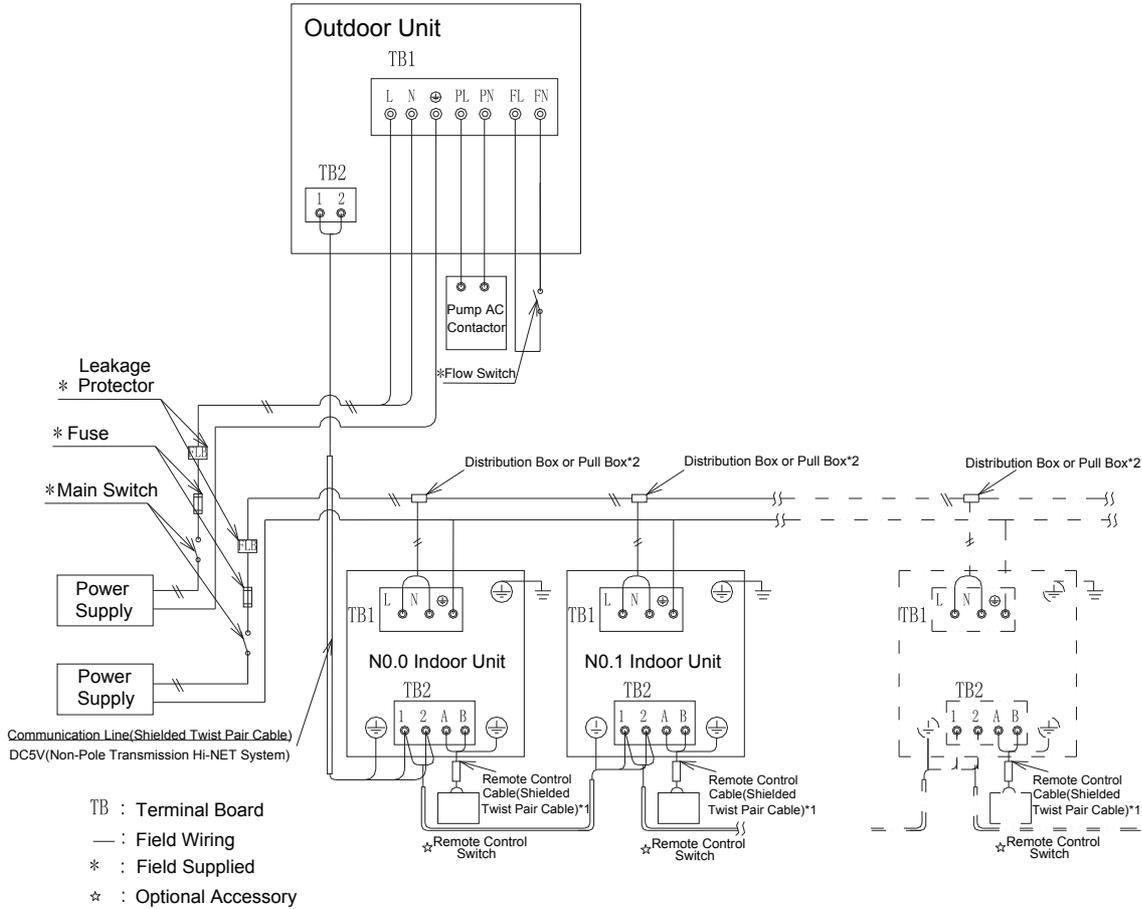


Fig.4.9.2 Electrical Wiring Connection

Table 4.9.1 Electrical Data and Recommended Wiring, Breaker Size/1 Chiller Unit

Model	Power Supply	Maximum Running Current	ELB		Fuse	Power Source Cable Size	Transmitting, Water Pump, Water Flow Switch Cable Size
			Nominal Current	Nominal Sensitive Current			
		(A)	(A)	(mA)	(A)	(mm ²)	(mm ²)
AVWW-28U(C/2)SA	220-240V/50Hz 220V/60Hz	16.9	25	30	25	2.5	0.75
AVWW-38U(C/2)SA		26	40	30	50	4	0.75
AVWW-48U(C/2)SA		26	40	30	50	4	0.75
AVWW-54U(C/2)SA		26	40	30	50	4	0.75
AVWW-76U(E/7)SB	380-415V/50Hz 380V/60Hz	14	20	30	20	4	0.75
AVWW-96U(E/7)SB		20	30	30	30	4	0.75
AVWW-76U8SB	220V/60Hz	30	40	30	40	4	0.75
AVWW-96U8SB		37	50	30	50	4	0.75

ELB: Earthleakage Breaker, MLFC: Flame Retardant Polyflex Wir

NOTES:

- 1) Follow local codes and regulations when selecting field wires
- 2) The wire sizes marked with *1 in the table of previous page are selected at the maximum current of the unit according to the European Standard, EN60 335-1. Use the wires which are not lighter than the ordinary tough rubber sheathed flexible cord (code designation H05RN-F) or ordinary polychloroprene sheathed flexible cord (code designatio H05RN-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

Current i (A)	Wire Size (mm ²)
$i \leq 3$	2.5
$3 < i \leq 6$	2.5
$6 < i \leq 10$	2.5
$10 < i \leq 16$	2.5
$16 < i \leq 25$	2.5
$25 < i \leq 32$	4.0
$32 < i \leq 50$	6.0
$50 < i \leq 63$	10.0
$63 \leq i$	*1

*1 In the case that current exceeds 63A, do not connect cables in series.

CAUTION

Install a multi-pole main switch with a space of 3.5mm or more between each phase.

4.9.1 Electrical Wiring for Chiller Unit

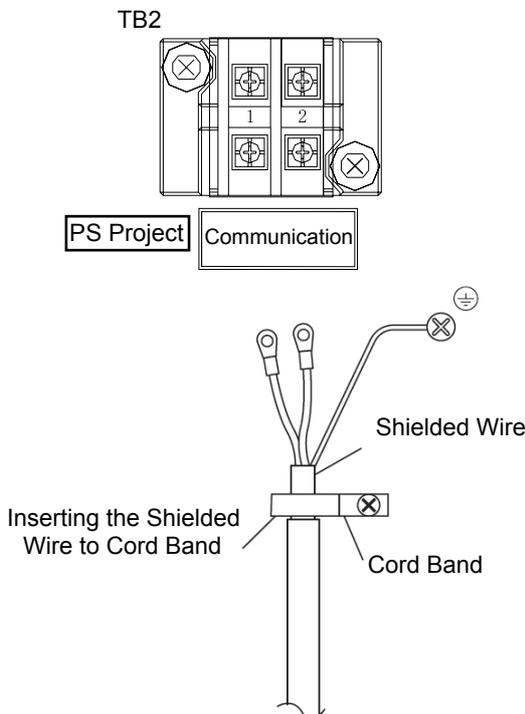
●AVWW-28~54U(C/2)SA

Connect the electrical wirings according to the following figure

- (1) Connect the live wire, neutral wire and ground wire of power supply wires to the L, N and \oplus of terminal board TB1 of chiller unit. Connect the control line of pump to the PL and PN of TB1 and the flow switch output end to the FL and FN of TB1.
- (2) Connect the transmission wires between the chiller and indoor units to the TB2 terminals 1 and 2 .
- (3) Do not wire in front of the fixing screw of the service panel. Otherwise, the screw can not beremoved.

Use cord band to fix the shielded twist pair cable for communication between chiller unit and indoor unit.

The earthing connection of shielded twist pair cable is shown in the following figure



NOTE

Do not connect the power source line to the terminal 1 and 2. These terminal are for control. If connected, the printed circuit board will be damaged.

● AVWW-76~290U(E/7/8)SB

Connect the electrical wirings according to the following figure

- (1) Connect the power supply wires to L1, L2, L3, and N (for 380-415V) for the three phase power source on the terminal board TB1 and earth wire to the terminal in the electrical control box.
- (2) Connect the transmission wires between the chiller and indoor units to the TB2 terminals 1 and 2 . As for the transmission wires between chiller units in the same refrigerant cycle, connect them to the TB2 terminals 3 and 4 on the PCB1.
- (3) Do not connect wire to the fixed screw on control box cover, or the screw cannot be removed.

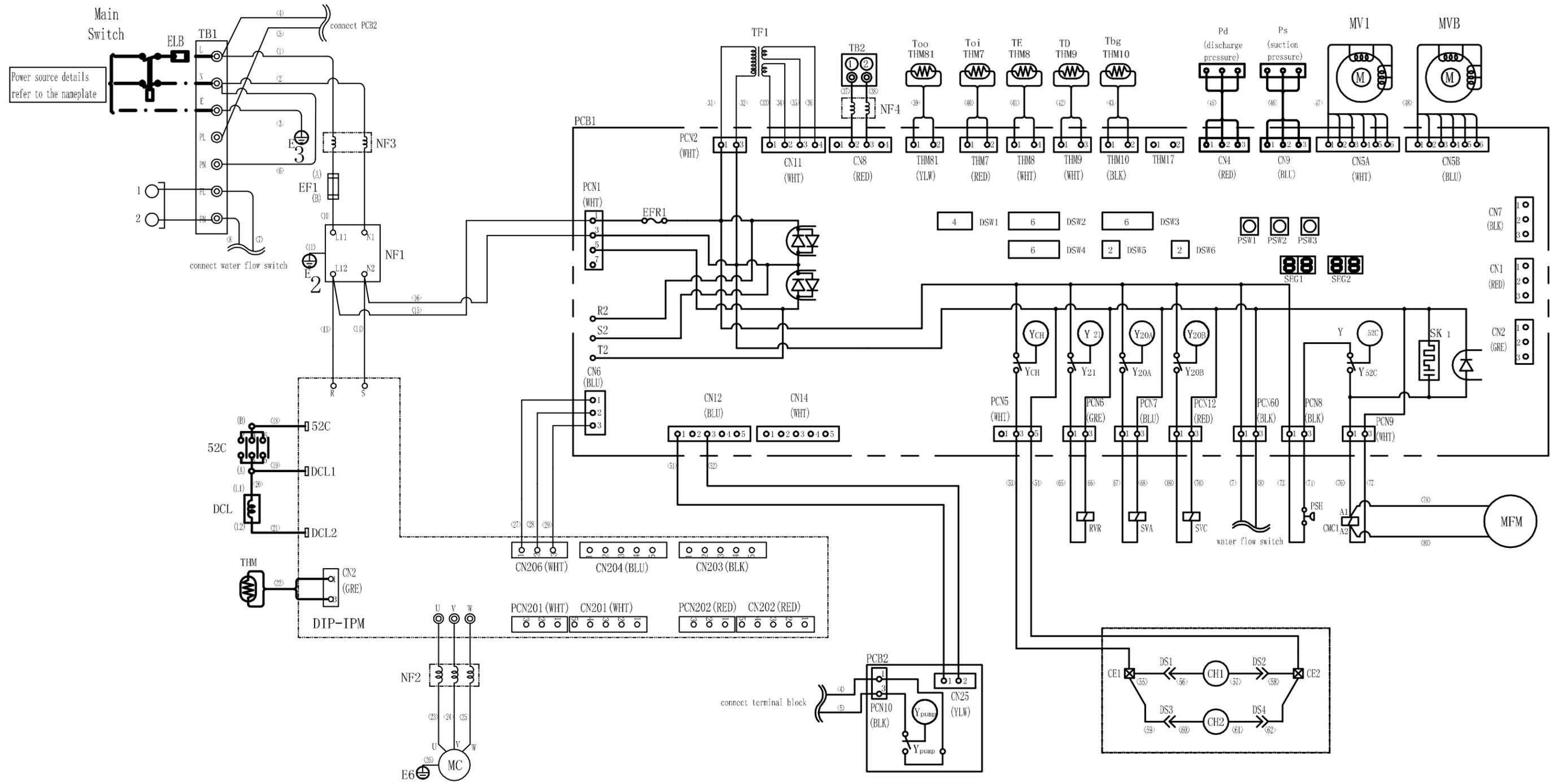
for I.U. to O.U. for O.U. to O.U.



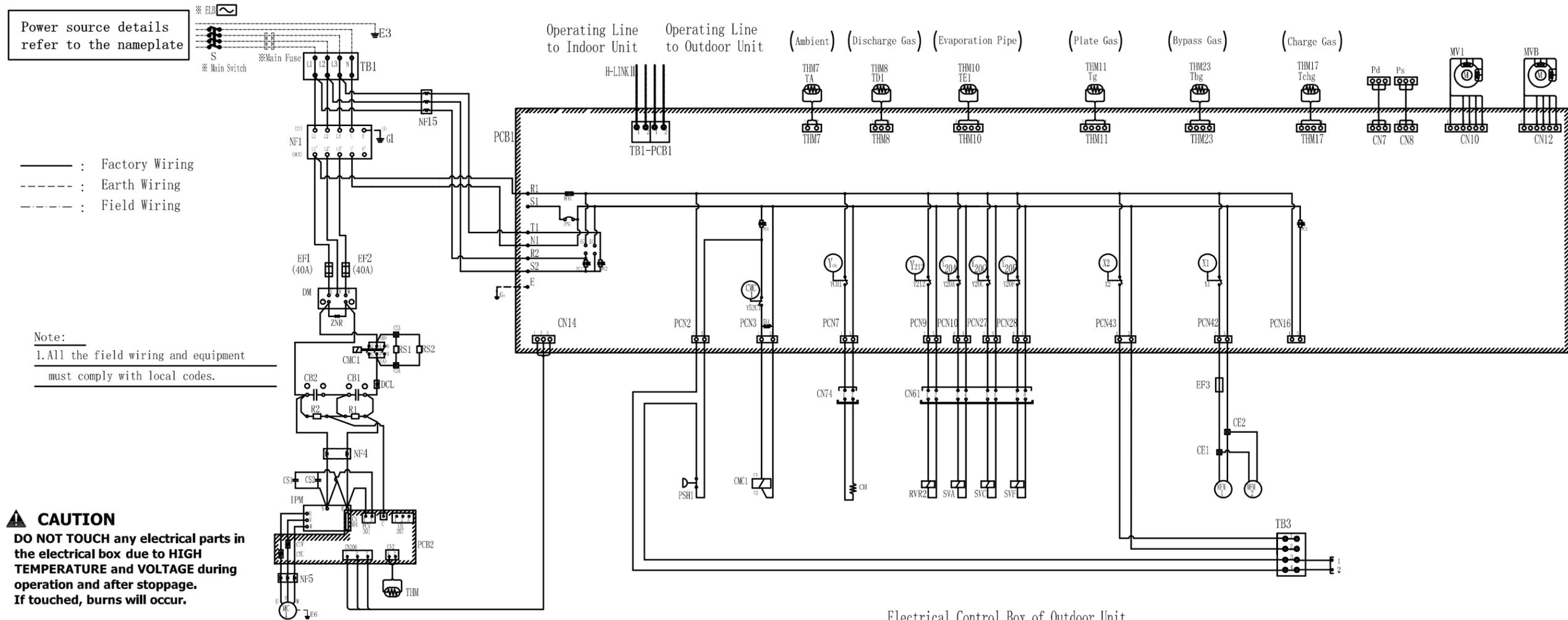
NOTE

Fix the transmission shielded cable between chiller unit and indoor unit with a metal plate. The shielded twist pair cable to the earth as shown below.

