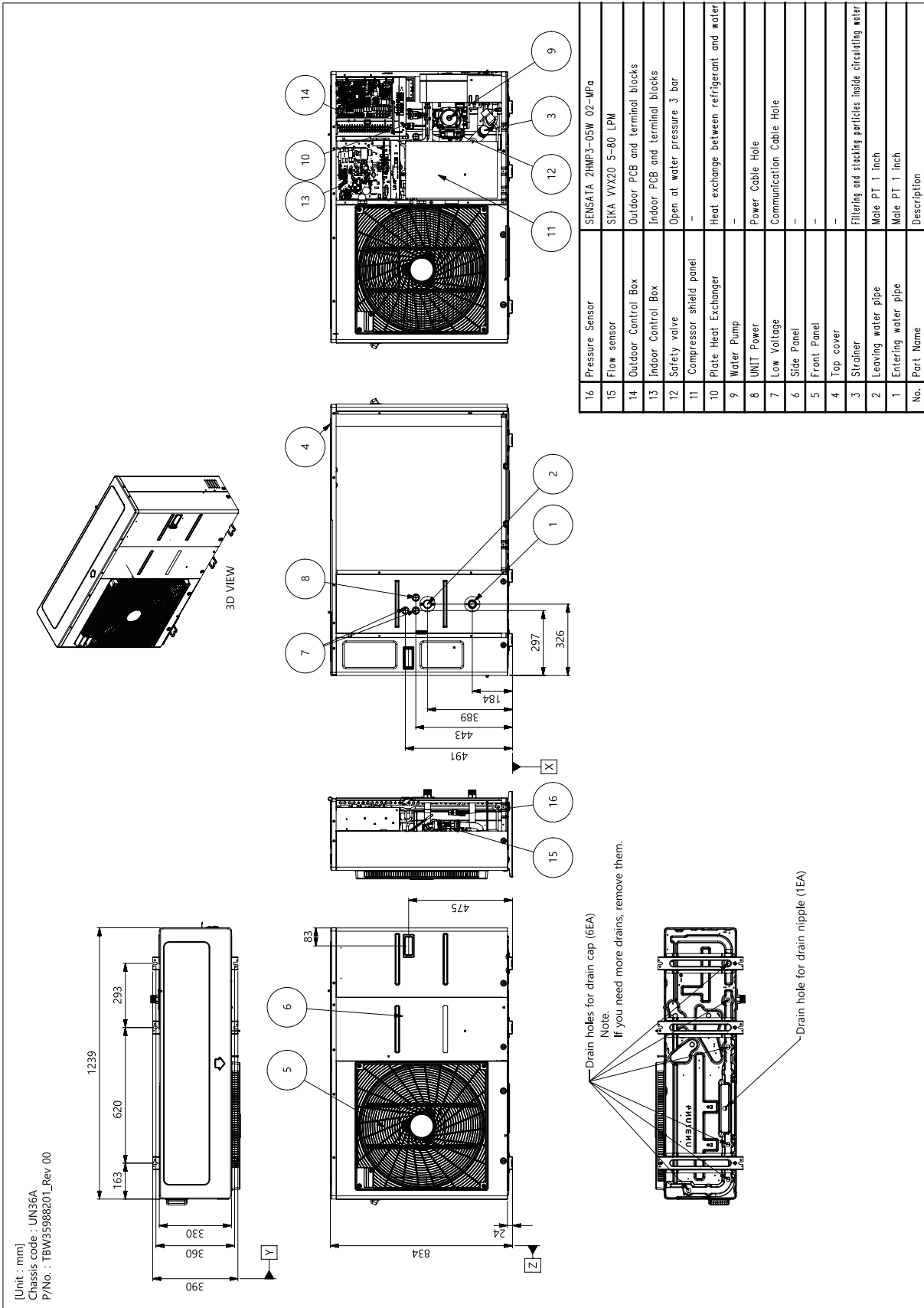


3. Dimensions

Product

◆ ZHBW056A1 [HM051MR U44] / ZHBW076A1 [HM071MR U44] / ZHBW096A1 [HM091MR U44] / ZHBW098A1 [HM093MR U44]



