2. Specification

■ 1 phase Inverter (5.5 ~ 9 kW)

Nominal Capacity and Nominal Input					ZHBW056A2 [HM051MRS UA40]	ZHBW076A2 [HM071MRS UA40]	ZHBW096A2 [HM091MRS UA40]
-	-	Outdoor Temp. (°C) DB / WB	Leaving Water Temp. (°C)	-			
Capacity	Cooling	35 / 24	18	kW	5.50	7.00	9.00
			7	kW	5.50	7.00	9.00
	Heating	7 / 6	35	kW	5.50	7.00	9.00
			55	kW	5.50	5.75	6.00
		2 / 1	35	kW	5.00	6.00	7.00
Power Input	Cooling	35 / 24	18	kW	1.17	1.51	1.96
			7	kW	1.67	2.19	3.00
	Heating	7 / 6	35	kW	1.17	1.49	1.96
			55	kW	2.04	2.13	2.22
		2 / 1	35	kW	1.39	1.69	2.00
EER	Cooling	35 / 24	18	W/W	4.70	4.65	4.60
			7	W/W	3.30	3.20	3.00
COP	Heating	7 / 6	35	W/W	4.70	4.70	4.60
			55	W/W	2.70	2.70	2.70
		2 / 1	35	W/W	3.60	3.55	3.50
SCOP (Low temp. Average Climate)*					4.46	4.48	4.55
SCOP (Medium temp. Average Climate)*					3.20	3.20	3.20
Rated Water Flow Rate (at LWT 35 °C)				LPM	15.8	20.1	25.9

Electrical Specifications			ZHBW056A2 [HM051MRS UA40]	ZHBW076A2 [HM071MRS UA40]	ZHBW096A2 [HM091MRS UA40]
Power Supply		V, Ø, Hz	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50
Peak Control Running Current		A	13.0	14.0	15.0
Rated Running Current	Cooling	A	5.1	6.5	8.5
	Heating	A	5.1	6.5	8.5
Circuit breaker		A	16	20	25
Wiring Connections	Power Supply Cable (included Earth, H07RN-F)	mm² x cores	4.0 x 3C	4.0 x 3C	4.0 x 3C

Technical Specifications				ZHBW056A2 [HM051MRS UA40]	ZHBW076A2 [HM071MRS UA40]	ZHBW096A2 [HM091MRS UA40]
Sound Power Level	Heating	Day Max.	dB(A)	63	64	64
		Rated	dB(A)	57	57	57
		Low noise	dB(A)	54	55	55
Dimensions	Unit	W × H × D	mm	1,242 × 853 × 391	1,242 × 853 × 391	1,242 × 853 × 391
	Packed Unit	W × H × D	mm	1,330 × 1017 × 480	1,330 × 1017 × 480	1,330 × 1017 × 480
Weight	Unit		kg	94	94	94
	Packed Unit		kg	108	108	108
Exterior	Color		-	Dawn Gray	Dawn Gray	Dawn Gray
	RAL Code		-	RAL 7037	RAL 7037	RAL 7037
	Color of Front Grille		-	Dark dawn gray	Dark dawn gray	Dark dawn gray
	RAL Code of Front Grille		-	RAL 7012	RAL 7012	RAL 7012

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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