4.10 ELECTRICAL WIRING DIAGRAM AVWW-28~54U(C/2)SA

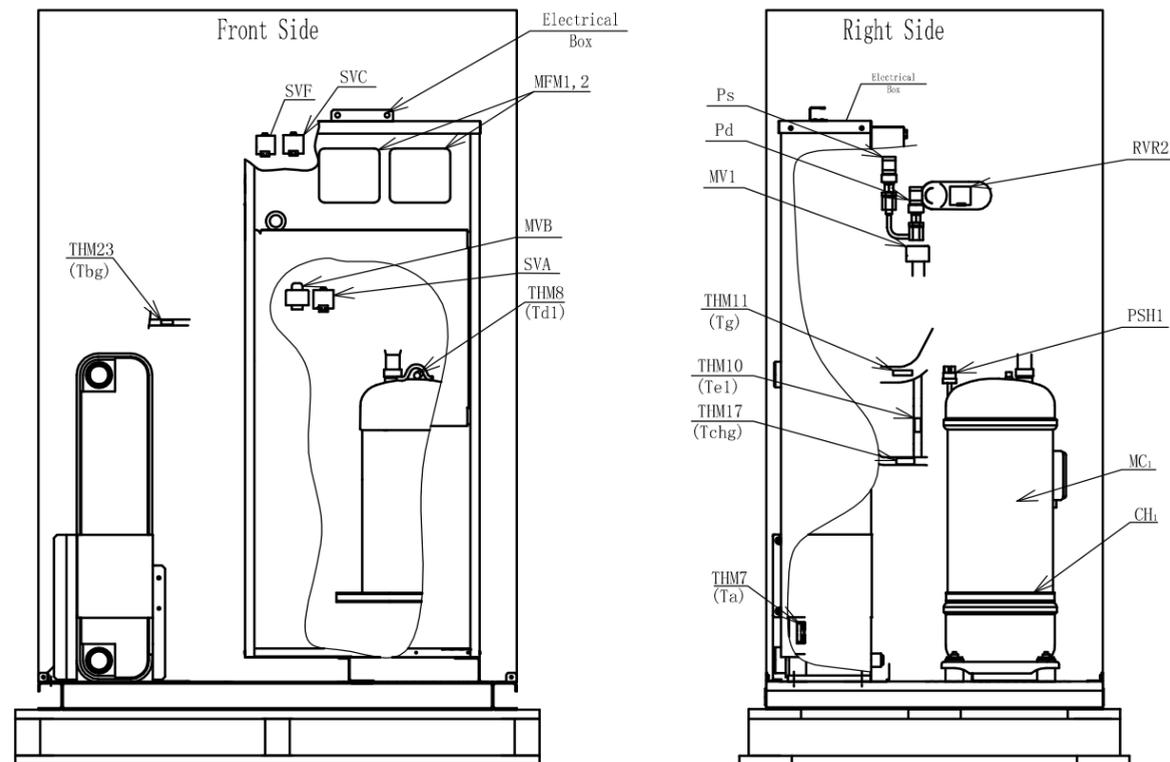


ELECTRICAL WIRING DIAGRAM AVWW-76~96U(E/7)SB

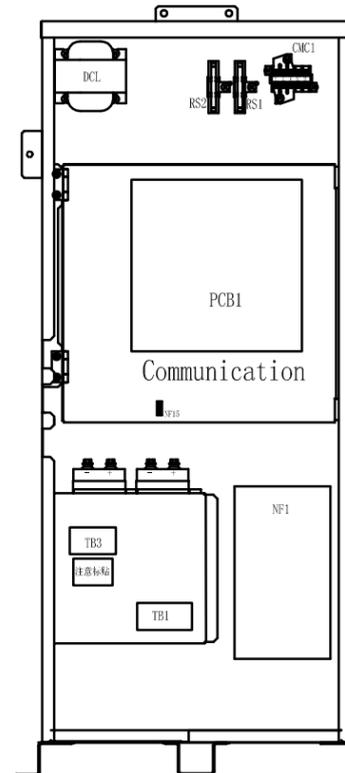


Electrical Control Box of Outdoor Unit

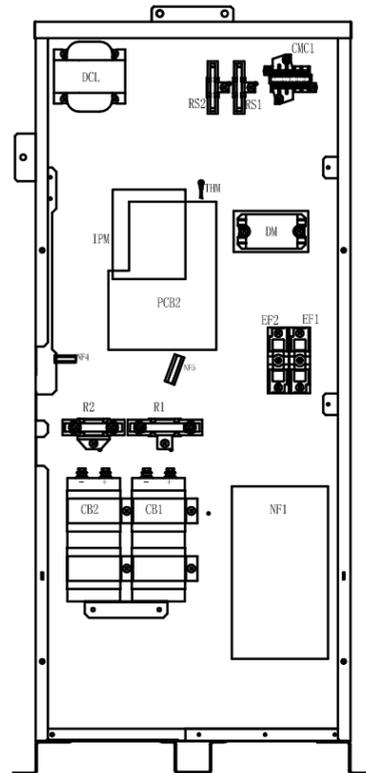
Location of Main Parts



Front Side

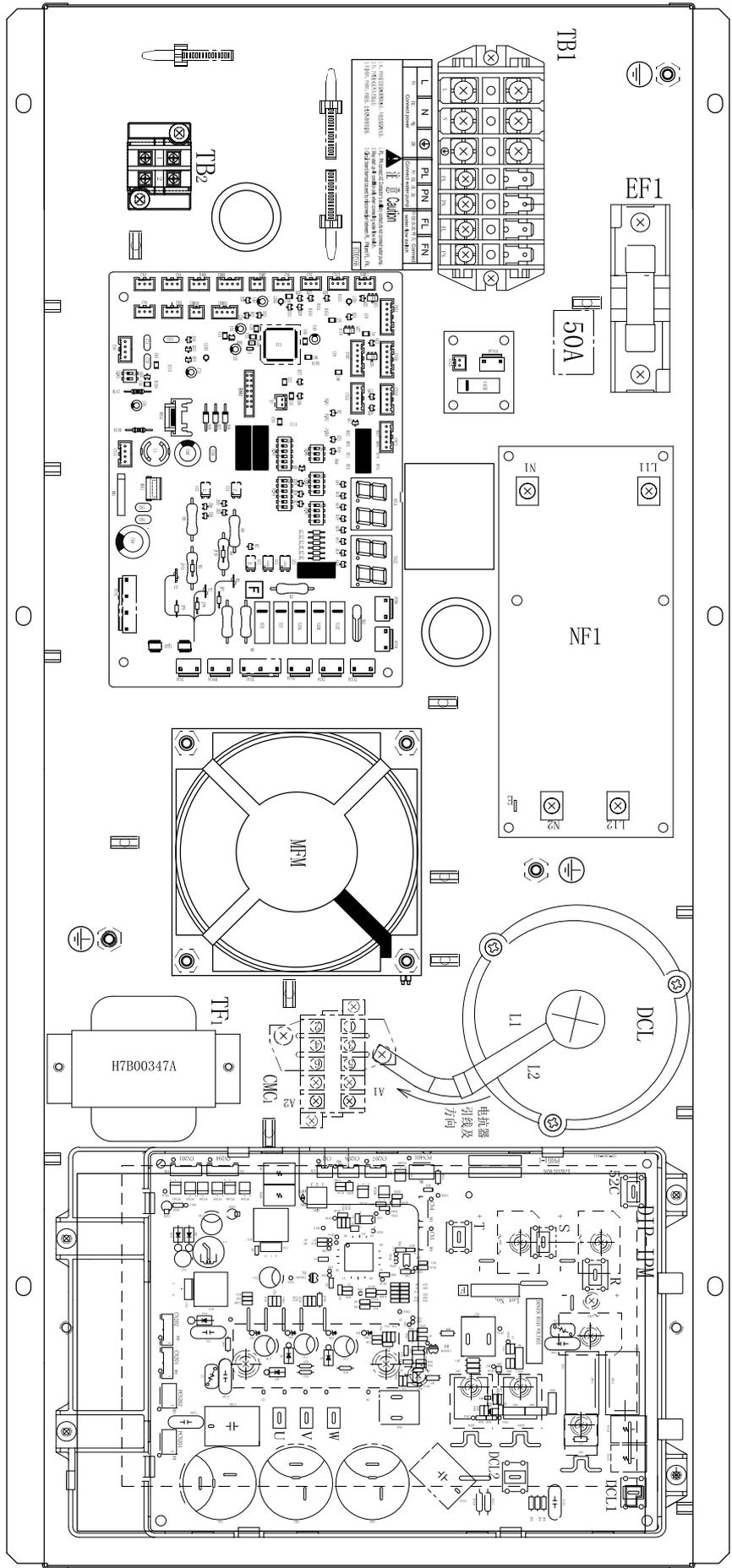


The Interior of the Electrical Control Box

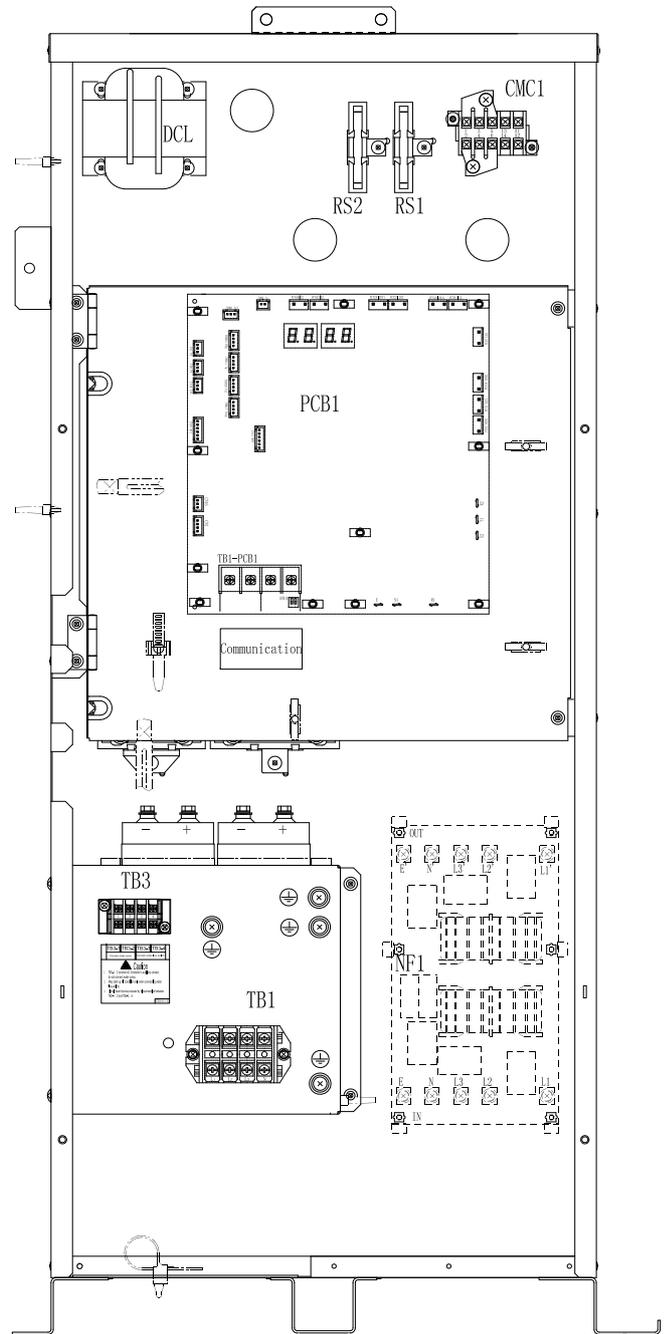
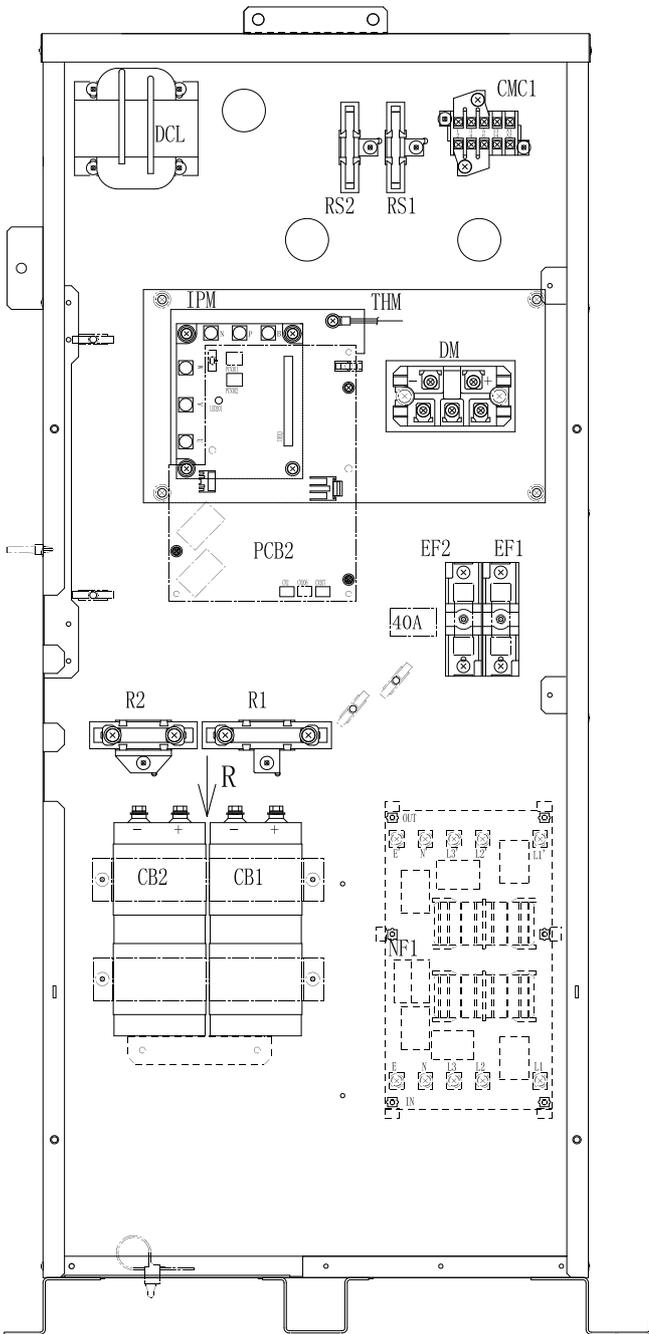


