



CONFIDENTIAL

AIR-TO-WATER HEAT PUMP

SERVICE MANUAL

(Exploded View)

CAUTION

Before Servicing the unit, read the safety precautions in General SVC manual.
Only for authorized service personnel.

TABLE OF CONTENTS

1. Specification	3
2. Components.....	11
3. Cycle Diagrams	15
4. Piping Diagrams	16
5. Wiring Diagrams	17
6. Exploded View	22

1. Specification

Indoor

Indoor Unit		Unit	HN1616HC NK0	HN1639HC NK0
Power Supply		V, Ø, Hz	50 Hz 220-240 V~	50 Hz 220-240 V~
Electric backup heater	Power Supply	V, Ø, Hz	50 Hz 220-240 V~	50 Hz 380-415 V3N~
	Power Input	W	6000	9000
Current	Current(MAX)	A	0.6	0.6
Operation Ragne(Leaving Water)	Cooling(Min ~ Max)	°C(DB)	5~27	5~27
	Heating(Min ~ Max)	°C(DB)	15~75	15~75
	Domestic Hot water(Min ~ Max)	°C(DB)	15~80	15~80
Expansion Tank	Volume(Max)	ℓ	8	8
	Water Pressure(Max)	bar	3	3
	Water Pressure(Pre-charged)	bar	1	1
Water Connecting Pipes	Inlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
	Outlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
Sound Power Level	Heating(Rated)	dB(A)	39	39
Dimensions	Net(W x H x D)	mm	490 x 850 x 315	490 x 850 x 315
	Shipping(W x H x D)	mm	563 x1082 x 375	563 x1082 x 375
Weight	Net	kg	30	31
	Shipping	kg	35	36
Exterior	Color	-	Noble White	Noble White
	RAL Code	-	RAL 9016	RAL 9016
Connecting Cable	Power supply cable(H07RN-F)	mm ² x cores	0.75 x 3C	0.75 x 3C
	Communication Cable(H07RN-F)	mm ² x cores	0.75 x 2C	0.75 x 2C

Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Specification

Outdoor : 1Ø

Outdoor Unit		Unit	HM161HF UB60	HM141HF UB60	HM121HF UB60
Power Supply		V, Ø, Hz	50 Hz 220-240 V~	50 Hz 220-240 V~	50 Hz 220-240 V~
Recommended circuit breaker(ELCB)		A	25	25	25
Connecting Cable	Power Supply Cable(H07RN-F) *Included Earth	mm ² × cores	2.5 x 3C	2.5 x 3C	2.5 x 3C
Capacity(Heating)	A7 / W35	kW	16.0	14.0	12.0
	A7 / W55	kW	12.0	11.0	10.0
	A2 / W35	kW	14.5	14.0	12.0
Capacity(Cooling)	A35 / W18	kW	12.5	12.0	11.5
Power Input (Heating)	A7 / W35	kW	3.72	3.11	2.55
	A7 / W55	kW	3.63	3.38	3.23
	A2 / W35	kW	4.15	3.88	3.23
Power Input (Cooling)	A35 / W18	kW	3.38	3.24	3.04
COP(Heating)	A7 / W35	W/W	4.30	4.50	4.70
	A7 / W55	W/W	3.30	3.25	3.10
	A2 / W35	W/W	3.49	3.61	3.72
EER(Cooling)	A35 / W18	W/W	3.70	3.70	3.78
SCOP(Average climate)	Water outlet 35°C	W/W	5.11	5.38	5.45
	Water outlet 55°C	W/W	3.92	3.96	3.97
Water Flow Rate	Rated(at ΔT 5°C)	ℓ/min	46.0	40.3	34.5
Running Current	Heating(Rated)	A	16.18	13.53	11.10
	Cooling(Rated)	A	14.30	13.38	12.66
Peak Control Running Current	Heating	A	20	20	20
	Cooling	A	20	20	20
Current	Current(MAX)	A	23	23	23
Operation Range(Outdoor Temperature)	Cooling(Min ~ Max)	°C(DB)	5 ~ 48	5 ~ 48	5 ~ 48
	Heating(Min ~ Max)	°C(DB)	-28 ~ 35	-28 ~ 35	-28 ~ 35
Operation Range(Leaving Water)	Cooling(Min ~ Max)	°C(DB)	5 ~ 27	5 ~ 27	5 ~ 27
	Heating(Min ~ Max)	°C(DB)	15 ~ 75	15 ~ 75	15 ~ 75
	Domestic Hot water(Min ~ Max)	°C(DB)	15 ~ 80	15 ~ 80	15 ~ 80

Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Outdoor Unit		Unit	HM161HF UB60/HM141HF UB60/HM121HF UB60
Water Pump	Type	-	Canned type for hot water circulation
	Model(Maker,Name)	-	GRUNDFOS, UPML GEO 20-105 CHBL
	Motor type	-	BLDC
	Steps of Pumping Performance	-	Variable speed 10% to 100%
	Power input(Min~Max)	W	17 ~ 152
	Power input(Rated)	W	145
	Water Flow Rate(Min)	ℓ / min	0
	Max. Head	m	11
Water Pump_2	Type	-	Canned type for hot water circulation
	Model(Maker,Name)	-	OH SUNG, ODM-061P
	Motor type	-	BLDC
	Steps of Pumping Performance	-	Variable speed 10% to 100%
	Power input(Min~Max)	W	17 ~ 152
	Power input(Rated)	W	145
	Water Flow Rate(Min)	ℓ / min	0
	Max. Head	m	11
Safety Valve(Water cycle)	Pressure Limit(Upper Limit)	bar	3.0
Flow Sensor	Type	-	Vortex
	Model(Maker,Name)	-	SIKA VVXC9SNBUC00252P
	Measuring Range(Min~Max)	ℓ/min	5 ~ 80
Water Pressure Sensor	Model(Maker,Name)	-	Sensata OFM(2HMP)
Fan	Type	-	Propeller
	Air Flow Rate(Rated)	m ³ /min x No.	110 x 1
Fan Motor	Type	-	BLDC
	Output	W x No.	250 x 1

Note :

1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
5. This product contains Fluorinated greenhouse gases.
6. Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Specification

Outdoor Unit		Unit	HM161HF UB60	HM141HF UB60	HM121HF UB60
Compressor	Type	-	Hermetic Motor Compressor	Hermetic Motor Compressor	Hermetic Motor Compressor
	Model x No.	-	PJQC062MAA x 1	PJQC062MAA x 1	PJQC062MAA x 1
	Piston Displacement	cm ³ /rev	61.5	61.5	61.5
	Motor Type	-	BLDC	BLDC	BLDC
Refrigerant	Type	-	R290	R290	R290
	Precharged Amount	kg	1.2	1.2	1.2
	GWP (Global Warming Potential)	-	3	3	3
	t-CO ₂ eq.	-	0.0036	0.0036	0.0036
	Control Type	-	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Refrigerant Oil	Type	-	PZ68S	PZ68S	PZ68S
	Charged Volume	cc x No.	1200	1200	1200
Heat Exchanger	Rows x Columns x FPI	-	46 x 3 x 18	46 x 3 x 18	46 x 3 x 18
	No.	-	1	1	1
	Fin Type	-	Corrugate	Corrugate	Corrugate
Heat Exchanger (Refrigerant to Water)	Type	-	Brazed Plate HEX	Brazed Plate HEX	Brazed Plate HEX
	Quantity	EA	1	1	1
	Number of Plate	Sheet	76	76	76
	Water Volume	ℓ	1	1	1
Water Connecting Pipes	Inlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
	Outlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
Sound Pressure Level	Heating(Rated, @1m)	dB(A)	44	43	41
Sound Power Level	Heating(Low Noise)	dB(A)	51	50	48
	Heating(Rated)	dB(A)	52	51	49
	Heating(Daytime max)	dB(A)	61	60	59
Dimensions	Net(W x H x D)	mm	1560 x 1019 x 520	1560 x 1019 x 520	1560 x 1019 x 520
	Shipping(W x H x D)	mm	1620 x 1180 x 625	1620 x 1180 x 625	1620 x 1180 x 625
Weight	Net	kg	181	181	181
	Shipping	kg	199	199	199
Exterior	Color of chassis	-	Dawn Gray	Dawn Gray	Dawn Gray
	RAL code of chassis	-	RL 7037	RL 7037	RL 7037
Max Allowable Pressure	High / Low	MPa	3.2 / 1.4	3.2 / 1.4	3.2 / 1.4

Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Outdoor : 3Ø

Outdoor Unit		Unit	HM163HF UB60	HM143HF UB60
Power Supply		V, Ø, Hz	50 Hz 380-415 V3N~	
Recommended circuit breaker(ELCB)		A	16	
Connecting Cable	Power Supply Cable (H07RN-F)*Included Earth	mm ² × cores	2.5 x 5C	
Capacity(Heating)	A7 / W35	kW	16.0	14.0
	A7 / W55	kW	12.0	11.0
	A2 / W35	kW	14.5	14.0
Capacity(Cooling)	A35 / W18	kW	12.5	12.0
Power Input(Heating)	A7 / W35	kW	3.72	3.11
	A7 / W55	kW	3.63	3.38
	A2 / W35	kW	4.15	3.88
Power Input(Cooling)	A35 / W18	kW	3.38	3.24
COP(Heating)	A7 / W35	W/W	4.30	4.50
	A7 / W55	W/W	3.30	3.25
	A2 / W35	W/W	3.49	3.61
EER(Cooling)	A35 / W18	W/W	3.70	3.70
SCOP(Average climate)	Water outlet 35°C	W/W	5.11	5.38
	Water outlet 55°C	W/W	3.92	3.96
Water Flow Rate	Rated(at ΔT 5°C)	ℓ/min	46.0	40.3
Running Current	Heating(Rated)	A	5.37	4.49
	Cooling(Rated)	A	4.75	4.44
Peak Control Running Current	Heating	A	10	9
	Cooling	A	10	9
Current	Current(MAX)	A	16.1	
Operation Range(Outdoor Temperature)	Cooling(Min ~ Max)	°C(DB)	5~48	
	Heating(Min ~ Max)	°C(DB)	-28~35	
Operation Range(Leaving Water)	Cooling(Min ~ Max)	°C(DB)	5~27	
	Heating(Min ~ Max)	°C(DB)	15~75	
	Domestic Hot water (Min ~ Max)	°C(DB)	15~80	

Note :

1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
5. This product contains Fluorinated greenhouse gases.
6. Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Specification

Outdoor : 3Ø

Outdoor Unit		Unit	HM123HF UB60	HM093HFX UB60
Power Supply		V, Ø, Hz	50 Hz 380-415 V3N~	
Recommended circuit breaker(ELCB)		A	16	
Connecting Cable	Power Supply Cable (H07RN-F)*Included Earth	mm ² × cores	2.5 x 5C	
Capacity(Heating)	A7 / W35	kW	12.0	9.0
	A7 / W55	kW	10.0	9.0
	A2 / W35	kW	12.0	9.0
Capacity(Cooling)	A35 / W18	kW	11.5	9.0
Power Input(Heating)	A7 / W35	kW	2.55	1.84
	A7 / W55	kW	3.23	2.81
	A2 / W35	kW	3.23	2.32
Power Input(Cooling)	A35 / W18	kW	3.04	2.31
COP(Heating)	A7 / W35	W/W	4.70	4.90
	A7 / W55	W/W	3.10	3.20
	A2 / W35	W/W	3.72	3.88
EER(Cooling)	A35 / W18	W/W	3.78	3.90
SCOP(Average climate)	Water outlet 35°C	W/W	5.45	5.23
	Water outlet 55°C	W/W	3.97	3.75
Water Flow Rate	Rated(at ΔT 5°C)	ℓ/min	34.5	25.9
Running Current	Heating(Rated)	A	3.69	2.65
	Cooling(Rated)	A	4.20	3.21
Peak Control Running Current	Heating	A	8	8
	Cooling	A	8	8
Current	Current(MAX)	A	16.1	
Operation Range(Outdoor Temperature)	Cooling(Min ~ Max)	°C(DB)	5~48	
	Heating(Min ~ Max)	°C(DB)	-28~35	
Operation Range(Leaving Water)	Cooling(Min ~ Max)	°C(DB)	5~27	
	Heating(Min ~ Max)	°C(DB)	15~75	
	Domestic Hot water (Min ~ Max)	°C(DB)	15~80	

Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Outdoor Unit		Unit	HM163HF UB60/HM143HF UB60/HM123HF UB60/HM093HF UB60
Water Pump	Type	-	Canned type for hot water circulation
	Model(Maker,Name)	-	GRUNDFOS, UPML GEO 20-105 CHBL
	Motor type	-	BLDC
	Steps of Pumping Performance	-	Variable speed 10% to 100%
	Power input(Min~Max)	W	17 ~ 152
	Power input(Rated)	W	145
	Water Flow Rate(Min)	ℓ / min	0
	Max. Head	m	11
Water Pump_2	Type	-	Canned type for hot water circulation
	Model(Maker,Name)	-	OH SUNG, ODM-061P
	Motor type	-	BLDC
	Steps of Pumping Performance	-	Variable speed 10% to 100%
	Power input(Min~Max)	W	17 ~ 152
	Power input(Rated)	W	145
	Water Flow Rate(Min)	ℓ / min	0
	Max. Head	m	11
Safety Valve(Water cycle)	Pressure Limit(Upper Limit)	bar	3.0
Flow Sensor	Type	-	Vortex
	Model(Maker,Name)	-	SIKA VVXC9SNBUC00252P
	Measuring Range(Min~Max)	ℓ/min	5 ~ 80
Water Pressure Sensor	Model(Maker,Name)	-	Sensata OFM(2HMP)
Fan	Type	-	Propeller
	Air Flow Rate(Rated)	m ³ /min x No.	110 x 1
Fan Motor	Type	-	BLDC
	Output	W x No.	250 x 1

Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

Specification

Outdoor Unit		Unit	HM163HF UB60	HM143HF UB60	HM123HF UB60	HM093HFX UB60
Compressor	Type	-	Hermetic Motor Compressor	Hermetic Motor Compressor	Hermetic Motor Compressor	Hermetic Motor Compressor
	Model x No.	-	PJQC062MAA x 1	PJQC062MAA x 1	PJQC062MAA x 1	PJQC062MAA x 1
	Piston Displacement	cm ³ /rev	61.5	61.5	61.5	61.5
	Motor Type	-	BLDC	BLDC	BLDC	BLDC
Refrigerant	Type	-	R290	R290	R290	R290
	Precharged Amount	kg	1.2	1.2	1.2	1.2
	GWP(Global Warming Potential)	-	3	3	3	3
	t-CO ₂ eq.	-	0.0036	0.0036	0.0036	0.0036
	Control Type	-	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Refrigerant Oil	Type	-	PZ68S	PZ68S	PZ68S	PZ68S
	Charged Volume	cc x No.	1200	1200	1200	1200
Heat Exchanger	Rows x Columns x FPI	-	46 x 3 x 18			
	No.	-	1	1	1	1
	Fin Type	-	Corrugate	Corrugate	Corrugate	Corrugate
Heat Exchanger (Refrigerant to Water)	Type	-	Brazed Plate HEX	Brazed Plate HEX	Brazed Plate HEX	Brazed Plate HEX
	Quantity	EA	1	1	1	1
	Number of Plate	Sheet	76	76	76	76
	Water Volume	ℓ	1	1	1	1
Water Connecting Pipes	Inlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
	Outlet	inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)	Male PT 1" according to ISO 7-1 (tapered pipe threads)
Sound Pressure Level	Heating(Rated, @1m)	dB(A)	44	43	41	41
Sound Power Level	Heating(Low Noise)	dB(A)	51	50	48	48
	Heating(Rated)	dB(A)	52	51	49	49
	Heating(Daytime max)	dB(A)	61	60	59	59
Dimensions	Net(W x H x D)	mm	1560 x 1019 x 520			
	Shipping(W x H x D)	mm	1620 x 1180 x 625			
Weight	Net	kg	181	181	181	181
	Shipping	kg	199	199	199	199
Exterior	Color of chassis	-	Dawn Gray	Dawn Gray	Dawn Gray	Dawn Gray
	RAL code of chassis	-	RL 7037	RL 7037	RL 7037	RL 7037
Max Allowable Pressure	High / Low	MPa	3.2 / 1.4	3.2 / 1.4	3.2 / 1.4	3.2 / 1.4