2. Specification

■ 1 phase Inverter (5.5 ~ 9 kW)

| Nominal Capacity and Nominal Input | | | | | ZHBW056A1 [HM051MR U44] | ZHBW076A1 [HM071MR U44] | ZHBW096A1 [HM091MR U44] |
|--------------------------------------|---------|-------------------------------|--------------------------|-----|----------------------------|----------------------------|----------------------------|
| - | - | 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 | 5.50 | 5.50 |
| | | 2 / 1 | 35 | kW | 4.40 | 5.60 | 6.80 |
| Power Input | Cooling | 35 / 24 | 18 | kW | 1.17 | 1.56 | 2.14 |
| | | | 7 | kW | 1.67 | 2.19 | 2.90 |
| | Heating | 7 / 6 | 35 | kW | 1.17 | 1.49 | 1.96 |
| | | | 55 | kW | 2.04 | 2.04 | 2.04 |
| | | 2 / 1 | 35 | kW | 1.22 | 1.58 | 1.94 |
| EER | Cooling | 35 / 24 | 18 | W/W | 4.70 | 4.50 | 4.20 |
| | | | 7 | W/W | 3.30 | 3.20 | 3.10 |
| 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 |
| 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 | | | ZHBW056A1 [HM051MR U44] | ZHBW076A1 [HM071MR U44] | ZHBW096A1 [HM091MR U44] |
|------------------------------|--|-------------------------|----------------------------|----------------------------|----------------------------|
| 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 | 5.2 | 6.9 | 9.5 |
| | Heating | A | 5.2 | 6.6 | 8.7 |
| Circuit breaker | A | | 16 | 20 | 25 |
| Wiring Connections | Power Supply Cable (included Earth, H07RN-F) | mm ² x cores | 4.0 x 3C | 4.0 x 3C | 4.0 x 3C |

| Technical Specifications | | | | ZHBW056A1 [HM051MR U44] | ZHBW076A1 [HM071MR U44] | ZHBW096A1 [HM091MR U44] |
|--------------------------|-------------|-----------|-------|----------------------------|----------------------------|----------------------------|
| 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 x H x D | mm | 1,239 x 834 x 330 | 1,239 x 834 x 330 | 1,239 x 834 x 330 |
| | Packed Unit | W x H x D | mm | 1,364 x 985 x 461 | 1,364 x 985 x 461 | 1,364 x 985 x 461 |
| Weight | Unit | | kg | 89.5 | 89.5 | 89.5 |
| | Packed Unit | | kg | 100.5 | 100.5 | 100.5 |
| Exterior | Color | | - | Warm Gray | Warm Gray | Warm Gray |
| | RAL Code | | - | RAL 7044 | RAL 7044 | RAL 7044 |

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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35 °C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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) | | | | ZHBW056A1 [HM051MR U44] | ZHBW076A1 [HM071MR U44] | ZHBW096A1 [HM091MR U44] |
|--|--------------------------------|---|--------|----------------------------|----------------------------|----------------------------|
| 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 | | | | |
| | Number of Plate | EA 52 | | | | |
| | Water Volume | ℓ 0.7 | | | | |
| | Water Flow Rate | Min. / Rated | ℓ/min | 13 ~ 70 | 13 ~ 70 | 13 ~ 70 |
| Expansion Vessel | Volume | Max. | ℓ | 8 | 8 | 8 |
| | | Max. | bar | 3 | 3 | 3 |
| | Water pressure | 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 | 7 | 7 | 7 |
| 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) | | | | |
| Strainer | 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