Mark	Name
CB1~2	Capacitor
CH1	Crankcase Heater
CMC1	Contact for Compressor Motor
CN, PCN	Connector
CS1, 2	Capacitor
CTU, V	Current Transformer
DCL	Reactor
DM	Diode Module
DSW1~10	Dip Switch on PCB1
EF1, 2	Fuse
IPM	Transistor Module
LED	Light Emitting Diode
MC1	Motor for Compressor
MF1, 2	Motor Fan for Module
MV1, B	Micro-Computer Control Expansion Valve
NF1, 3, 7~13	Noise Filter
PCB1, 2	Printed Circuit Board
Pd, s	Sensor for Refrigerant Pressure
PSH1	Pressure Switch for Protection
PSW1~10	Push Switch on PCB1
RL, 2	Resistor
RS1, 2	Resistor for Starting
RVR2	Reversing Valve Relay
SVA, C, F	Solenoid Valve
TB1, 3	Terminal Board
THM7~23	Thermistor
Y	Auxiliary Relay on PCB1
○	Terminals

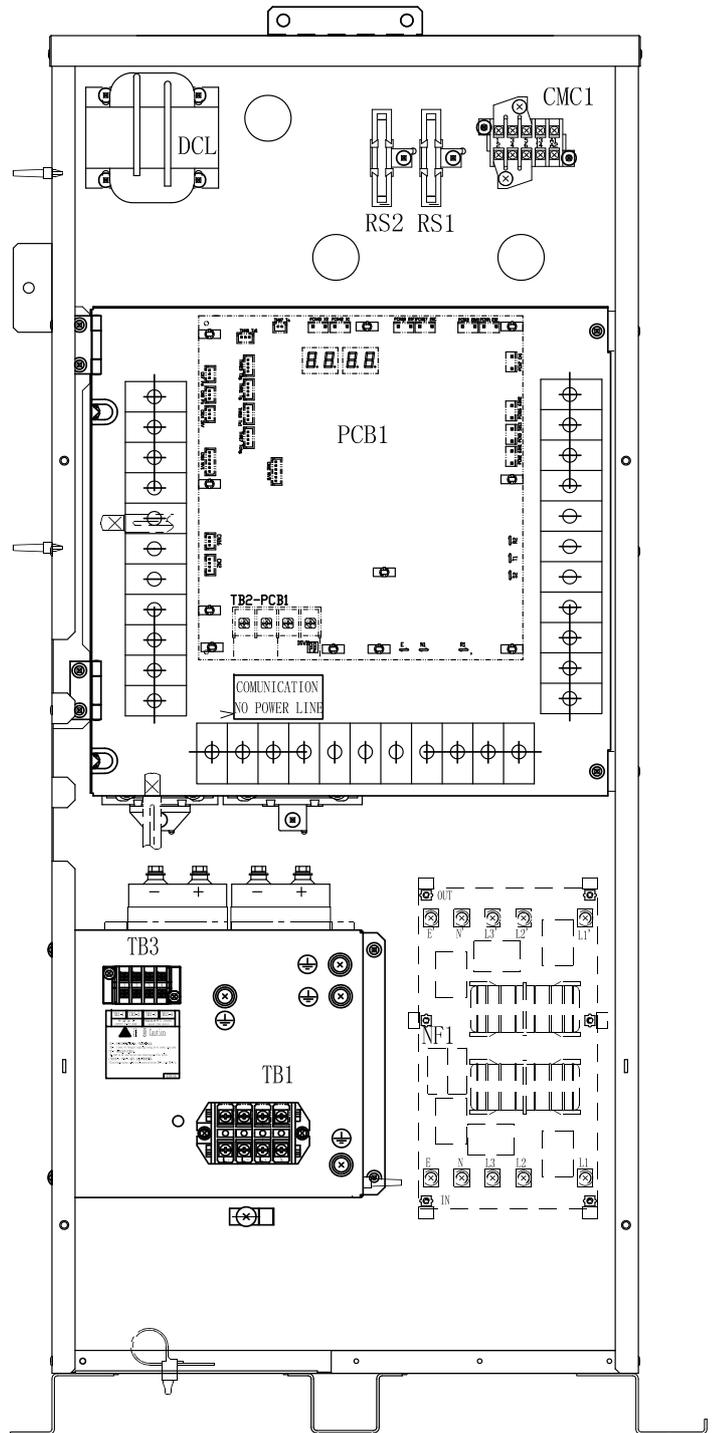
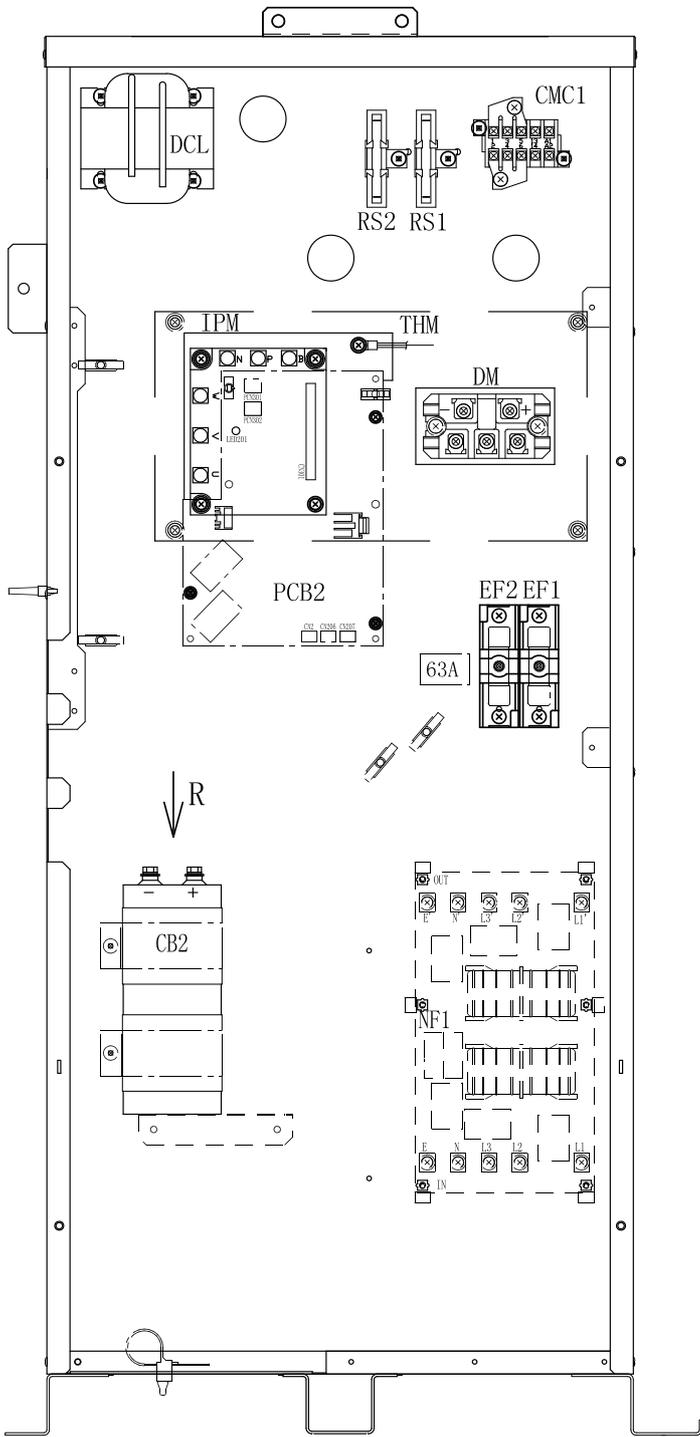
(Arrangement Inside of Electrical Box for AVWW-28~54U(C/2)SA)



Arrangement Inside of Electrical Box for AVWW-76~96U(E/7)SB



Arrangement Inside of Electrical Box for AVWW-76~96U8SB



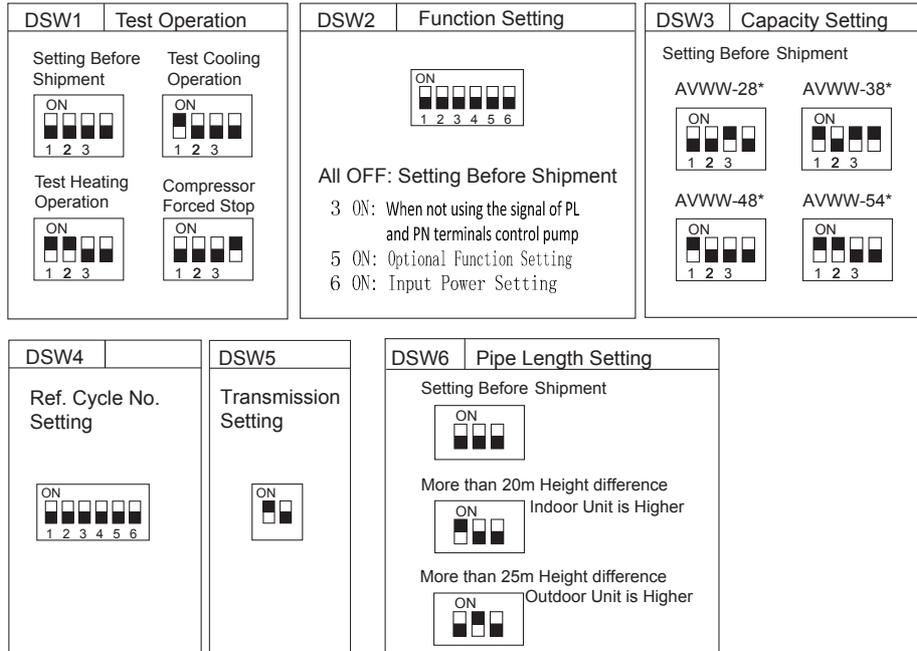
5. Dip Switch Setting of Outdoor Unit

TURN OFF all power sources before setting.

Without turning OFF, the switches do not work and the contents of the setting are invalid.

The mark of “■” indicates the position of dip switches. Set the dip switches according to the Fig.4.12.

- AVWW-28~54U(C/2)SA



● AVWW-76~190U(E/7/8)SB

Dip Switch Setting of Outdoor Unit

TURN OFF all power sources before setting. Without turning OFF, the switches do not work and the contents of the setting are invalid.

Mark of "■" indicates the position of dip switches. However, DSW4, 5 and push switches (PSW) are valid in ON.

DSW1 RSW1 Ref. Cycle No. Setting

Setting is required

When wiring connections are H-Link, setting is needed.

Unit No.0 setting condition
Set the unit of outdoor unit at each refrigerant cycle.
(setting before shipment is unit 0.)

Tens Setting

Units Setting

DSW2 Capacity Setting

No setting is required

Capacity (kBTu/h)	76	96
Setting Position		

DSW3 Refrigerant Piping Length Setting

No setting is required

Actual Piping Length L(m)

Setting before Shipment

DSW4 Test Operation and Service Setting

Setting is required, for test operation and operating the compressor.

Setting before Shipment	Test Cooling Operation	Test Heating Operation	Do not Detect Reverse Phase and Over Current	Compressor Forced Stop
-------------------------	------------------------	------------------------	--	------------------------

DSW5 Emergency Operation Setting

No setting is required

Setting before Shipment	Except INV comp. Operation
-------------------------	----------------------------

DSW6 Outdoor Unit No. Setting

Setting is required

Single Setting (Setting Before Shipment)

IMPORTANT NOTICE
The outdoor unit is not single, the combination setting is necessary. Be sure to do this setting.

Combination Setting

Master Air Conditioning	No.1 Slave Air Conditioning	No.2 Slave Air Conditioning
-------------------------	-----------------------------	-----------------------------

DSW7 Power Operation Setting

No setting is required

200V (Setting before Shipment)	220V (Setting before Shipment)	380-415V (Setting before Shipment)
--------------------------------	--------------------------------	------------------------------------

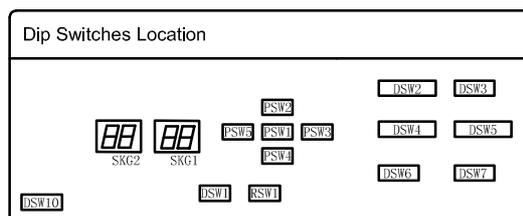
Push Switches

PSW1 Setting	PSW2 } Checking of Self-sensing
PSW2 Up	PSW3 }
PSW3 Right	PSW3 } Checking of Commercial Test
PSW4 Down	PSW5 }
PSW5 Left	PSW2 } Checking of Electric Test
	PSW4 }

DSW10 Transmission Setting

Setting is required for cancellation of end resistance.