2. Specification

Technical Specifications (Water side)				ZHBW056A2 [HM051MRS UA40]	ZHBW076A2 [HM071MRS UA40]	ZHBW096A2 [HM091MRS UA40]
Operation Range (Leaving Water Temp.)	Cooling	Min. ~ Max.	°C	5 ~ 27	5 ~ 27	5 ~ 27
	Heating	Min. ~ Max.	°C	15 ~ 65	15 ~ 65	15 ~ 65
	DHW *	Min. ~ Max.	°C	15 ~ 80	15 ~ 80	15 ~ 80
Water Pump***	Type		-	Canned type for hot water circulation		
	Model		-	UPM3K 20-75 CHBL / GRUNDFOS		
	Model Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	3 / 57	3 / 60	3 / 60
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 15.8	0 / 20.1	0 / 25.9
Water Pump_2***	Type		-	Canned type for hot water circulation		
	Model		-	ODM-061P / OH SUNG		
	Motor Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	17 / 91.0 (55**)	17 / 98.0 (60**)	17 / 110.0 (65**)
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 15.8	0 / 20.1	0 / 25.9
Heat Exchanger	Type		-	Brazed Plate HEX		
	Quantity		-	1	1	1
	Number of Plate		EA	52	52	52
	Water Volume		ℓ	0.7	0.7	0.7
Expansion Vessel	Volume	Max.	ℓ	8	8	8
	Water pressure	Max.	bar	3.2	3.2	3.2
		Pre-charged	bar	1	1	1
Flow Sensor****	Model			SIKA VVX20		
	Measuring range	Min. ~ Max.	ℓ/min	5~80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	5	5	5
Flow Sensor_2****	Model		-	SEBA LGF-080-C20-E-C0.5V		
	Measuring range	Min. ~ Max.	ℓ/min	5~80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	5	5	5
Water Pressure sensor	Model		-	Sensata OFM(2HMP)		
	Measuring range	Min. ~ Max.	bar(G)	0 ~ 20	0 ~ 20	0 ~ 20
Piping Connections	Inlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
	Outlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
Water strainer	Supply type		-	Loose supply(externally installed)		
	Mesh size		-	30 mesh	30 mesh	30 mesh
	Max. particle size		mm	0.6	0.6	0.6
	Material		-	Stainless Steel		
Relief Valve	Pressure Limit	Upper Limit	bar	3.0	3.0	3.0
Devices for Water Circuit			-	Relief valve / Flow Sensor		
			-	Drain hose		
			-	Pressure Sensor / Air vent		

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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

*** In the case of integrated water pump, either water pump or water pump 2 will be applied.

**** In the case of integrated flow sensor, either flow sensor or flow sensor 2 will be applied.

2. Specification

Technical Specifications (Refrigerant side)				ZHBW056A2 [HM051MRS UA40]	ZHBW076A2 [HM071MRS UA40]	ZHBW096A2 [HM091MRS UA40]
Operation Range (Outdoor Temp.)	Cooling#	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°C DB	-25 ~ 35	-25 ~ 35	-25 ~ 35
Compressor	Type		-	Hermetic Sealed Scroll		
	Model		Model × No.	RJB036MAA × 1		
	Motor Type		-	BLDC		
	Displacement		cm³/Rev.	31.6	31.6	31.6
Refrigerant	Type		-	R32	R32	R32
	GWP (Global Warming Potential)		-	675.0	675.0	675.0
	Precharged Amount		g	1,400	1,400	1,400
	t-CO2 eq.		-	0.945	0.945	0.945
	Control		-	Electronic Expansion Valve		
Refrigerant Oil	Type		-	FW68D		
	Charged Volume		cc × No.	1,100	1,100	1,100
Heat Exchanger	Type			Fin & Tube	Fin & Tube	Fin & Tube
	Quantity			1	1	1
	Specification	Row	EA	38	38	38
		Column	EA	2	2	2
		FPI	EA	18	18	18
Fan	Type		-	Propeller		
	Air Flow Rate	Rated	m³/min × No.	60.0 × 1	60.0 × 1	60.0 × 1
Fan Motor	Type		-	BLDC		
	Output		W × No.	124 × 1	124 × 1	124 × 1

Note

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3. Sound power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

This operation range includes not only the continuous operation range but also operative range.