- 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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35°C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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 (Refrigerant side) | | | | ZHBW056A1 [HM051MR U44] | ZHBW076A1 [HM071MR U44] | ZHBW096A1 [HM091MR U44] |
|---|-----------------------------------|----------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| 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 | cm ³ /Rev. | 31.6 | 31.6 | 31.6 | |
| Refrigerant | Type | 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 | | | | |
| | Quantity | 1 | | | | |
| | Specification | Row | EA | 38 | 38 | 38 |
| | | Column | EA | 2 | 2 | 2 |
| FPI | | EA | 18 | 18 | 18 | |
| Fan | Type | Propeller | | | | |
| | Air Flow Rate | Rated | m ³ /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

- 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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35°C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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 in 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

■ 3 phase Inverter (9 ~ 16 kW)

| Nominal Capacity and Nominal Input | | | | | ZHBW098A1 [HM093MR U44] | ZHBW128A1 [HM123MR U34] | |
|---------------------------------------|-------------|--|-------------------------|-------------------------|-------------------------|-------------------------|------|
| - | - | Outdoor Temp (°C) DB / WB | Leaving Water Temp (°C) | - | | | |
| Capacity | Cooling | 35 / 24 | 18 | kW | 9.00 | 12.00 | |
| | | | 7 | kW | 9.00 | 12.00 | |
| | Heating | 7 / 6 | 35 | kW | 9.00 | 12.00 | |
| | | | 55 | kW | 5.50 | 11.00 | |
| | | 2 / 1 | 35 | kW | 6.80 | 11.00 | |
| Power Input | Cooling | 35 / 24 | 18 | kW | 2.14 | 2.53 | |
| | | | 7 | kW | 2.90 | 3.64 | |
| | Heating | 7 / 6 | 35 | kW | 1.96 | 2.45 | |
| | | | 55 | kW | 2.04 | 3.79 | |
| | | | 2 / 1 | 35 | kW | 1.94 | 3.01 |
| | EER | Cooling | 35 / 24 | 18 | W/W | 4.20 | 4.75 |
| 7 | | | | W/W | 3.10 | 3.30 | |
| COP | Heating | 7 / 6 | 35 | W/W | 4.60 | 4.90 | |
| | | | 55 | W/W | 2.70 | 2.90 | |
| | | 2 / 1 | 35 | W/W | 3.50 | 3.65 | |
| SCOP (Low temp. Average Climate)* | | | | | 4.55 | 4.67 | |
| SCOP ((Medium temp. Average Climate)* | | | | | 3.20 | 3.47 | |
| Rated Water Flow Rate (at LWT 35 °C) | | | | LPM | 25.9 | 34.5 | |
| Electrical Specifications | | | | | ZHBW098A1 [HM093MR U44] | ZHBW128A1 [HM123MR U34] | |
| Power Supply | | | | V, Ø, Hz | 380-415, 3, 50 | 380-415, 3, 50 | |
| Peak Control Running Current | | | | A | 8.0 | 8.0 | |
| Rated Running Current | Cooling | | | A | 3.2 | 3.7 | |
| | Heating | | | A | 2.9 | 3.6 | |
| Circuit breaker | | | | A | 16 | 16 | |
| Wiring Connections | | Power Supply Cable (included Earth, H07RN-F) | | mm ² x cores | 2.5 x 5C | 4.0 x 5C | |
| Technical Specifications | | | | | ZHBW098A1 [HM093MR U44] | ZHBW128A1 [HM123MR U34] | |
| Sound Power Level | Heating | Day Max. | dB(A) | 64 | 65 | | |
| | | Rated | dB(A) | 57 | 60 | | |
| | | Low noise | dB(A) | 55 | 56 | | |
| Dimensions | Unit | W x H x D | mm | 1,239 x 834 x 330 | 1,239 x 1,380 x 330 | | |
| | Packed Unit | W x H x D | mm | 1,364 x 985 x 461 | 1,364 x 1,532 x 461 | | |
| Weight | Unit | | kg | 90.0 | 119.1 | | |
| | Packed Unit | | kg | 101.0 | 134.1 | | |
| Exterior | Color | | - | Warm Gray | Warm Gray | | |
| | RAL Code | | - | RAL 7044 | RAL 7044 | | |