Setting before Shipment	Cancellation of end resistance.	Short circuit of fuse
-------------------------	---------------------------------	-----------------------



- **Setting for Transmitting**

It is required to set the chiller unit Nos., refrigerant cycle Nos. and end terminal resistance for this Hi-NET system.

- **Setting of Refrigerant Cycle No.**

Set the DSW4 for Refrigerant Cycle No.

<AVWW-28~54U(C/2)SA>

Refrigerant Cycle No.	00	01	02	03	04	05	~	63
Setting Switch							~	

Setting Switch \ Refrigerant Cycle No.	1	2	3	4	5	6
06	0	1	1	0	0	0
07	1	1	1	0	0	0
08	0	0	0	1	0	0
09	1	0	0	1	0	0
10	0	1	0	1	0	0
11	1	1	0	1	0	0
12	0	0	1	1	0	0
13	1	0	1	1	0	0
14	0	1	1	1	0	0
15	1	1	1	1	0	0
16	0	0	0	0	1	0
17	1	0	0	0	1	0
18	0	1	0	0	1	0
19	1	1	0	0	1	0
20	0	0	1	0	1	0
21	1	0	1	0	1	0
22	0	1	1	0	1	0
23	1	1	1	0	1	0
24	0	0	0	1	1	0

Setting Switch \ Refrigerant Cycle No.	1	2	3	4	5	6
25	1	0	0	1	1	0
26	0	1	0	1	1	0
27	1	1	0	1	1	0
28	0	0	1	1	1	0
29	1	0	1	1	1	0
30	0	1	1	1	1	0
31	1	1	1	1	1	0
32	0	0	0	0	0	1
33	1	0	0	0	0	1
34	0	1	0	0	0	1
35	1	1	0	0	0	0
36	0	0	1	0	0	1
37	1	0	1	0	0	1
38	0	1	1	0	0	1
39	1	1	1	0	0	1
40	0	0	0	1	0	1
41	1	0	0	1	0	1
42	0	1	0	1	0	1
43	1	1	0	1	0	1

Setting Switch \ Refrigerant Cycle No.	1	2	3	4	5	6
44	0	0	1	1	0	1
45	1	0	1	1	0	1
46	0	1	1	1	0	1
47	1	1	1	1	0	1
48	0	0	0	0	1	1
49	1	0	0	0	1	1
50	0	1	0	0	1	1
51	1	1	0	0	1	1
52	0	0	1	0	1	1
53	1	0	1	0	1	1
54	0	1	1	0	1	1
55	1	1	1	0	1	1
56	0	0	0	1	1	1
57	1	0	0	1	1	1
58	0	1	0	1	1	1
59	1	1	0	1	1	1
60	0	0	1	1	1	1
61	1	0	1	1	1	1
62	0	1	1	1	1	1

<AVWW-76~190U(E/7/8)SB>

	Setting Switch	
	10 digit	1 digit
Chiller Unit	DSW1	RSW1
Indoor Unit (Hi-NET II)	DSW5	RSW2

Ex.: In Case of Setting Refrigerant Cycle No. 25



Turn ON No. 2 pin.



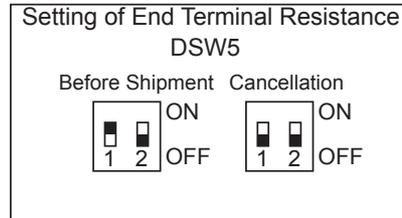
Set Dial No.5.

机器编码	个位设定									
十位设定										
	00	01	02	03	04	05	06	07	08	09
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	29
	30	31	32	33	34	35	36	37	38	39
	40	41	42	43	44	45	46	47	48	49
	50	51	52	53	54	55	56	57	58	59
	60	61	62	63	64					

● Setting of End Terminal Resistance

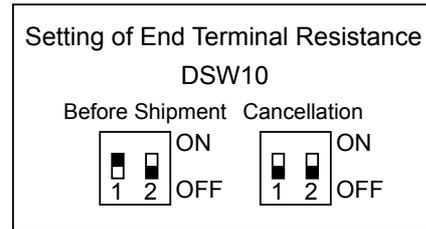
Before shipment, No. 1 pin of DSW5 is set at the "ON" side. In the case that the chiller units quantity in the same Hi-NET system is 2 or more, set No. 1 pin of DSW5 at the "OFF" side from the 2nd refrigerant group chiller unit. If only one chiller unit is used, no setting is required.

<AVWW-28~54U(C/2)SA>



DSW and RSW setting before shipment is 0. Maximum in setting refrigerant cycle No. is 63.

<AVWW-76~190U(E/7/8)SB>



6. Test Run

Test run should be performed according to the Section 1.1 and appendix 1.1 for recording test run.

- Check Water Pipe Connection Before Test Run
 - (A) Before test run, reconfirm that all water pipe work is in correct states, water filter has been settled on water entry side and water flow switch has been installed properly.
 - (B) Open shut-off valve and make sure that the plate heat exchanger is filled with circulating water. Start water pump and open exhaust valve to ensure that all air is exhausted from pipe.
 - (C) Read Pressure gauges and thermometers on water inlet and outlet to confirm normal water-line operation, proper water flow rate and correct switching in water system
 - (D) After the initial test run, clear water filter and ensure no filter cloggin.

WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the refrigerant piping and transmission between outdoor unit and indoor unit are connected to the same refrigerant cycle. If not, it will cause an abnormal operation and a serious accident.
 - (B) Check to ensure that the electrical resistance system until the electrical leakage is found and more than 1 megohm. If not, do not operate the repaired.
 - (C) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (D) Check to ensure that the switch on the main power source has been ON for more than 12 hours to warm the compressor oil by the oil heater.
- Do not operate the unit within 4 hours after power supply. In case of operating within 4 hours, release the protection control as follows.
 1. Supply power to the outdoor unit and indoor units.
 2. Wait for 30 seconds.
 3. Push PSW1 on PCB more than 3 seconds at the same time.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90 .
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.
- Do not touch any electrical components for more than three minutes after turning OFF the main switch.
- Check that the refrigerant piping setting and electrical wiring setting are for the same system by operating the indoor unit one by one.

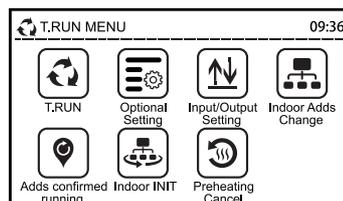
6.1 TEST RUN

(1) Turn ON the power supply for all the indoor units.

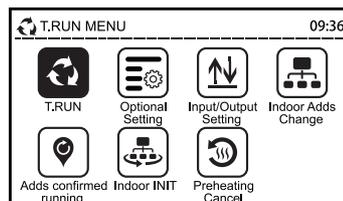
(2) For the models with the auto-address function, wait for 3 minutes approximately. The addressing is automatically performed. (There is a case that 5 minutes is required according to the setting condition.) After that, select using language from "Menu". Refer to the operation manual for details.

(3) Press and hold "☐" (menu) and "↵" (return) simultaneously for at least 3 seconds.

a. The test run menu will be displayed.

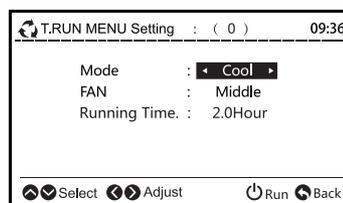


b. Select "☐" and press "☑". The test run settings will be displayed.

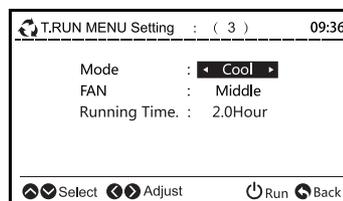


NOTE

When "0" is indicated, the auto-address function may be performing. Cancel "Test Run" mode and set it again.



(4) The total number of the indoor units connected is indicated on the LCD (liquid crystal display). The case of the twin combination (one (1) set with two (2) indoor units) is indicated " 2 ", and the triple combination (one (1) set with three (3) indoor units) is indicated " 3 ".



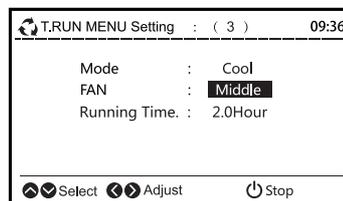
a. If the indicated number is not equal to the actual connected number of indoor unit, the auto-address function is not performed correctly due to incorrect wiring, the electric noise or etc. Turn OFF the power supply and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)

- Power supply for indoor unit is not turned ON or incorrect wiring.
- Incorrect connection of connecting cable between indoor units or incorrect connection of controller cable.
- Incorrect setting of rotary switch and dip switch (the setting is overlapped) on the indoor units PCB.

b. Press "⏻" (run/stop) to start the test run.

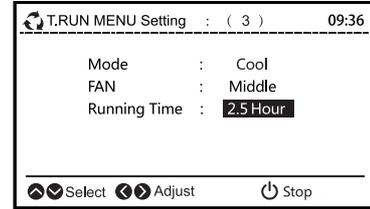
c. Press "< > ^ v" and set each item.

(5) Press "⏻" (run/stop). At this time, 2-hour OFF timer will be set automatically.

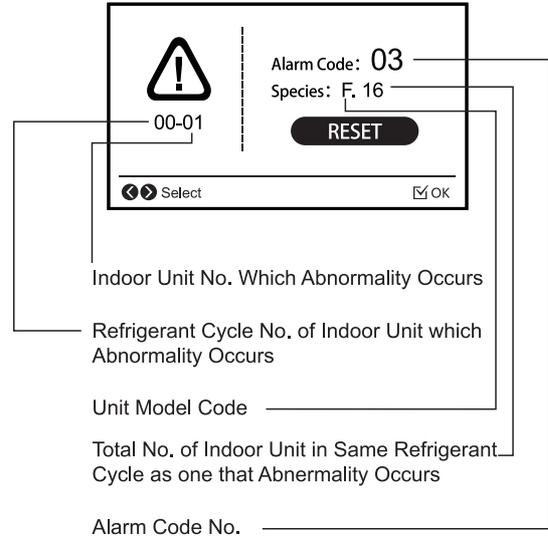


(6) The temperature detections by the thermistors are invalid though the protection devices are valid during the test run.

(7) To finish the test run, press “⏻” (run/stop) again or pass over the set test run time. When changing the test run time, press “^” or “v” to select “Running Time”. Then, set the test run time (30 to 600 minutes) by pressing “<” or “>”.



- The RUN indicator on the remote control switch flashes when some abnormalities such as protection devices activated occur during the test run as well as the RUN indicator (red) on the indoor unit flashes (0.5 second ON/ 0.5 second OFF). Additionally, the alarm code, the unit model code and connected number of indoor units will be displayed on the LCD as shown in the figure below. If the RUN indicator on HYXE-J01H flashes , it may be a failure in the transmission between the indoor unit and the remote control switch (loosening of connector, disconnecting wiring or breaking wire, etc.). Consult to authorized service engineers if abnormality can not be recovered.



7. Protection Control Code

7.1 Protection Control Code<AVWW-28~54U(C/2)SA>

7.1.1 Alarm Code

Code No.	Stop Code	Content of Abnormality	Leading Cause
01	–	Tripping of Protection Device	Failure of Drain Discharge(Water level abnormal)
02	–	Tripping of Protection Device	Failure of High Pressure SW, Water Flow SW
03	05	Abnormality between indoor and outdoor(or indoor)	Incorrect Wiring. Failure of PCB. Tripping of fuse
04	05	Inverter Trip of Outdoor Unit	Failure in Transmission of PCB for Inverter
05	–	Abnormality of Power Source Wiring	Reverse Phase Incorrect Wiring
06	18	Voltage Drop in Outdoor Unit Excessively	Failure of PCB for Inverter. Failure of DM, CB
07	16	Decrease in Discharge Gas Superheat	Excessive Ref. Charge. Failure of Thermistor, Wiring
08	15	Increase in Discharge Gas Temperature	Insufficient Ref. Failure of Thermistor, Wiring
09	08	Abnormal Water Temperature	Low temperature of heat source water
11	–	Inlet Air Thermistor	Failure of Thermistor, Sensor, Connection
12	–	Outlet Air Thermistor	
13	–	Freeze Protection Thermistor	
14	–	Gas Piping Thermistor	
19	–	Tripping of Protection Device	Failure of Fan Motor, Incorrect Wiring.
21	–	High Pressure Sensor	Failure of Thermistor, Sensor, Connection
22	–	Water Temperature Thermistor	
23	–	Discharge Gas Thermistor	
25	–	Gas Pipe temperature	
26	–	Temperature sensor of outdoor water outlet	
27	–	Temperature sensor of double tube gas outlet	
29	–	Low pressure sensor	
31	–	Incorrect Setting of Outdoor and Indoor Unit	Incorrect Setting of Capacity Code
35	–	Incorrect Setting of Indoor Unit No.	Existence of the same Indoor Unit Number Existence of the same Outdoor Unit No.
36	–	The Indoor Unit Combined error	The Indoor Unit Ref. error (R22)
38	–	Abnormality of Protective Circuit in Outdoor Unit	Incorrect Connection to PCB in Outdoor Unit.
39	14	Abnormal Current of Compressor	Compressor overcurrent, fuse blows or current sensor fault
43	11	Pressure Ratio Decrease Protection Activating	Failure of Compressor, Inverter, Pow Supply
44	12	Low Pressure Increase Protection Activating	Overload to Indoor in Cooling or to Outdoor in Heating
45	13	High Pressure Increase Protection Activating	Overload Operation. Excessive Refrigerant.
–	26	High Pressure Decrease Protection Activating	Insufficient Refrigerant
47	15	Low Pressure Decrease Protection Activating	Insufficient Refrigerant. Failure of Expansion Valve
48	17	Overload Operation Protection Activating	Failure of Ref. System, Inverter, DM, Heat Exchanger
51	17	Abnormality of Current Sensor for Inverter	Failure of Current Sensor, PCB, Wiring
53	17	IPM Protection Activating	Overheating of Inverter, PCB
54	17	Increase in Inverter Fin Temperature	Abnormal Inverter Fin Thermistor, Abnormal of Fan
55	18	No Action in Inverter	Failure of Inverter
57	–	Outdoor Protector Acts	Water switch has no output during running
EE	–	Compressor Protection	Failure of Compressor
b1	–	Incorrect Setting of Refrigerant Cycle No.	Ref. Cycle No. More than 64
b5	–	Incorrect Wiring of The Indoor Unit	The Indoor Unit Quantity is more than 16 in Hi-Net.