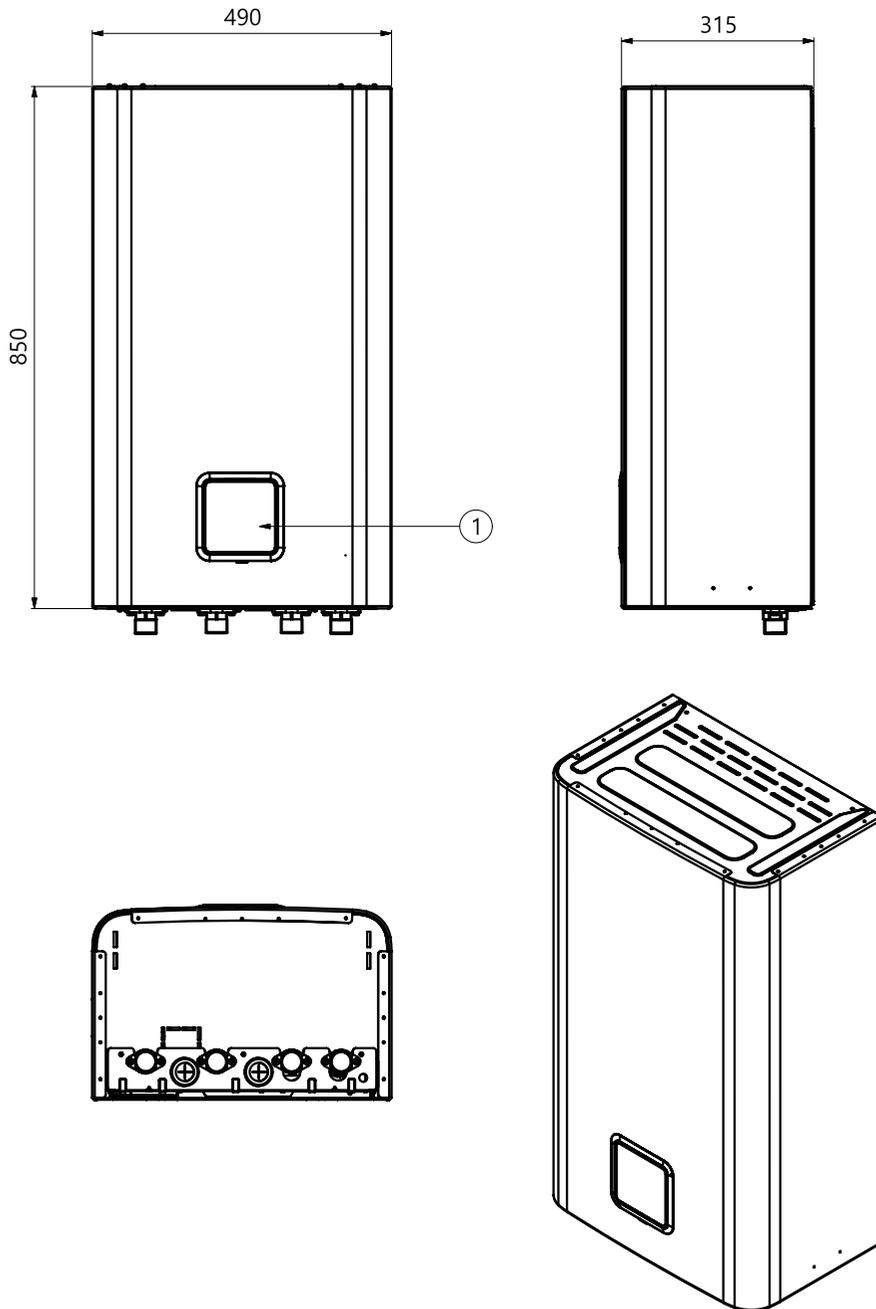
Note :

- Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound Level Values are measured at Noise Measuring chamber accordance with standard. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
- Performances are based on the following conditions :
 - Cooling : Inlet/Outlet Water Temp. 23°C/18°C, Outdoor Air Temp. 35°CDB / 24°CWB
 - Heating : Inlet/Outlet Water Temp. 30°C/35°C, Outdoor Air Temp. 7°CDB / 6°CWB
 - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is Zero.
- This product contains Fluorinated greenhouse gases.
- Sound Performances are based on the following conditions.
 - Sound Power Level : Measured according to EN14825.
 - Sound Pressure Level : Calculated value according to distance of sound power.