Note

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- 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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35°C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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) | | | | ZHBW098A1 [HM093MR U44] | ZHBW128A1 [HM123MR U34] |
|--|--------------------------------|--------------|--------|--|-----------------------------|
| Operation Range (Leaving Water Temp.) | Cooling | Min. ~ Max. | °C | 5 ~ 27 | 5 ~ 27 |
| | Heating | Min. ~ Max. | °C | 15 ~ 65 | 15 ~ 65 |
| | DHW * | Min. ~ Max. | °C | 15 ~ 80 | 15 ~ 80 |
| Water Pump | Type | | | Canned type for hot water circulation | |
| | Model | | | UPM3K 20-75 CHBL / GRUNDFOS | UPML 20-105 CHBL / GRUNDFOS |
| | Motor Type | | | BLDC | |
| | Steps of Pumping Performance | | | Variable speed 10% to 100% | |
| | Power input (100% Capacity) | Min. / Rated | W | 3.0 / 60 | 3.5 / 125 |
| | Water Flow Rate | Min. / Rated | ℓ/min | 0 / 25.9 | 0 / 34.5 |
| 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 / 110.0 (65**) | 17 / 130 |
| | Water Flow Rate | Min. / Rated | ℓ/min | 0 / 25.9 | 0 / 34.5 |
| Heat Exchanger | Type | | | Brazed Plate HEX | |
| | Quantity | | | 1 | 1 |
| | Number of Plate | EA | | 52 | 76 |
| | Water Volume | ℓ | | 0.7 | 1.0 |
| | Water Flow Rate | Min. / Rated | ℓ/min | 13 ~ 70 | 13 ~ 70 |
| Expansion Vessel | Volume | Max. | ℓ | 8 | 8 |
| | | Max. | bar | 3 | 3 |
| | Pre-charged | bar | 1 | 1 | |
| Flow Sensor | Model | | | SIKA VVX20 | |
| | Measuring range | Min. ~ Max. | ℓ/min | 5 ~ 80 | 5 ~ 80 |
| | Flow (Trigger point) | Min. | ℓ/min | 7 | 15 |
| Water Pressure sensor | Model | | | Sensata OFM(2HMP) | |
| | Measuring range | Min. ~ Max. | bar(G) | 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) | |
| Strainer | Mesh size | | | 30 mesh | 30 mesh |
| | Max. particle size | mm | | 0.6 | 0.6 |
| | Material | | | Stainless Steel | Stainless Steel |
| Relief Valve | Pressure Limit | Upper Limit | bar | 3.0 | 3.0 |
| Devices for Water Circuit | | | | Relief valve / Flow Sensor | Relief valve / Flow Sensor |
| | | | | Drain hose | Drain hose |
| | | | | Pressure Sensor / Air vent | Pressure Sensor / Air vent |