<AVWW-76~96U(E/7/8)SB>

Alarm Code	Stop Code	Category	Content of Abnormality	Leading Cause
01	-	Indoor Unit	Activation of Protection Device (Float Switch)	Activation of Float Switch (High Water Level in Drain Pan, Abnormality of Drain Pipe, Float Switch or Drain Pan)
02	-	Outdoor Unit	Activation of Protection Device (High Pressure Cut)	Activation of PSH (Pipe Clogging, Excessive Refrigerant, Inert Gas Mixing) and Water Flow Switch
03	05	Transmission	Abnormality between Indoor and Outdoor	Incorrect Wiring, Loose Terminals, Disconnect Wire, Blowout of Fuse, Outdoor Unit Power OFF
04	05		Abnormality between Inverter PCB and Outdoor PCB	Inverter PCB - Outdoor PCB Transmission Failure (Loose Connector, Wire Breaking, Blowout of Fuse)
04.	-		Abnormality between Fan Controller and Outdoor PCB	Fan Controller - Outdoor PCB Transmission Failure (Loose Connector, Wire Breaking, Blowout of Fuse)
05	-	Supply Phase	Abnormality Power Source Phases	Incorrect Power Source, Connection to Reversed Phase, Open-Phase
06	18	Voltage	Abnormal Inverter Voltage	Outdoor Voltage Drop, Insufficient Power Capacity
07	16	Cycle	Decrease in Discharge Gas Superheat	Excessive Refrigerant Charge, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Opened Position (Disconnect Connector)
08	15		Increase in Discharge Gas Temperature	Insufficient Refrigerant Charge, Pipe Clogging, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Closed Position (Disconnect Connector)
09	-	Water Cycle	Abnormal Water Temperature	Incorrect Wiring, Breaking Wire, Loose Terminals
11	-	Sensor on Indoor Unit	Inlet Air Thermistor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
12	-		Outlet Air Thermistor	
13	-		Freeze Protection Thermistor	
14	-		Gas Piping Thermistor	
16	-		Romote control temperature sensor abnormal	sensor connecting line mis-wiring
17	-		wired controller built-in temperature sensor abnormal	sensor connecting line mis-wiring
19	-	Fan Motor	Activation of Protection Device for Indoor Fan	Fan Motor Overheat, Locking
21	-	Sensor on Outdoor Unit	High Pressure Sensor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
22	-		Outdoor Water Thermistor	
23	-		Discharge Gas Thermistor on Top of Compressor	
24	-		Heat Exchanger Liquid Pipe Thermistor	
25	-		Heat Exchanger Gas Pipe Thermistor	
26	-		Outdoor Water Outlet Thermistor	
27	-		Gas Pipe Outlet Thermistor	
29	-		Low Pressure Sensor	

Alarm Code	Stop Code	Category	Content of Abnormality	Leading Cause
31	-	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit	Incorrect Capacity Code Setting of Combination Excessive or Insufficient Indoor Unit Total Capacity Code
35	-		Incorrect Setting of Indoor Unit No.	Duplication of Indoor Unit No. in same Ref. Gr
36	-		Incorrect of Indoor Unit Combination	Indoor Unit is Designed for R22
38	-		Abnormality of Picking up Circuit for Protection in Outdoor Unit	Failure of Protection Detecting Device (Incorrect Wiring of Outdoor PCB)
43	11	Protection Device	Activation of Low Compression Ratio Protection Device	Defective Compression (Failure of Compressor of Inverter, Loose Power Supply Connection)
44	12		Activation of Low Pressure Increase Protection Device	Overload at Cooling, High Temperature at Heating, Expansion Valve Locking (Loose Connector)
45	13		Activation of High Pressure Increase Protection Device	Overload Operation (Clogging, Short-Pass), Pipe Clogging, Excessive Refrigerant, Inert Gas Mixing
-	26		Activation of High Pressure Decrease Protection Device	Insufficient Refrigerant
47	15		Activation of Low Pressure Decrease Protection Device (Vacuum Operation Protection)	Insufficient Refrigerant, Refrigerant Piping, Clogging, Expansion Valve Locking at Open Position (Loose Connector)
48	17		Activation of Inverter Overcurrent Protection Device	Overload Operation, Compressor Failure
51	17	Sensor	Abnormal Inverter Current Sensor	Current Sensor Failure
53	17	Inverter	IPM Failure Protection	Abnormal Compressor, Abnormal Inverter, Heat Exchanger Clogging
54	17		Abnormality of Inverter Fin Temperature	Abnormal Inverter Fin Thermistor, Heat Exchanger Clogging, Fan Motor Failure
55	18		Inverter Failure	Inverter PCB Failure
57	-	Protection Device	Activation of Outdoor Protection Device	No Water Flow Switch Output in Operation
EE	-	Compressor	Compressor Protection Alarm (It is can not be reset from remote Controller)	This alarm code appears when the following alarms occurs three times within 6 hours.
b1	-	Outdoor Unit No. Setting	Incorrect Setting of Unit and Refrigerant Cycle No.	Over 64 Number is Set for Address or Refrigerant Cycle.
b5	-	Indoor Unit No. Setting	Incorrect Indoor Unit Connection Number Setting	More than 17 Non-Corresponding to Hi-NET Units are Connected to One System.
0A	-	Transmission	Incorrect Indoor Unit Connection	Outdoor unit and indoor unit(Only For 76~96U(E/7/8)SB).
0b	-	Outdoor Unit	Incorrect Outdoor Unit Address Setting	Duplication of Address Setting for Outdoor Units (Sub Units) in Same Refrigerant Cycle System (Only For 76~96U(E/7/8)SB)
0C	-		Incorrect Outdoor Unit Main Unit Setting	Two (or more) Outdoor Units Set as "Main Unit" Exist in Same Refrigerant Cycle System (Only For 76~96U(E/7/8)SB)
0d	-		Water temperature abnormal (water heat source)	Heat source with low water temperature (Only For 76~96U(E/7/8)SB)
2A	-		Water temperature themistor abnormal (water heat source)	Themistor wiring, mis-wiring, open circuit, short circuit (Only For 76~96U(E/7/8)SB)
3A	-		Outdoor units capacity abnormal	Refrigerating capacity of 20 ton(total frequency 487Hz) above (Only For 76~96U(E/7/8)SB)
3b	-		Outdoor units wrong setting	Different voltage setting between master unit and slave unit (Only For 76~96U(E/7/8)SB)
3d	-		Slave outdoor unit communication abnormal	Communication barrier over 30s with slave (Only For 76~96U(E/7/8)SB)

8. Troubleshooting

8.1 Initial Troubleshooting

8.1.1 This is Not Abnormal

1) Smells from Indoor Unit

Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.

2) Sound from Deforming Parts

During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.

3) Steam from Outdoor Heat Exchanger

During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.

4) Dew on Air Panel

When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C DB/80% R.H), dew can form on the air panel.

5) Refrigerant Flow Sound

While the system is being started or stopped, sound from the refrigerant flow may be heard.

8.1.2 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

8.1.3 Not Operated

- Check for electrical wiring.
- Check for DIP switch setting.
- Check whether the “SET TEMP” is set at the correct temperature.
- In the case that “RUN” lamp on remote control switch is flickering every 2 seconds, refer to “Service Manual” because abnormality of some device is suspected.

8.2 Troubleshooting by Alarm Code

The Alarm Codes shown below are indicated when a fault occurs during operation.

CAUTION: Before servicing electric parts, cut off power supply completely.

Indication	Trouble	Possible Causes	Action																																
RUN lamp flashes for 2 seconds.	Failure in Transmission between Indoor Unit and Remote Control Switch	Remote Control Cable Broken Contact Failure in Remote Control Cable IC or Microcomputer Defective	Locate the cause and repair. Check by remote control self-checking function. (See Service Manual.)																																
RUN lamp flashes 5 times (5 seconds) with unit number and alarm code displayed.	“Failure”																																		
Remote Control Switch	<p>Unit No.3</p> <p>Alarm Code of "Outdoor Unit Protection Activated"</p>	<p>Indication of Unit Number in Remote Control Switch</p> <table border="1"> <thead> <tr> <th>Unit No.0</th> <th>Unit No.1</th> <th>Unit No.2</th> <th>Unit No.3</th> <th>Unit No.4</th> <th>Unit No.5</th> <th>Unit No.6</th> <th>Unit No.7</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>01</td> <td>02</td> <td>03</td> <td>04</td> <td>05</td> <td>06</td> <td>07</td> </tr> <tr> <th>Unit No.8</th> <th>Unit No.9</th> <th>Unit No.10</th> <th>Unit No.11</th> <th>Unit No.12</th> <th>Unit No.13</th> <th>Unit No.14</th> <th>Unit No.15</th> </tr> <tr> <td>08</td> <td>09</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> </tr> </tbody> </table> <p>NOTE: Alarm code is also indicated on 7-segment display on outdoor unit PCB1, if a trouble occurs.</p>	Unit No.0	Unit No.1	Unit No.2	Unit No.3	Unit No.4	Unit No.5	Unit No.6	Unit No.7	00	01	02	03	04	05	06	07	Unit No.8	Unit No.9	Unit No.10	Unit No.11	Unit No.12	Unit No.13	Unit No.14	Unit No.15	08	09	10	11	12	13	14	15	
Unit No.0	Unit No.1	Unit No.2	Unit No.3	Unit No.4	Unit No.5	Unit No.6	Unit No.7																												
00	01	02	03	04	05	06	07																												
Unit No.8	Unit No.9	Unit No.10	Unit No.11	Unit No.12	Unit No.13	Unit No.14	Unit No.15																												
08	09	10	11	12	13	14	15																												

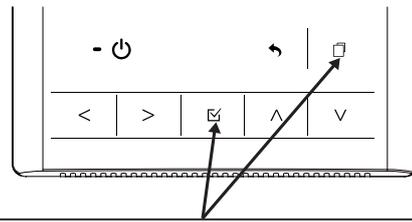
8.3 Trouble shooting in the detection mode

(HYXE-J01H)

Each “Check Menu” item and its function are explained in the following table.

Check menu item	Function
Check 1	Sensor condition of air conditioner will be monitored and indicated.
Check 2	Sensor data of air conditioner prior to alarm occurrence will be indicated.
Alarm Record	Previous alarm record (date, time, alarm code) will be indicated. ※
Species	Model name and manufacturing number will be indicated.
IDU/ODU Diagnosis	The result of PCB check will indicated.
Self Diagnosis	Checking of remote control switch will be carried out.

Indication of Check Menu

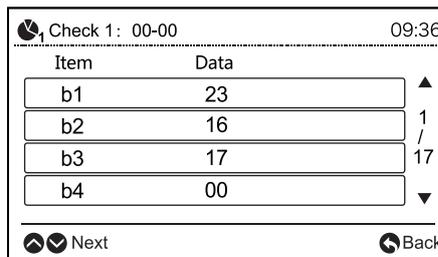
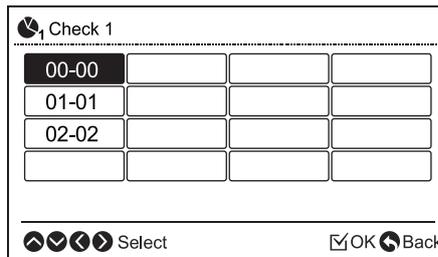
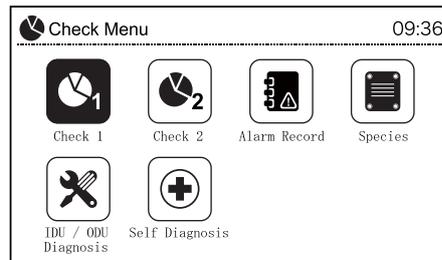


Press and hold “” (menu) and “” simultaneously for at least 3 seconds during the normal mode. The check menu will be displayed.