2. Specification

■ 1 phase Inverter (12 ~ 16 kW)

Nominal Capacity and Nominal Input					ZHBW126A2 [HM121MRS UB40]	ZHBW146A2 [HM141MRS UB40]	ZHBW166A2 [HM161MRS UB40]
-	-	Outdoor Temp. (°C) DB / WB	Leaving Water Temp. (°C)	-			
Capacity	Cooling	35 / 24	18	kW	12.00	14.00	16.00
			7	kW	12.00	14.00	15.00
	Heating	7 / 6	35	kW	12.00	14.00	16.00
			55	kW	11.00	11.50	12.00
		2 / 1	35	kW	11.00	12.00	13.80
Power Input	Cooling	35 / 24	18	kW	2.50	2.98	3.48
			7	kW	3.75	4.52	5.00
	Heating	7 / 6	35	kW	2.45	2.92	3.40
			55	kW	3.79	4.04	4.29
		2 / 1	35	kW	3.06	3.38	3.94
EER	Cooling	35 / 24	18	W/W	4.80	4.70	4.60
			7	W/W	3.20	3.10	3.00
COP	Heating	7 / 6	35	W/W	4.90	4.80	4.70
			55	W/W	2.90	2.85	2.80
		2 / 1	35	W/W	3.60	3.55	3.50
SCOP (Low temp. Average Climate)*					4.67	4.62	4.53
SCOP ((Medium temp. Average Climate)*					3.47	3.46	3.45
Rated Water Flow Rate (at LWT 35 ºC)				LPM	34.5	40.3	46.0

Electrical Specifications			ZHBW126A2 [HM121MRS UB40]	ZHBW146A2 [HM141MRS UB40]	ZHBW166A2 [HM161MRS UB40]
Power Supply		V, Ø, Hz	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50
Peak Control Running Current		A	23.0	24.0	25.0
Rated Running Current	Cooling	A	10.6	12.7	14.8
	Heating	A	10.9	13.0	15.1
Circuit breaker		A	40	40	40
Wiring Connections	Power Supply Cable (included Earth, H07RN-F)	mm² x cores	6.0 x 3C	6.0 x 3C	6.0 x 3C

Technical Specifications				ZHBW126A2 [HM121MRS UB40]	ZHBW146A2 [HM141MRS UB40]	ZHBW166A2 [HM161MRS UB40]
Sound Power Level	Heating	Day Max.	dB(A)	65	66	66
		Rated	dB(A)	60	61	61
		Low noise	dB(A)	56	57	57
Dimensions	Unit	W x H x D	mm	1,320 x 1,019 x 520	1,320 x 1,019 x 520	1,320 x 1,019 x 520
	Packed Unit	W x H x D	mm	1,380 x 1,200 x 575	1,380 x 1,200 x 575	1,380 x 1,200 x 575
Weight	Unit		kg	117.0	117.0	117.0
	Packed Unit		kg	134.0	134.0	134.0
Exterior	Color		-	Dawn Gray	Dawn Gray	Dawn Gray
	RAL Code		-	RAL 7037	RAL 7037	RAL 7037
	Color of Front Grille		-	Dark dawn gray	Dark dawn gray	Dark dawn gray
	RAL Code of Front Grille		-	RAL 7012	RAL 7012	RAL 7012

Note

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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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

2. Specification

Technical Specifications (Water side)				ZHBW126A2 [HM121MRS UB40]	ZHBW146A2 [HM141MRS UB40]	ZHBW166A2 [HM161MRS UB40]
Operation Range (Leaving Water Temp.)	Cooling	Min. ~ Max.	°C	5 ~ 27	5 ~ 27	5 ~ 27
	Heating	Min. ~ Max.	°C	15 ~ 65	15 ~ 65	15 ~ 65
	DHW *	Min. ~ Max.	°C	15 ~ 80	15 ~ 80	15 ~ 80
Water Pump***	Type		-	Canned type for hot water circulation		
	Model		-	UPML 20-105 CHBL / GRUNDFOS		
	Motor Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	3.5 / 125	3.5 / 135	3.5 / 140
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 34.5	0 / 40.3	0 / 46.0
Water Pump_2***	Type		-	Canned type for hot water circulation		
	Model		-	ODM-061P / OH SUNG		
	Motor Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	17 / 130	17 / 140	17 / 145
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 34.5	0 / 40.3	0 / 46.0
Heat Exchanger	Type		-	Brazed Plate HEX		
	Quantity		-	1	1	1
	Number of Plate		EA	76	76	76
	Water Volume		ℓ	1.0	1.0	1.0
Expansion Vessel	Volume	Max.	ℓ	8	8	8
	Water pressure	Max.	bar	3.2	3.2	3.2
		Pre-charged	bar	1	1	1
Flow Sensor****	Model		-	SIKA VVX20		
	Measuring range	Min. ~ Max.	ℓ/min	5~80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	10	10	10
Flow Sensor_2****	Model		-	SEBA LGF-080-C20-E-C0.5V		
	Measuring range	Min. ~ Max.	ℓ/min	5~80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	5	5	5
Water Pressure sensor	Model		-	Sensata OFM(2HMP)		
	Measuring range	Min. ~ Max.	bar(G)	0 ~ 20	0 ~ 20	0 ~ 20
Piping Connections	Inlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
	Outlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
Water strainer	Supply type		-	Loose supply(externally installed)		
	Mesh size		-	30 mesh	30 mesh	30 mesh
	Max. particle size		mm	0.6	0.6	0.6
	Material		-	Stainless Steel		
Relief Valve	Pressure Limit	Upper Limit	bar	3.0	3.0	3.0
Devices for Water Circuit			-	Relief valve / Flow Sensor		
			-	Drain hose		
			-	Pressure Sensor / Air vent		