Note

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- 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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35°C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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 (Refrigerant side) | | | | ZHBW098A1 [HM093MR U44] | ZHBW128A1 [HM123MR U34] | |
|---|-----------------------------------|-----------------------|---------------------------|----------------------------|----------------------------|----|
| Operation Range (Outdoor Temp.) | Cooling | Min. ~ Max. | °C DB | 5 ~ 48 | 5 ~ 48 | |
| | Heating | Min. ~ Max. | °C DB | -25 ~ 35 | -25 ~ 35 | |
| Compressor | Type | | | Hermetic Sealed Scroll | Hermetic Sealed Scroll | |
| | Model | Model × No. | | RJB036MAA × 1 | RJB036MAA × 1 | |
| | Motor Type | | | BLDC | BLDC | |
| | Displacement | cm ³ /Rev. | | 31.6 | 31.6 | |
| Refrigerant | Type | | | R32 | R32 | |
| | GWP (Global Warming Potential) | | | 675.0 | 675.0 | |
| | Precharged Amount | g | | 1,400 | 2,000 | |
| | t-CO ₂ eq. | | | 0.945 | 1.350 | |
| | Control | | | Electronic Expansion Valve | Electronic Expansion Valve | |
| Refrigerant Oil | Type | | | FW68D | FW68D | |
| | Charged Volume | cc × No. | | 1,100 | 1,100 | |
| Heat Exchanger | Type | | | Fin & Tube | Fin & Tube | |
| | Quantity | | | 1 | 2 | |
| | Specification | Row | EA | | 38 | 32 |
| | | Column | EA | | 2 | 2 |
| | FPI | EA | | 18 | 18 | |
| Fan | Type | | | Propeller | Propeller | |
| | Air Flow Rate | Rated | m ³ /min × No. | 60.0 × 1 | 60.0 × 2 | |
| Fan Motor | Type | | | BLDC | BLDC | |
| | Output | W × No. | | 124 × 1 | 124 × 2 | |

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 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.
- 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.
- This product contains Fluorinated greenhouse gases.
- SCOP is in accordance with EN14825.
- Rated running currents are based on the declared values under the following conditions.
 - Cooling : Outdoor Temp. 7°CDB / 6°CWB, Leaving Water Temp. 35°C
 - Heating : Outdoor Temp. 35°C(DB) / 24°C(WB), Leaving Water Temp. 18°C
- 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.

6. Performance Data

6.2 Heating Operation

Maximum Heating Capacity (Include defrost effect)

ZHBW056A1 [HM051MR U44]

| Outdoor Temperature [°C DB] | Water flow rate 15.81 LPM | | | | | | | | Water flow rate 9.9 LPM | | | | Water flow rate 7.9 LPM | | | |
|--------------------------------|---------------------------|------|-----------|------|-----------|------|-----------|------|-------------------------|------|-----------|------|-------------------------|------|-----------|------|
| | LWT 30 °C | | LWT 35 °C | | LWT 40 °C | | LWT 45 °C | | LWT 50 °C | | LWT 55 °C | | LWT 60 °C | | LWT 65 °C | |
| | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP |
| -25 | 5.50 | 2.02 | 5.50 | 1.88 | 5.50 | 1.74 | 5.50 | 1.60 | | | | | | | | |
| -20 | 5.50 | 2.57 | 5.50 | 2.38 | 5.50 | 2.19 | 5.50 | 2.00 | 5.23 | 1.82 | | | | | | |
| -15 | 5.50 | 2.80 | 5.50 | 2.50 | 5.50 | 2.45 | 5.50 | 2.41 | 5.23 | 2.17 | 5.23 | 1.93 | | | | |
| -7 | 5.50 | 3.59 | 5.50 | 3.20 | 5.50 | 3.13 | 5.50 | 3.05 | 5.50 | 2.74 | 5.50 | 2.23 | 5.50 | 2.11 | | |
| -4 | 5.50 | 3.88 | 5.50 | 3.60 | 5.50 | 3.45 | 5.50 | 3.29 | 5.50 | 2.95 | 5.50 | 2.61 | 5.50 | 2.27 | 5.50 | 1.93 |
| -2 | 5.50 | 4.31 | 5.50 | 3.80 | 5.50 | 3.63 | 5.50 | 3.46 | 5.50 | 3.11 | 5.50 | 2.75 | 5.50 | 2.39 | 5.50 | 2.03 |
| 2 | 5.50 | 4.73 | 5.50 | 4.20 | 5.50 | 4.00 | 5.50 | 3.80 | 5.50 | 3.41 | 5.50 | 3.02 | 5.50 | 2.63 | 5.50 | 2.24 |
| 7 | 5.50 | 5.26 | 5.50 | 4.70 | 5.50 | 4.47 | 5.50 | 4.23 | 5.50 | 3.80 | 5.50 | 3.36 | 5.50 | 2.93 | 5.50 | 2.49 |
| 10 | 5.50 | 5.87 | 5.50 | 5.41 | 5.50 | 4.95 | 5.50 | 4.49 | 5.50 | 4.03 | 5.50 | 3.57 | 5.50 | 3.11 | 5.50 | 2.64 |
| 15 | 5.50 | 6.43 | 5.50 | 5.92 | 5.50 | 5.42 | 5.50 | 4.91 | 5.50 | 4.41 | 5.50 | 3.91 | 5.50 | 3.40 | 5.50 | 2.90 |
| 18 | 5.50 | 6.76 | 5.50 | 6.23 | 5.50 | 5.70 | 5.50 | 5.17 | 5.50 | 4.64 | 5.50 | 4.11 | 5.50 | 3.58 | 5.50 | 3.05 |
| 20 | 5.50 | 6.98 | 5.50 | 6.43 | 5.50 | 5.89 | 5.50 | 5.34 | 5.50 | 4.79 | 5.50 | 4.25 | 5.50 | 3.70 | 5.50 | 3.15 |
| 35 | 5.50 | 8.65 | 5.50 | 7.97 | 5.50 | 7.30 | 5.50 | 6.62 | 5.50 | 5.95 | 5.50 | 5.27 | 5.50 | 4.60 | 5.50 | 3.92 |