※ To Erase Alarm Record

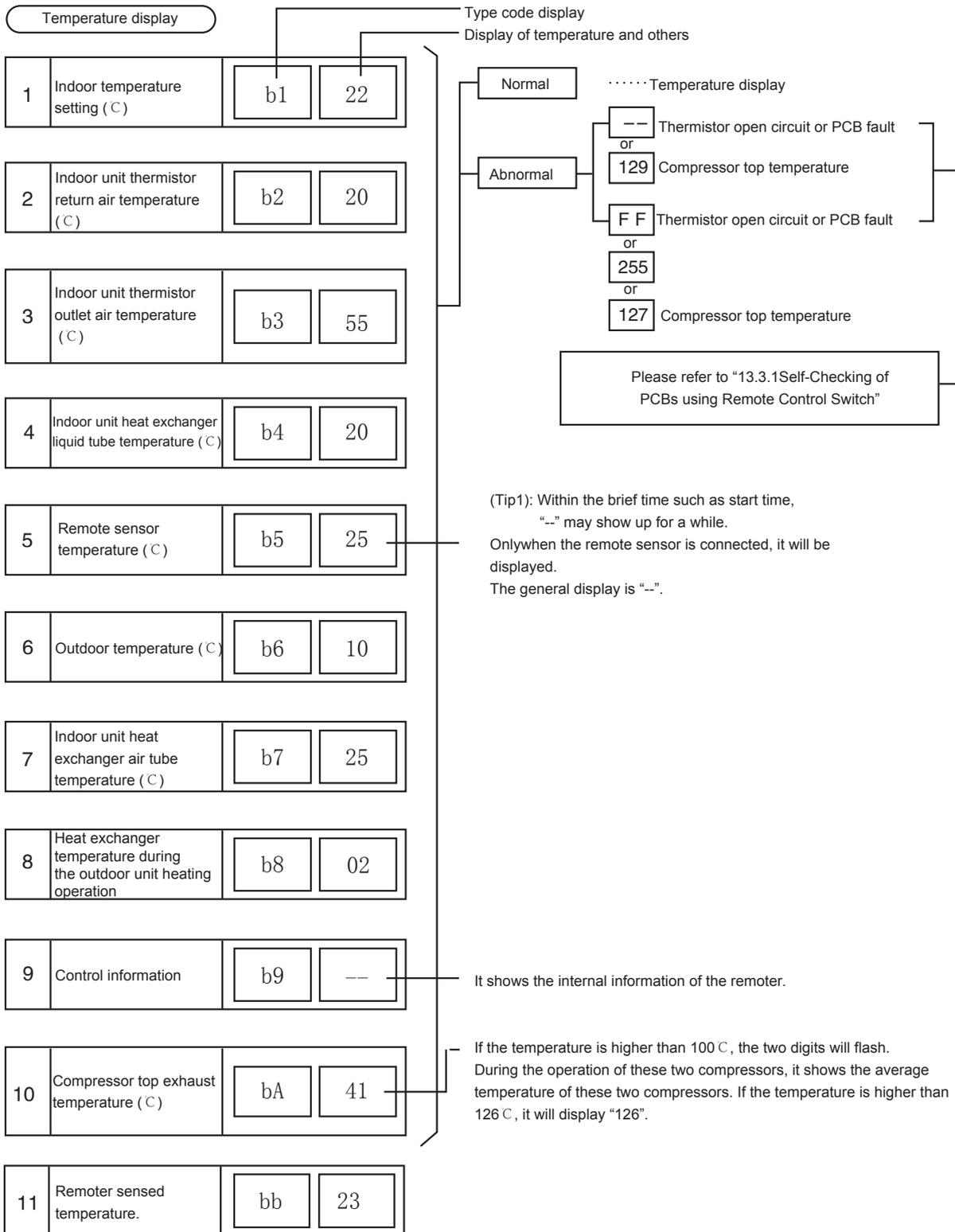
Press “” when the abnormality record is indicated. After that, the confirmation screen will be displayed.

Select “Yes” and press “” so that the alarm record will be deleted.



8.3.1 Contents of Detection Mode 1

Press check1 button, the next content will be displayed. Press “^” “v” the previous content will be displayed.

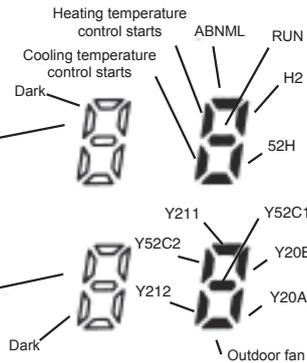


12	Remoter sensed humidity (optional).	bC	00
----	-------------------------------------	----	----

Microcomputer output/ input display

13	Indoor unit microcomputer input/ output.	C1	
----	--	----	--

14	Outdoor unit microcomputer input/ output.	C2	-
----	---	----	---



Symbols with the letter "Y" are PCB relays.

Shutdown cause display

Cause for shutdown	d1	01
--------------------	----	----

Abnormal occurrences counter

Abnormal occurrence times	E1	01
---------------------------	----	----

Indoor unit momentary power failure occurrence times.	E2	00
---	----	----

Remoter and indoor unit transmission error occurrence times	E3	00
---	----	----

Frequency converter abnormal occurrence times	E4	00
---	----	----

Automatic louver state display

Louver sensor	F1	00
---------------	----	----

00	Stop the operation and turn off the power
01	Temperature control switch (Tip1)
02	Alarm (Tip2)
03	Freeze protection, overheat protection
05	Outdoor unit momentary power failure, reset (Tip3)
06	Indoor unit momentary power failure, reset (Tip4)
07	Cease of cooling operation due to low outdoor temperature and cease of heating operation due to high outdoor temperature
09	It needs four-way valves to shift to the shutdown
10	It needs forced shutdown.
11	Restart due to the reduced pressure ratio
12	Restart due to the increased low pressure
13	Restart due to the increased high pressure
15	Restart due to the excessively high exhaust temperature and low air inlet pressure.
16	Restart due to the reduced exhaust superheat
17	Restart due to the tripping of the frequency converter
18	Restart due to the reduced voltage
19	Expansion valve opening change protection
20	Indoor unit run mode shift (Tip5)
21	Forced temperature controlled shutdown
22	Forced temperature controlled shutdown (Preheating)
26	Insufficient high pressure, restart

- (Tip1): Term definition
 Temperature controlled startup: The indoor unit requires the running of the compressor.
 Temperature controlled shutdown: The indoor unit does not require the running of the compressor.
- (Tip2): Even if the poweroff is caused by the "AlarmABNML", "02" will not always be displayed.
- (Tip3): If the communication between the frequency converter PCB and control PCB cannot be carried out within 30 seconds, the outdoor unit will be closed down. In this case, the shutdown is the cause for d1-05 and the alarm code "04" may be displayed.
- (Tip4): If the communication between the indoor unit and outdoor unit cannot be carried out within 3 minutes, the outdoor unit will be closed down. In this case, the shutdown is the cause for d1-06 and the alarm code "03" may also be displayed.
- (Tip5): "20" will be displayed in different modes of the indoor units. It can be numbered to 99. If over 99, "99" will always be displayed.
- (Tip1): If the communication error lasts for 3 minutes, the occurrence times will be added with 1.
- (Tip2): The reserved parameters can be removed with the method indicated in 13.3.1 "Self-Checking of PCBs using Remote Control Switch".

Next page

Compressor pressure/ frequency display

21	Exhaust pressure (high pressure) (0.1MPa)	H1	18
----	---	----	----

22	Air inlet pressure (low pressure) (0.01MPa)	H2	04
----	---	----	----

23	Control information	H3	44
----	---------------------	----	----

It shows the internal information of the remoter. There's no special meaning.

24	Operation frequency (Hz)	H4	44
----	--------------------------	----	----

When two compressors are running together, it displays the total frequency.

Indoor unit capacity display

25	Indoor unit capacity	J1	08
----	----------------------	----	----

Indoor unit capacity is shown as below.

26	Outdoor unit number	J2	U. n
----	---------------------	----	------

27	Cooling system number	J3	01
----	-----------------------	----	----

28	Cooling system number	J4	00
----	-----------------------	----	----

Indoor unit capacity code:

Code	Indoor unit capacity mark	Horsepower
06	22	0.8
08	28	1.0
10	36	1.3
11	40	1.5
13	45	1.8
14	50	2.0
16	56	2.3
18	63	2.5
20	71	2.8
22	80	3.0
26	90	3.3
32	112	4.0
40	140	4.5

"n" represents the total quantity of indoor units.

n= 01-16

J3:01-16 (01, decimal display before delivery (DSW5))

J4:00-0F (00, hexadecimal display before delivery (DSW5))

Expansion valve opening display

29	Indoor unit expansion valve opening (%)	L1	20
----	---	----	----

30	Outdoor unit expansion valve MV1 opening (%)	L2	99
----	--	----	----

31	Outdoor unit expansion valve MV2 opening (%)	L3	99
----	--	----	----

In case of the unit without expansion valves, it displays the same digits.

32	Control information	L4	00
----	---------------------	----	----

Estimated current display

	Compressor working current (A)	P1	25
--	--------------------------------	----	----

When several compressors are running at the same time, it displays the total current.
When the inverter compressor is running, it displays the current on the frequency converter side.

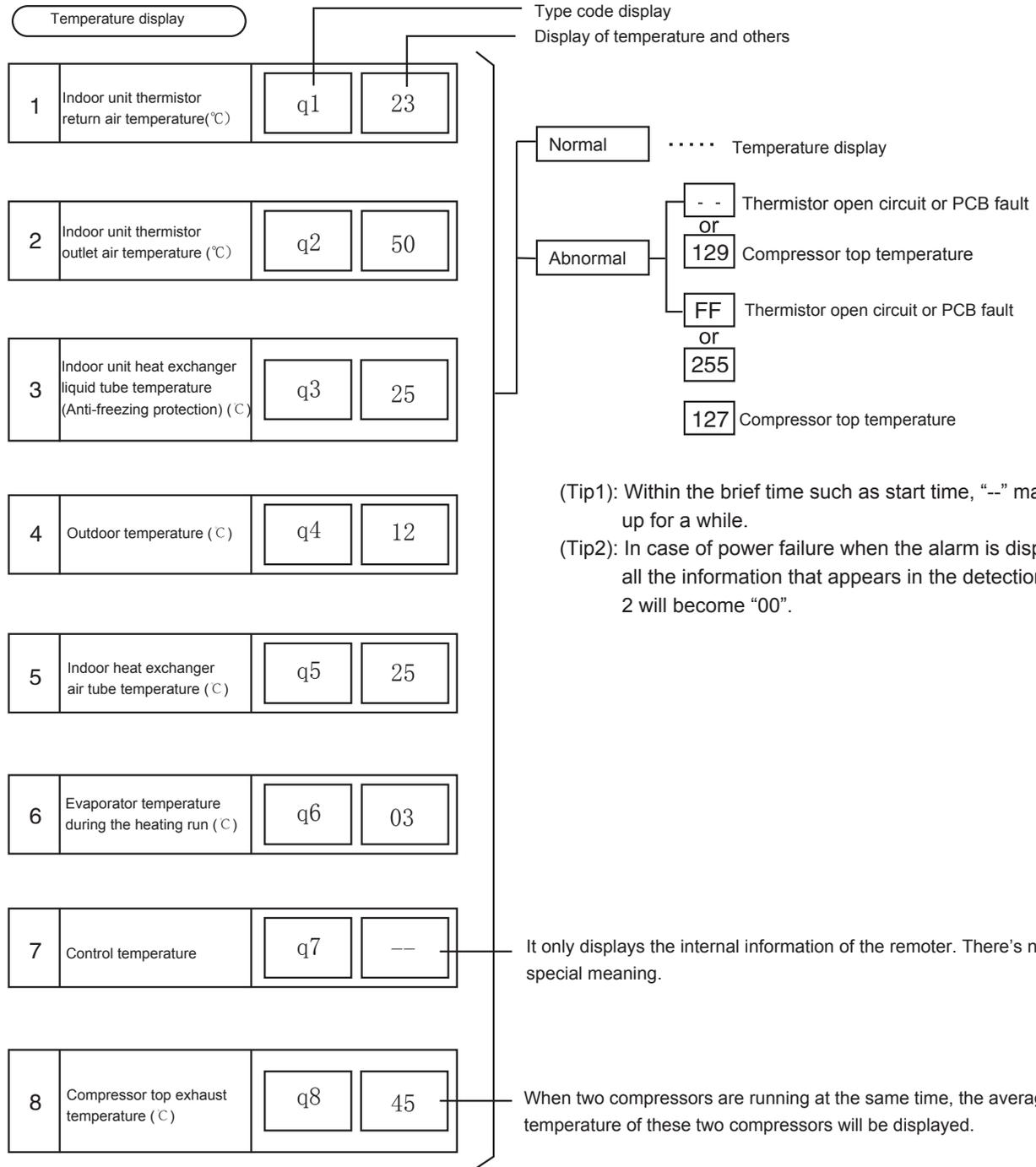
Back to temperature display

Temperature display

8.3.2 Contents of Detection Mode 2

When over three units are connected to one remoter, the updated parameters of the first three indoor units will be displayed.

Press 'check2' button, the next content will be displayed. Press "V" the previous content will be displayed.



Next page

Compressor pressure/ frequency display

9	Exhaust pressure (high pressure) (0.1MPa)	q9	18
---	---	----	----

10	Air inlet pressure (low pressure) (0.1MPa)	qA	04
----	--	----	----

11	Control information	qb	44
----	---------------------	----	----

It displays the internal information of the remoter.
There's no special meaning.

12	Operation frequency (Hz)	qC	44
----	-----------------------------	----	----

When two compressors are running at the same time,
it'll display the total frequency.

Expansion valve opening display

13	Indoor unit expansion valve opening (%)	qd	20
----	--	----	----

14	Outdoor unit expansion valve MV1 opening (%)	qE	99
----	---	----	----

Estimated current display

15	Compressor working current (A)	qF	20
----	-----------------------------------	----	----

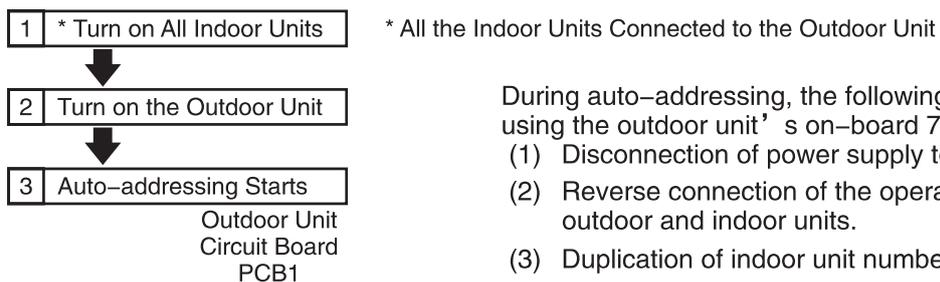
When two compressors are running at the same
time, it'll display the total current.