Note

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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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

*** In the case of integrated water pump, either water pump or water pump 2 will be applied.

**** In the case of integrated flow sensor, either flow sensor or flow sensor 2 will be applied.

2. Specification

Technical Specifications (Refrigerant side)				ZHBW126A2 [HM121MRS UB40]	ZHBW146A2 [HM141MRS UB40]	ZHBW166A2 [HM161MRS UB40]
Operation Range (Outdoor Temp.)	Cooling#	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°C DB	-25 ~ 35	-25 ~ 35	-25 ~ 35
Compressor	Type		-	Hermetic Sealed Scroll		
	Model		Model × No.	RJB036MAA × 1		
	Motor Type		-	BLDC		
	Displacement		cm³/Rev.	31.6	31.6	31.6
Refrigerant	Type		-	R32	R32	R32
	GWP (Global Warming Potential)		-	675.0	675.0	675.0
	Precharged Amount		g	1,600	1,600	1,600
	t-CO2 eq.		-	1,080	1,080	1,080
	Control		-	Electronic Expansion Valve		
Refrigerant Oil	Type		-	FW68D		
	Charged Volume		cc × No.	1,100	1,100	1,100
Heat Exchanger	Type			Fin & Tube	Fin & Tube	Fin & Tube
	Quantity			1	1	1
	Specification	Row	EA	46	46	46
		Column	EA	2	2	2
		FPI	EA	18	18	18
Fan	Type		-	Propeller		
	Air Flow Rate	Rated	m³/min × No.	100.0 x 1	100.0 x 1	100.0 x 1
Fan Motor	Type		-	BLDC	BLDC	BLDC
	Output		W × No.	250 x 1	250 x 1	250 x 1

Note

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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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

This operation range includes not only the continuous operation range but also operative range.

2. Specification

■ 3 phase Inverter (12 ~ 16 kW)

Nominal Capacity and Nominal Input					ZHBW128A2 [HM123MRS UB40]	ZHBW148A2 [HM143MRS UB40]	ZHBW168A2 [HM163MRS UB40]
-	-	Outdoor Temp (°C) DB / WB	Leaving Water Temp (°C)	-			
Capacity	Cooling	35 / 24	18	kW	12.00	14.00	16.00
			7	kW	12.00	14.00	15.00
	Heating	7 / 6	35	kW	12.00	14.00	16.00
			55	kW	11.00	11.50	12.00
		2 / 1	35	kW	11.00	12.00	13.80
Power Input	Cooling	35 / 24	18	kW	2.50	2.98	3.48
			7	kW	3.75	4.52	5.00
	Heating	7 / 6	35	kW	2.45	2.92	3.40
			55	kW	3.79	4.04	4.29
		2 / 1	35	kW	3.06	3.38	3.94
EER	Cooling	35 / 24	18	W/W	4.80	4.70	4.60
			7	W/W	3.20	3.10	3.00
COP	Heating	7 / 6	35	W/W	4.90	4.80	4.70
			55	W/W	2.90	2.85	2.80
		2 / 1	35	W/W	3.60	3.55	3.50
SCOP (Low temp. Average Climate)*					4.67	4.62	4.53
SCOP ((Medium temp. Average Climate)*					3.47	3.46	3.45
Rated Water Flow Rate (at LWT 35 ºC)				LPM	34.5	40.3	46.0