ZHBW076A1 [HM071MR U44]

| Outdoor Temperature [°C DB] | Water flow rate 20.12 LPM | | | | | | | | Water flow rate 12.6 LPM | | | | Water flow rate 10.0 LPM | | | |
|--------------------------------|---------------------------|------|-----------|------|-----------|------|-----------|------|--------------------------|------|-----------|------|--------------------------|------|-----------|------|
| | LWT 30 °C | | LWT 35 °C | | LWT 40 °C | | LWT 45 °C | | LWT 50 °C | | LWT 55 °C | | LWT 60 °C | | LWT 65 °C | |
| | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP |
| -25 | 5.85 | 1.98 | 5.85 | 1.84 | 5.85 | 1.69 | 5.85 | 1.55 | | | | | | | | |
| -20 | 6.43 | 2.53 | 6.43 | 2.34 | 6.43 | 2.15 | 6.43 | 1.96 | 6.10 | 1.76 | | | | | | |
| -15 | 7.00 | 2.77 | 7.00 | 2.45 | 7.00 | 2.41 | 7.00 | 2.36 | 6.65 | 2.12 | 6.65 | 1.89 | | | | |
| -7 | 7.00 | 3.55 | 7.00 | 3.15 | 7.00 | 3.08 | 7.00 | 3.01 | 7.00 | 2.70 | 7.00 | 2.19 | 7.00 | 2.07 | | |
| -4 | 7.00 | 3.85 | 7.00 | 3.58 | 7.00 | 3.41 | 7.00 | 3.25 | 7.00 | 2.91 | 7.00 | 2.57 | 7.00 | 2.23 | 7.00 | 1.89 |
| -2 | 7.00 | 4.27 | 7.00 | 3.78 | 7.00 | 3.60 | 7.00 | 3.42 | 7.00 | 3.07 | 7.00 | 2.71 | 7.00 | 2.35 | 7.00 | 1.99 |
| 2 | 7.00 | 4.69 | 7.00 | 4.19 | 7.00 | 3.98 | 7.00 | 3.76 | 7.00 | 3.37 | 7.00 | 2.98 | 7.00 | 2.59 | 7.00 | 2.20 |
| 7 | 7.00 | 5.22 | 7.00 | 4.70 | 7.00 | 4.45 | 7.00 | 4.19 | 7.00 | 3.76 | 7.00 | 3.32 | 7.00 | 2.89 | 7.00 | 2.45 |
| 10 | 7.00 | 5.83 | 7.00 | 5.37 | 7.00 | 4.91 | 7.00 | 4.45 | 7.00 | 3.99 | 7.00 | 3.53 | 7.00 | 3.06 | 7.00 | 2.60 |
| 15 | 7.00 | 6.38 | 7.00 | 5.88 | 7.00 | 5.38 | 7.00 | 4.87 | 7.00 | 4.37 | 7.00 | 3.87 | 7.00 | 3.36 | 7.00 | 2.86 |
| 18 | 7.00 | 6.72 | 7.00 | 6.19 | 7.00 | 5.66 | 7.00 | 5.13 | 7.00 | 4.60 | 7.00 | 4.07 | 7.00 | 3.54 | 7.00 | 3.01 |
| 20 | 7.00 | 6.94 | 7.00 | 6.39 | 7.00 | 5.85 | 7.00 | 5.30 | 7.00 | 4.75 | 7.00 | 4.21 | 7.00 | 3.66 | 7.00 | 3.11 |
| 35 | 7.00 | 8.60 | 7.00 | 7.93 | 7.00 | 7.25 | 7.00 | 6.58 | 7.00 | 5.90 | 7.00 | 5.23 | 7.00 | 4.55 | 7.00 | 3.88 |