Back to temperature display

Temperature display

9. Troubleshooting by 7-Segment Display

9.1 Simple Checking by 7-Segment Display



During auto-addressing, the following items can be checked using the outdoor unit's on-board 7-segment LED display.

- (1) Disconnection of power supply to the indoor unit.
- (2) Reverse connection of the operating line between the outdoor and indoor units.
- (3) Duplication of indoor unit number.

9.2 Checking Method by 7-Segment Display

By using the 7-segment display and check switch (PSW) on the PCB1 in the outdoor unit, check each part of refrigerant cycle and operation. During the data check, do not touch other electrical parts except for the following switches to avoid electrical shock. The tools can not touch the electrical part. Otherwise, the electrical part may be damaged.

9.3 Protection Control Code on 7-Segment Display

- 1) Protection control code is displayed on 7-segment when a protection control is activated.
- 2) Protection control code is displayed while function is working, and goes out when released.
- 3) When several protection control are activated, code number with higher priority will be indicated (see below for the priority order)

(a) Priority order:

- a. Pressure ratio control
- b. High-pressure increase protection
- c. Inverter fin temperature increase protection
- e. Discharge gas temperature increase protection
- f. Low-pressure decrease protection
- g. Low-pressure increase protection
- h. Running current limit control
- i. High-pressure decrease protection

(b) For retry control, it indicates the latest retry operation. But the items (a) are given priority when starting.

Code	Protection Control	Code	Protection control
P01	Pressure ratio control (※)	P11	Low pressure ratio retry
P02	High-pressure increase control	P12	Low-pressure increase retry
P03	Inverter current protection (※)	P13	High-pressure increase retry
P04	Inverter fin temp. increase protection (※)	P15	Vacuum, Td increase retry
P05	Td increase protection (※)	P16	TdSH decrease retry
P06	Low-pressure decrease protection	P17	Inverter three-time retry
P09	High-pressure decrease protection	P18	Voltage decrease retry
P0A	Running current limit protection	P26	High-pressure decrease retry

Protection control is indicated only during the running of compressor.

Starting of protection control during back control indicates “ \bar{L} ” instead of “ \bar{L} ” . (※ parts)

The protection control in back control is started faster than other conditions.

Retry indication continues for 30 minutes unless a protection control is indicated.

● Inverter Failure Code (,) Check Items)

Code	Cause	Cause Code	Remark	
			Indication in Retry	Alarm Code
1	Transistor Module Stop (IPM Error) (Overload, Over Voltage, Increased Temp.)	17	P 17	53
2	Instant Overload	17	P 17	52
3	Inverter Fin Temp. Protection	17	P 17	54
4	Thermal Protection	17	P 17	52
5	Inverter Voltage Decrease	18	P 18	06
6	High Voltage	18	P 18	06
7	Abnormal Transmission	-	-	04
8	Current Sensor Failure	17	P 17	51
9	Instant Power Failure Check	18	-	-
11	Inverter Micro-computer Reset	18	-	53
12	Compressor Earth Wiring Check	17	P 17	04, 53
13	Phase Checking Abnormality	18	-	-
16	Inverter Failure	18	P 18	55

In order to adapt to conditions such as temperature change, the control of frequency and other items is performed to prevent the abnormal conditions by the protection control.

The activating conditions of protection control are shown in the table below.

Code	Protection Control	Activating Condition	Remarks
P01	Pressure Ratio Control	Compression Ratio $>9 \rightarrow$ Frequency Decrease (Pd+0.1)/(Ps+0.1) ≤ 2.2 , \rightarrow Frequency Increase	Ps: Suction Pressure of Compressor [MPa]
P02	High-pressure Protection	Pd ≥ 3.6 MPa \rightarrow Frequency Decrease	Pd: Discharge Pressure of Compressor [MPa]
P03	Current Protection	If current is over larger when frequency changes two times \rightarrow Frequency Decrease	
P04	Inverter Fin Temperature Increase Protection	Inverter Fin Temperature $\geq 89^{\circ}\text{C} \rightarrow$ Frequency Decrease	
P05	Discharger Gas Temperature Increase Protection	Temperature at the top of compressor is high \rightarrow Frequency Decrease (Maximum temperature is different depending on the frequency)	–
P06	Low-Pressure Decrease Protection	Low pressure is too low \rightarrow Frequency Decrease (Minimum pressure is different depending on the environmental temperature)	–
P09	High-Pressure Decrease Protection	Discharge pressure of compressor is too low \rightarrow Frequency Increase	–
P0A	Running Current Limit Control	Running Current for Compressor \geq Setting value \rightarrow Frequency Decrease	Setting Value: Set by external input; upper limit value of total running current of compressor is set 80%, 70% and 60% at normal operation.
P11	Pressure Ratio Decrease Retry	Compression Ratio (Pd+0.1)/(Ps+0.1) <1.8	When activating 3 times in 30 minutes. “43” alarm is indicated
P12	Low-Pressure Increase Retry	Ps >1.5 MPa	When activating 3 times in 30 minutes. “44” alarm is indicated
P13	High-Pressure Increase Retry	Ps >3.8 MPa	When activating 3 times in 30 minutes. “45” alarm is indicated
P15	Vacuum/Discharge Gas Temperature Increase Retry	In case of Ps <0.09 MPa over 12minutes. Discharge Gas Temperature $\geq 132^{\circ}\text{C}$ over 10 minutes or Discharge Gas Temperature $\geq 140^{\circ}\text{C}$ over 5 seconds	When activating 3 times in 1 hour, “47” (Ps) or “08” (Discharge Gas) alarm is indicated.
P16	Discharge Gas SUPER HEAT Decrease Retry	Discharge Gas Superheat Less than 10 degrees is maintained for 30 minutes.	When activating 3 times in 2 hours, “07” alarm is indicated.
P17	Inverter Trip Retry	Automatic Stoppage of Transistor Module. Activation of Electronic Thermal or Abnormal Current Sensor	When activating 3 or 6 times in 30 minutes, “48” , “51” or “53” alarm is indicated.
P18	Insufficient Voltage / Excessive Voltage Retry	Insufficient/Excessive Voltage at Inverter Circuit or CB Connector Part	When activating 3 times in 30 minutes, “06” alarm is indicated.
P26	High pressure decrease retry	Pd <1.00 MPa has been continued for one hour	Non alarm

NOTES:

1. During protection control (except during alarm stoppage), the protection control code is indicated.
2. The protection control code is indicated during protection control and turns off when canceling the protection control.
3. After retry control, the condition of monitoring is continued for 30 minutes.

10. Procedure of Checking Each Main Parts

10.1 Self-Checking of PCBs using Remote Control Switch

The following troubleshooting procedure is utilized for function test of PCBs in the indoor unit and outdoor unit.

Each “Check Menu” item and its function are explained in the following table.

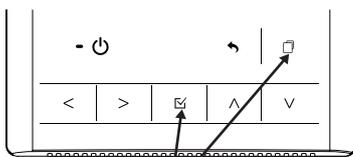
Check menu item	Function
Check 1	Sensor condition of air conditioner will be monitored and indicated.
Check 2	Sensor data of air conditioner prior to alarm occurrence will be indicated.
Alarm Record	Previous alarm record (date, time, alarm code) will be indicated. ※
Species	Model name and manufacturing number will be indicated.
IDU/ODU Diagnosis	The result of PCB check will indicated.
Self Diagnosis	Checking of remote control switch will be carried out.

※ To Erase Alarm Record

Press “” when the abnormality record is indicated. After that, the confirmation screen will be displayed.

Select “Yes” and press “” so that the alarm record will be deleted.

Indication of Check Menu



Press and hold “” (menu) and “” simultaneously for at least 3 seconds during the normal mode. The check menu will be displayed.

Indication	Contents	
00	Normal	
	Abnormality (Open-circuit, Short-circuit, etc.) in circuit for	
01	Intake Air Temp. Thermistor	Indoor Unit PCB
02	Discharge Air Temp. Thermistor	
03	Liquid Pipe Temp. Thermistor	
04	Remote Thermistor Abnormality	
05	Gas Pipe Temp. Thermistor	
06	Remote Sensor	
08	Transmission of Central Station	
0A	EEPROM	
0b	Zero Cross Input Failure	
E E	Transmission of Indoor Unit during This Checking Operation	
07	Transmission of Outdoor Unit	Outdoor Unit PCB
F4	ITO Input Failure	
F5	PSH Input Failure	
F6	Protection Signal Detection Circuit	
F7	Phase Detection	
F8	Transmission of Inverter	
FA	High Pressure Sensor	
Fb	Comp. Discharge Gas Temp. Thermistor	
Fc	Low Pressure Sensor	
Fd	Heat Exchanger Evaporation Temp. Thermistor	
Ff	Ambient Air Temp. Thermistor	

10.2 Self-checking of Remote Control Switch

10.2.1 CHECK MENU

Each "Check Menu" item and its function are explained in the following table.

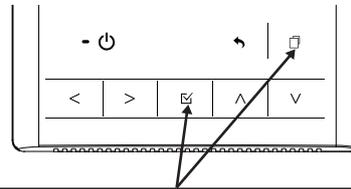
Check menu item	Function
Check 1	Sensor condition of air conditioner will be monitored and indicated.
Check 2	Sensor data of air conditioner prior to alarm occurrence will be indicated.
Alarm Record	Previous alarm record (date, time, alarm code) will be indicated. ※
Species	Model name and manufacturing number will be indicated.
IDU/ODU Diagnosis	The result of PCB check will be indicated.
Self Diagnosis	Checking of remote control switch will be carried out.

※ To Erase Alarm Record

Press "☒" when the abnormality record is indicated. After that, the confirmation screen will be displayed.

Select "Yes" and press "☒" so that the alarm record will be deleted.

Indication of Check Menu



Press and hold "☒" (menu) and "☒" simultaneously for at least 3 seconds during the normal mode. The check menu will be displayed.

11. Maintenance

Regularly inspect units in accordance with the same items as described in the chapter "Test Run". To ensure the reliability and service life, the following additional items should be paid with special attention.

● Plate Heat Exchanger Freezing

- (1) Regularly inspect the water temperature difference, pressure difference, detect filter clogging, water reduction or with air inhalation. If circulating water is insufficient or water temperature is out of the normal range, it may give rise to plate heat exchanger freezing.
- (2) Stop the unit operating immediately when freezing occurs in plate heat exchanger. Start the unit again until the completion of troubleshooting.
- (3) Start-up unit repeatedly will deepen freezing degree of plate heat exchanger. As a result, various damages will appear inside exchanger and cause refrigerant leakage and refrigerant pipes containing water.

● Deposition and Clogging of Water Pipe

- (1) After a period of operation, particles, dust from outside and calcium carbonate and other minerals in water will deposit on the surface of plate heat exchanger. Electricity consumption will increase as the aggravating of the deposition. These can lead to insufficient refrigerating capacity or freezing inside of the plate heat exchanger.

※ Regularly clean water filter according to the clogging degree of water filter. If not, water filter may be broken because of its abnormal pressure.

- (2) It is strongly recommended that cleaning plate heat exchanger while water filter cleaning is underway. Pay attention to the following tips and the normal cleaning methods.

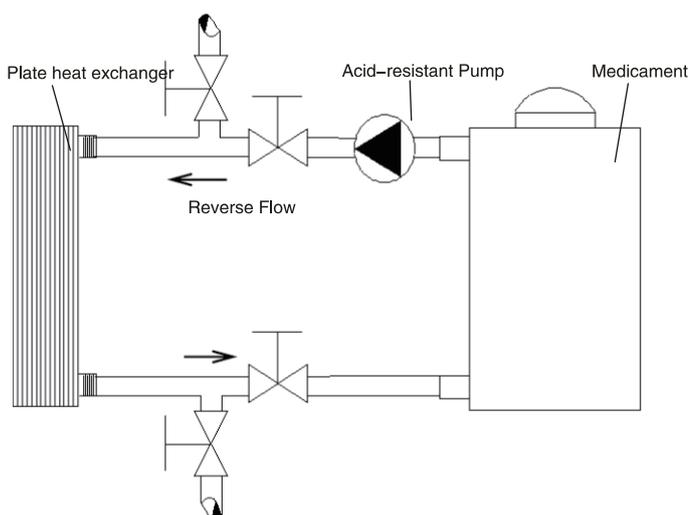


Fig. Cleaning Loop

CAUTION

※ Plate heat exchanger cleaning should be conducted by professionals. Please ask an experienced chemical industrial company for processing. Please contact your agent or dealer.

● Cleaning Method

- (1) Select right cleaning agents according to the deposition of dirt on plate heat exchanger. Cleaning agents vary with the deposition of dirt.
- (2) The plate heat exchanger is made of stainless steel, do not use cleaning agent containing chloric acid or fluoride to clean it, otherwise, heat exchanger will be damaged, which results in refrigerant leakage.
- (3) After using the cleaning agents, flush water pipes and heat exchanger with clean water to avoid corrosion of water system and scales reabsorption after cleaning.
- (4) In the case of using cleaning agents, regulate the concentration, cleaning time and temperature of cleaning agents according to the deposition of dirt.
- (5) After cleaning with acid, neutralization treatment of waste liquid is required. Contact the waste water treatment company to treat waste liquid.
- (6) Clean agents and neutralized agents have corrosive and irritative impacts on eyes, skin and nasal mucosa etc. Therefore, cleaning work must be conducted with protective device (such as goggles, protective gloves, protective shoes, protective masks, protective cloth, etc.) to avoid inhalation or contact with these agents.

Clogging Types and Cleaning Agent (Reference)

Clogging Types	Cleaning Agent
Scaling	Citric Acid, Ethylic Acid or ortho-phosphoric acid
Silt	
Rusting	
Dust and Sand Particles	Detergent/Soap, Household Detergent and Hot Water
Oil	
Plastics	
Fiber	

- **Cleaning Steps**

- a. Install the Clean Circuit:

- (1) Stop the water source VRF system.
- (2) Stop circulating water pump in the system.
- (3) Close shut-off valve of water inlet and outlet pipes, and install an anti-acid-type water pump to form water circulation.