Electrical Specifications			ZHBW128A2 [HM123MRS UB40]	ZHBW148A2 [HM143MRS UB40]	ZHBW168A2 [HM163MRS UB40]
Power Supply		V, Ø, Hz	380-415, 3, 50	380-415, 3, 50	380-415, 3, 50
Peak Control Running Current		A	8.0	9.0	10.0
Rated Running Current	Cooling	A	3.5	4.2	4.9
	Heating	A	3.6	4.3	5.0
Circuit breaker		A	16	16	16
Wiring Connections	Power Supply Cable (included Earth, H07RN-F)	mm² x cores	4.0 x 5C	4.0 x 5C	4.0 x 5C

Technical Specifications				ZHBW128A2 [HM123MRS UB40]	ZHBW148A2 [HM143MRS UB40]	ZHBW168A2 [HM163MRS UB40]
Sound Power Level	Heating	Day Max.	dB(A)	65	66	66
		Rated	dB(A)	60	61	61
		Low noise	dB(A)	56	57	57
Dimensions	Unit	W × H × D	mm	1,320 x 1,019 x 520	1,320 x 1,019 x 520	1,320 x 1,019 x 520
	Packed Unit	W × H × D	mm	1,380 x 1,200 x 575	1,380 x 1,200 x 575	1,380 x 1,200 x 575
Weight	Unit		kg	117.0	117.0	117.0
	Packed Unit		kg	134.0	134.0	134.0
Exterior	Color		-	Dawn Gray	Dawn Gray	Dawn Gray
	RAL Code		-	RAL 7037	RAL 7037	RAL 7037
	Color of Front Grille		-	Dark dawn gray	Dark dawn gray	Dark dawn gray
	RAL Code of Front Grille		-	RAL 7012	RAL 7012	RAL 7012

Note

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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 power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

2. Specification

Technical Specifications (Water side)				ZHBW128A2 [HM123MRS UB40]	ZHBW148A2 [HM143MRS UB40]	ZHBW168A2 [HM163MRS UB40]
Operation Range (Leaving Water Temp.)	Cooling	Min. ~ Max.	°C	5 ~ 27	5 ~ 27	5 ~ 27
	Heating	Min. ~ Max.	°C	15 ~ 65	15 ~ 65	15 ~ 65
	DHW *	Min. ~ Max.	°C	15 ~ 80	15 ~ 80	15 ~ 80
Water Pump***	Type		-	Canned type for hot water circulation		
	Model		-	UPML 20-105 CHBL / GRUNDFOS		
	Motor Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	3.5 / 125	3.5 / 135	3.5 / 140
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 34.5	0 / 40.3	0 / 46.0
Water Pump_2***	Type		-	Canned type for hot water circulation		
	Model		-	ODM-061P / OH SUNG		
	Motor Type		-	BLDC		
	Steps of Pumping Performance		-	Variable speed 10% to 100%		
	Power input (100% Capacity)	Min. / Rated	W	17 / 130	17 / 140	17 / 145
	Water Flow Rate	Min. / Rated	ℓ/min	0 / 34.5	0 / 40.3	0 / 46.0
Heat Exchanger	Type		-	Brazed Plate HEX		
	Quantity		-	1	1	1
	Number of Plate		EA	76	76	76
	Water Volume		ℓ	1.0	1.0	1.0
Expansion Vessel	Volume	Max.	ℓ	8	8	8
	Water pressure	Max.	bar	3.2	3.2	3.2
		Pre-charged	bar	1	1	1
Flow Sensor****	Model		-	SIKA VVX20		
	Measuring range	Min. ~ Max.	ℓ/min	5 ~ 80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	10	10	10
Flow Sensor_2****	Model		-	SEBA LGF-080-C20-E-C0.5V		
	Measuring range	Min. ~ Max.	ℓ/min	5~80	5~80	5~80
	Flow (Trigger point)	Min.	ℓ/min	10	10	10
Water Pressure sensor	Model		-	Sensata OFM(2HMP)		
	Measuring range	Min. ~ Max.	bar(G)	0 ~ 20	0~20	0~20
Piping Connections	Inlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
	Outlet		inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
Water strainer	Supply type		-	Loose supply(externally installed)		
	Mesh size		-	30 mesh	30 mesh	30 mesh
	Max. particle size		mm	0.6	0.6	0.6
	Material		-	Stainless Steel	Stainless Steel	Stainless Steel
Relief Valve	Pressure Limit	Upper Limit	bar	3.0	3.0	3.0
Devices for Water Circuit			-	Relief valve / Flow Sensor		
			-	Drain hose		
			-	Pressure Sensor / Air vent		