2. Components

Indoor unit : External

(unit : mm)

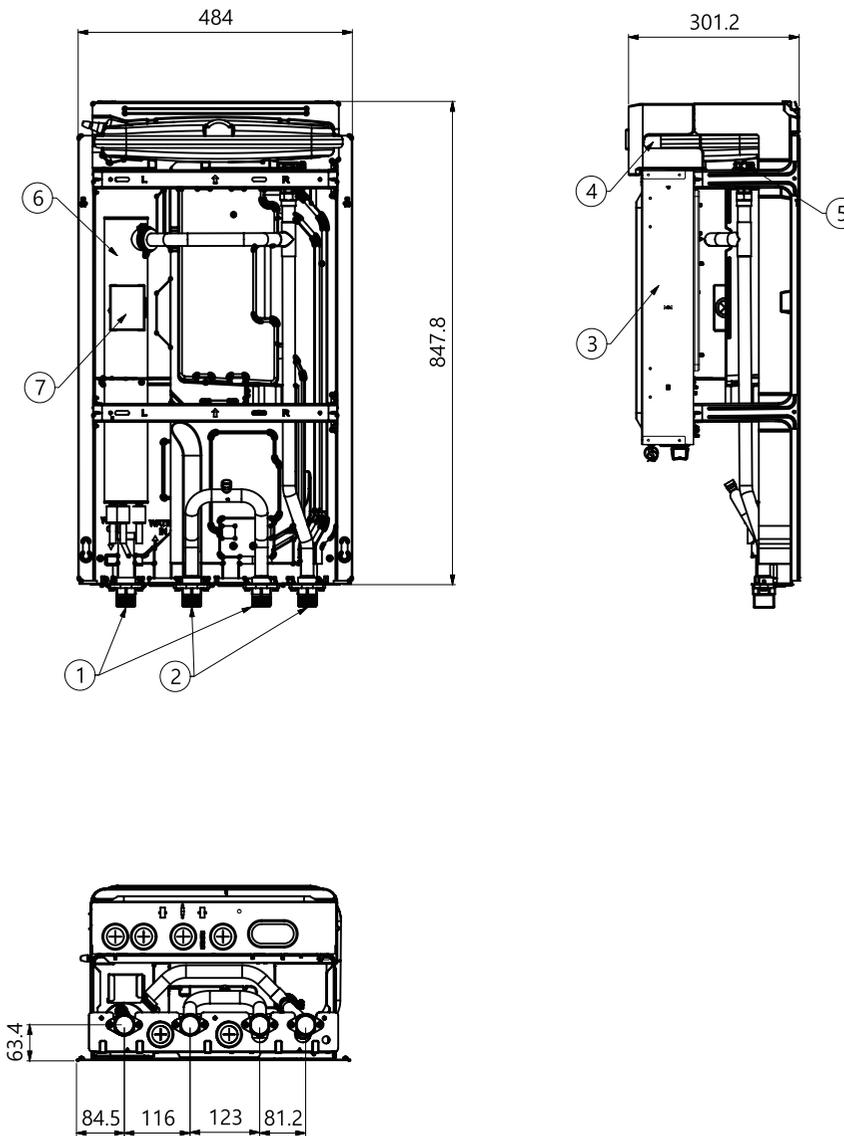


Description

No	Name	Remark
1	Control Panel	Built-in Remote Controller

Indoor unit : Internal

(unit : mm)