- b. Inspect the Clean Circulating Circuit

Fill cleaning water tank with pure water and start anti-acid-type water pump.

- (1) Check and ensure no water leakage.
- (2) Check and ensure that water pipe is installed firmly .
- (3) Check and ensure that the cleaning agents will not damage any device near the unit even if the cleaning agents are spilled on it.
- (4) Check and ensure well ventilation.
- (5) Check and ensure no abnormal sound during operation.

- c. Cleaning Work

- (1) Drain water from water system of air conditioning system.
- (2) Pour cleaning agents from cleaning water tank into plate heat exchanger from its outlet reversely by using anti-acid-type water pump. (In contrast with the normal flow direction)
- (3) Keep the cleaning agents circulating for an appropriate period of time (circulating time depends on the type and concentration of cleaning agents and thickness of dirt.).

- d. Waste Liquid

- (1) Stop anti-acid-type water pump.
- (2) Pour waste liquid into waste liquid tank.
- (3) Pour water into cleaning water tank, then start water pump to flush it
- (4) After cleaning, pour water into waste liquid tank.
- (5) Test PH value with PH test paper, and add the neutralizer gradually to neutralize waste liquid.
- (6) After neutralization, contact wasted liquid treatment company to process waste liquid.

- e. Neutralization treatment for water pipe

- (1) Pour water into cleaning water tank.
- (2) Start anti-acid-type water pump.
- (3) Test PH value with PH test paper, and add the neutralizer gradually until PH=7.
- (4) Keep anti-acid-type water pump running for a period of time to complete neutralization reaction.
- (5) Drain water after using.
- (6) Run circulating water pump to clean circulating system until no liquid with water scales appears.

- f. Restart unit

- (1) Reconnect pipes of unit as the way they used to be to realize the normal operation.
- (2) After cleaning, water treatment (preventive measure) can be performed to prevent the water system from corrosion.

Appendix

Table 1.1 Test Run and Maintenance Record

CUSTOMER'S NAME AND ADDRESS _____

DATE: _____ - _____ - _____

Outdoor Unit Model (Series No.)	RAS-	(Series No.)	RAS-	(Series No.)												
(1) Operation Mode																
(2) Date(Time) of Test Run																
(3) Date(Time) of Data Collection																
(4) Read Data from 7-segment Indicator																
Protection Control Code																
Outdoor Unit Microcomputer Control Output	SC	52C ₁	52C ₂	52C ₃	52C ₄	52C ₅	52C ₆	Fan ₁	52C ₁	52C ₂	52C ₃	52C ₄	52C ₅	52C ₆	Fan ₁	
		FAN ₂	RS	20A	21 ₁			21 ₂	CH	FAN ₂	RS	20A	21 ₁		21 ₂	CH
Total Running Capacity of Indoor Units	oP															
Inverter, Frequency	H1															
No. of Running Compressors	CC															
Steps of Outdoor Fan	Fo															
Open Degree of Outdoor EEV	oE1															
	oE2															
	oE3															
	oE4															
	oEb															
Discharge Pressure	Pd															
Suction Pressure	Ps															
Discharge Temperature	Td1															
	Td2															
	Td3															
	Td4															
	Td5															
	Td6															
Temperature of Liquid Pipe of Heat Exchanger	TE1															
	TE2															
	TE3															
Ambient Temperature	To															
Running Current of Compressor	A1															
	A2															
	A3															
	A4															
	A5															
	A6															
Indoor Unit (No.)																
Open Degree of EEV	iE															
Temperature of Liquid Pipe of Heat Exchanger	TL															
Temperature of Gas Pipe of Heat Exchanger	TG															
Intake Air Temperature	Ti															
Discharge Air Temperature	To															
Capacity	CA															
Code for Indoor Unit Stoppage	d1															
Restriction for Compression Ratio Decrease	c11															
Restriction for High Pressure Increase	c13															
Restriction for Inverter Cooling Fin Temperature Increase	c14															
Restriction for Discharge Temperature Increase	c15															
Restriction for Discharge Super-cooling Decrease	c16															
Restriction for Over-current	c17															
Accumulative Running Time of Compressor 1	UJ1															
Accumulative Running Time of Compressor 2	UJ2															
Accumulative Running Time of Compressor 3	UJ3															
Accumulative Running Time of Compressor 4	UJ4															
Accumulative Running Time of Compressor 5	UJ5															
Accumulative Running Time of Compressor 6	UJ6															
Alarm Code of Outdoor Unit	AC															
Inverter Stoppage Code	ITC															
Code for Fan Motor Controller Stoppage	FTC															
Total Capacity of Indoor Units	CP															
Amount of Indoor Units	AA															
Refrigeration System Address	GA															

Service and Maintenance Record by Remote Control Switch

Data Sheet for Checking by Remote Control Switch

Time				:	:	:	:	:
I.U. Model								
I.U. Serial No.								
I.U. No. / Alarm Code								
		Check Mode 1	Check Mode 2	1 • 2	1 • 2	1 • 2	1 • 2	1 • 2
B Temp. Indication								
	Set Temp.	b1	--					
	Inlet Air Temp.	b2	91					
	Discharge Air Temp.	b3	92					
	Liquid Pipe Temp.	b4	93					
	Remote Thermistor Temp.	b5	--					
	Outdoor Air Temp.	b6	94					
	Gas Pipe Temp.	b7	95					
	Evaporating Temp. at Heating	b8	96					
	Control Information	b9	97					
	Comp. Top Temp.	bA	98					
	Thermo Temp. of Remote Control Switch	bb	--					
	Humidity	bC	00					
C Micro-Computer State Indication								
	I.U. Micro-Computer	C1	--					
	O.U. Micro-Computer	C2	--					
D Stopping Cause State Indication								
	Stopping Cause State Indication	d1	--					
E Alarm Occurrence								
	Times of Abnormality	E1	--					
	Times of Power Failure	E2	--					
	Times of Abnormal Transmitting	E3	--					
	Times of Inverter Tripping	E4	--					
F Automatic Louver State								
	Louver Sensor State	F1	--					
H Pressure, Frequency State Indication								
	Discharge Pressure	H1	99					
	Suction Pressure	H2	9A					
	Control Information	H3	9b					
	Operating Frequency	H4	9C					
J I.U. Capacity Indication								
	I.U. Capacity (X1/8HP)	J1	--					
	O.U. Code	J2	--					
	Refrigerant Cycle Number	J3	--					
	Refrigerant Cycle Number	J4	--					
L Opening of Expansion Valve								
	I.U. Expansion Valve	L1	9d					
	O.U. Expansion Valve 1	L2	9E					
	O.U. Expansion Valve 2	L3	--					
	O.U. Expansion Valve B	L4	--					
P Running Current Indication (Reference)								
	Comp. Current	P1	9F					
P Version No.								
	Version No.	PQ	--					

Client: _____
 Installation Date: _____
 System No.: _____
 Date Checked: _____
 Checked by: _____

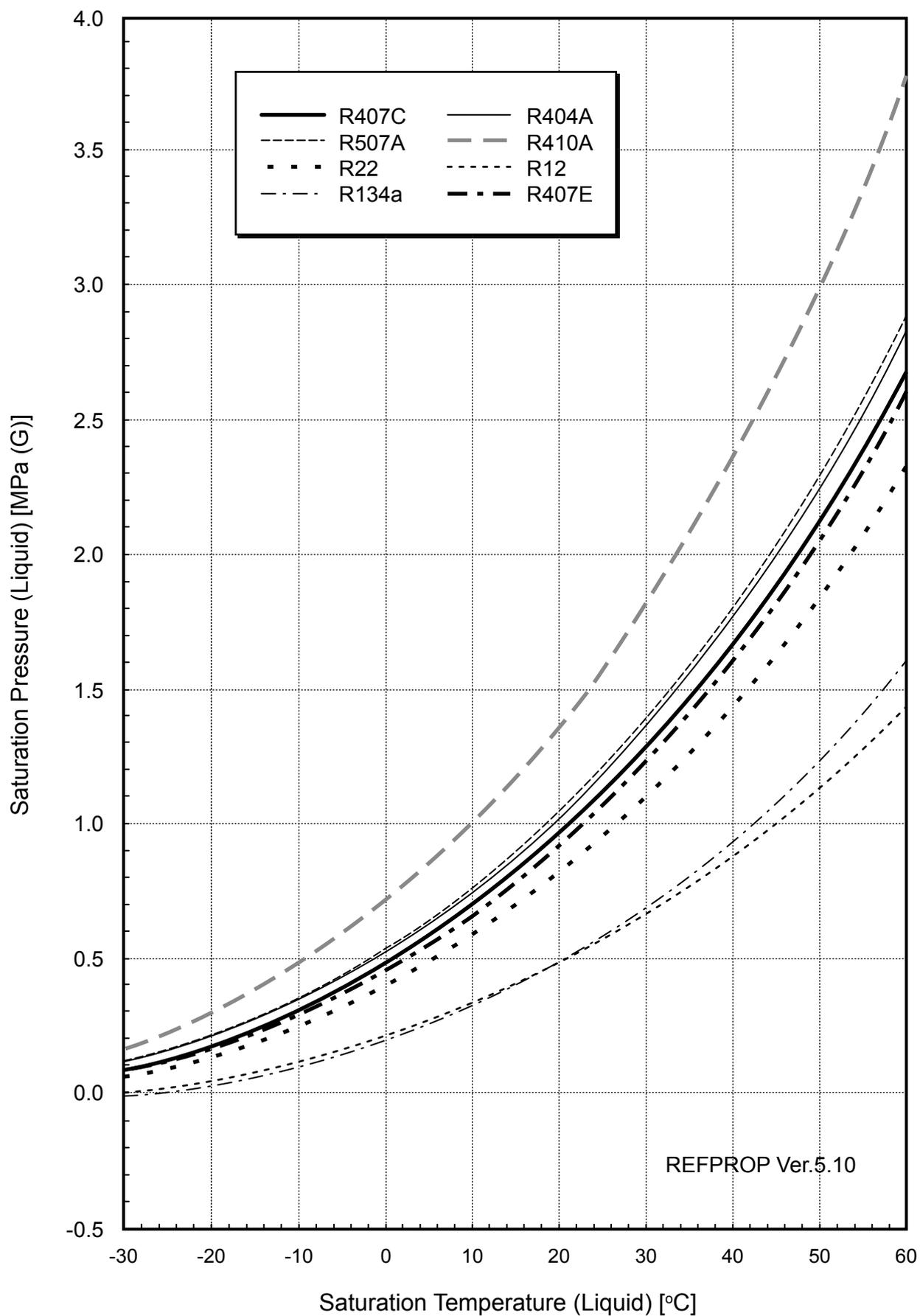
Result	

Service & Maintenance Record

Service and Maintenance Record

No.	Check Item	Action	Judgement
1	Is service space sufficient		YES or NO
2	Short Circuit of Discharge Air?		YES or NO
3	Any Heat Influenc		YES or NO
4	Is earth wire connected?		YES or NO
5	Refrigeration Piping		GOOD or NOT GOOD
6	Fixing of Units		GOOD or NOT GOOD
7	Any Damage on Outer or Internal Surface?		YES or NO
8	Checking of Screw and Bolts	Tighten if loosen.	TIGHTENED or NOT TIGHTENED
9	Tightening of Terminal Screws	Tighten all terminal screws by phillips driver.	TIGHTENED or NOT TIGHTENED
10	Are compressor terminals tightly fixed	Push all terminals.	PUSHED or NOT PUSHED
11	Insulation Resistance	Measure insulation resistance by insulation resistance-meter. Comp. and Fan Motor: greater than 3MΩ Others: greater than 3MΩ	GOOD or NOT GOOD
12	Does drain water smoothly flow	Check for smooth flow b pouring water.	GOOD or NOT GOOD
13	Check for leakage at compressor.	Check for any leakage.	GOOD or NOT GOOD
14	Check for leakage at outdoor heat exchanger.	ditto	GOOD or NOT GOOD
15	Check for leakage at indoor heat exchanger.	ditto	GOOD or NOT GOOD
16	Check for leakage at reversing valve.	ditto	GOOD or NOT GOOD
17	Check for leakage at check valve.	ditto	GOOD or NOT GOOD
18	Check for leakage at accumulator.	ditto	GOOD or NOT GOOD
19	Check for leakage at strainer.	ditto	GOOD or NOT GOOD
20	Check for leakage at electronic expansion valve.	ditto	GOOD or NOT GOOD
21	Check for leakage at piping.	ditto	GOOD or NOT GOOD
22	Check direction of fans.	by Viewing or Air Flow Volume	GOOD or NOT GOOD
23	Voltage among each Phase.	higher than 220V	GOOD or NOT GOOD
24	Vibration and Sound	Check fan, compressor, piping, etc.	GOOD or NOT GOOD
25	Activation of Each Operation Mode	Check activation of COOL, HEAT, STOP and TEMP. switches.	GOOD or NOT GOOD
26	High Pressure Cut-out Switch	Check actual activation value.	GOOD or NOT GOOD
27	Check activation of drain mechanism.	Check it during cooling operation.	GOOD or NOT GOOD
28	Indoor Inlet Air Temp. (DB/WB)		°C DB/ °C WB
29	Indoor Outlet Air Temp. (DB/WB)		°C DB/ °C WB
30	Outdoor Inlet Air Temp. (DB/WB)		°C DB/ °C WB
31	Outdoor Outlet Air Temp. (DB/WB)		°C DB/ °C WB
32	High Pressure Switch		MPaG
33	Low Pressure Switch		MPaG
34	Operating Voltage		V
35	Operating Current		A
36	Instruction Cleaning of Air Filter to Client		DONE or NOT YET
37	Instruction for Cleaning Method to Client		DONE or NOT YET
38	Instruction for Operation to Client		DONE or NOT YET

Saturation Curve for Refrigerant



12. Mollier Chart for R410A