Note

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3. Sound power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

*** In the case of integrated water pump, either water pump or water pump 2 will be applied.

**** In the case of integrated flow sensor, either flow sensor or flow sensor 2 will be applied.

2. Specification

Technical Specifications (Refrigerant side)				ZHBW128A2 [HM123MRS UB40]	ZHBW148A2 [HM143MRS UB40]	ZHBW168A2 [HM163MRS UB40]
Operation Range (Outdoor Temp.)	Cooling#	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°C DB	-25 ~ 35	-25 ~ 35	-25 ~ 35
Compressor	Type		-	Hermetic Sealed Scroll		
	Model		Model × No.	RJB036MAA × 1		
	Motor Type		-	BLDC	BLDC	BLDC
	Displacement		cm^3/Rev.	31.6	31.6	31.6
Refrigerant	Type		-	R32	R32	R32
	GWP (Global Warming Potential)		-	675.0	675.0	675.0
	Precharged Amount		g	1,600	1,600	1,600
	t-CO2 eq.		-	1,080	1,080	1,080
	Control		-	Electronic Expansion Valve		
Refrigerant Oil	Type		-	FW68D	FW68D	FW68D
	Charged Volume		cc × No.	1,100	1,100	1,100
Heat Exchanger	Type			Fin & Tube	Fin & Tube	Fin & Tube
	Quantity			1	1	1
	Specification	Row	EA	46	46	46
		Column	EA	2	2	2
		FPI	EA	18	18	18
Fan	Type		-	Propeller	Propeller	Propeller
	Air Flow Rate	Rated	m^3/min × No.	100.0 x 1	100.0 x 1	100.0 x 1
Fan Motor	Type		-	BLDC	BLDC	BLDC
	Output		W × No.	250 x 1	250 x 1	250 x 1

Note

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3. Sound power level is measured in accordance with EN 12102-1 and ISO 9614.
   - Rated : This mode is measured on the rated condition in the semi-anechoic rooms. Therefore, these values may vary depending on operation conditions.
   - Daytime max : This mode is measured based on max. fan RPM and max. compressor Hz. that can be reached under outdoor air temperature 2°C.
   - Low noise : This mode lowers noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. The values indicated above are the declared values at rated conditions acc. ErP regulation. For max. capacities, please refer to Performance Data.
5. This product contains Fluorinated greenhouse gases.
6. SCOP is in accordance with EN14825.
7. Rated running currents are based on the declared values under the following conditions.
   - Heating : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35℃
   - Cooling : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
8. All installation sites must be equipped with an earth leakage circuit breaker (ELCB).

* DHW 55~80°C Operating is available only when the booster heater is operating.

** This is the power input i accordance with the 80% pump capacity setting at rated water flow rate. When the OH SUNG pump is set as 80% capacity, it’s head is similar to that of the GRUNDFOS pump at rated water flow rate.

This operation range includes not only the continuous operation range but also operative range.