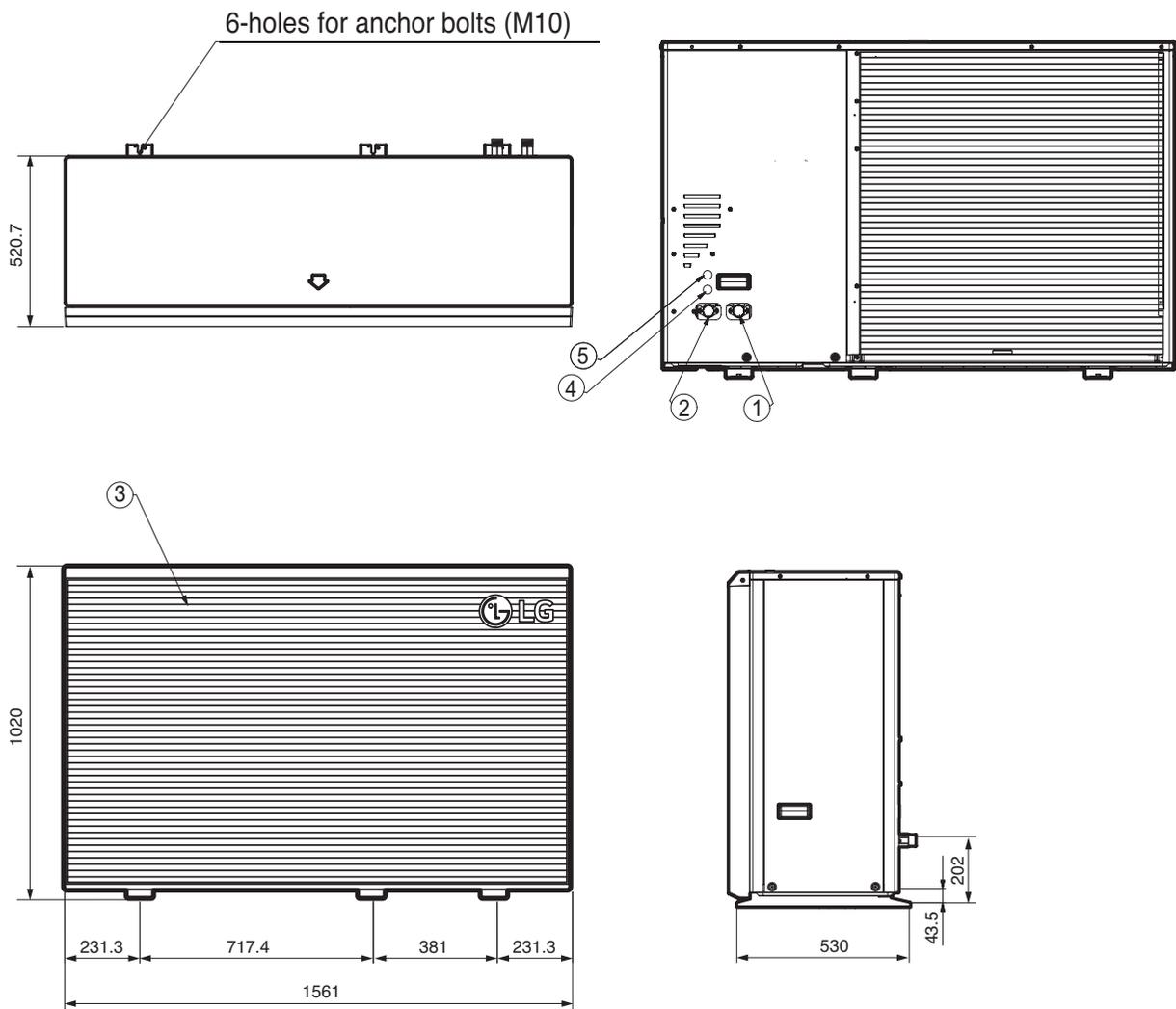


Description

No	Name	Remark
1	Leaving Water Pipe	Male PT 1 inch
2	Entering Water Pipe	Male PT 1 inch
3	Control Box	PCB and terminal blocks
4	Expansion Tank	Absorbing Volume change of heated water
5	Air Vent	Air Pumping when Charging water
6	Backup heater	Cut-off power input to backup heater at 184 °C
7	Thermal switch	Cut-off power input to backup heater at 90 °C (manual return at 55 °C)

Outdoor unit : External

(unit : mm)



Description

No	Name
1	Entering Water Pipe
2	Leaving Water Pipe
3	Air discharge Grille
4	Cable Conduit (Power)
5	Cable conduit (Communication)