ZHBW096A1 [HM091MR U44] / ZHBW098A1 [HM093MR U44]

| Outdoor Temperature [°C DB] | Water flow rate 25.87. LPM | | | | | | | | Water flow rate 16.2 LPM | | | | Water flow rate 12.9 LPM | | | |
|--------------------------------|----------------------------|------|-----------|------|-----------|------|-----------|------|--------------------------|------|-----------|------|--------------------------|------|-----------|------|
| | LWT 30 °C | | LWT 35 °C | | LWT 40 °C | | LWT 45 °C | | LWT 50 °C | | LWT 55 °C | | LWT 60 °C | | LWT 65 °C | |
| | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP | TC | COP |
| -25 | 6.20 | 1.97 | 6.20 | 1.82 | 6.20 | 1.68 | 6.20 | 1.53 | | | | | | | | |
| -20 | 7.60 | 2.50 | 7.60 | 2.31 | 7.60 | 2.12 | 7.60 | 1.93 | 7.22 | 1.74 | | | | | | |
| -15 | 9.00 | 2.73 | 9.00 | 2.40 | 9.00 | 2.36 | 9.00 | 2.32 | 8.55 | 2.09 | 8.55 | 1.85 | | | | |
| -7 | 9.00 | 3.50 | 9.00 | 3.10 | 9.00 | 3.03 | 9.00 | 2.96 | 9.00 | 2.65 | 9.00 | 2.17 | 9.00 | 2.03 | | |
| -4 | 9.00 | 3.79 | 9.00 | 3.50 | 9.00 | 3.35 | 9.00 | 3.20 | 9.00 | 2.86 | 9.00 | 2.52 | 9.00 | 2.19 | 9.00 | 1.85 |
| -2 | 9.00 | 4.20 | 9.00 | 3.70 | 9.00 | 3.53 | 9.00 | 3.36 | 9.00 | 3.01 | 9.00 | 2.66 | 9.00 | 2.30 | 9.00 | 1.95 |
| 2 | 9.00 | 4.61 | 9.00 | 4.10 | 9.00 | 3.90 | 9.00 | 3.70 | 9.00 | 3.31 | 9.00 | 2.92 | 9.00 | 2.54 | 9.00 | 2.15 |
| 7 | 9.00 | 5.13 | 9.00 | 4.60 | 9.00 | 4.36 | 9.00 | 4.11 | 9.00 | 3.68 | 9.00 | 3.26 | 9.00 | 2.83 | 9.00 | 2.40 |
| 10 | 9.00 | 5.72 | 9.00 | 5.27 | 9.00 | 4.82 | 9.00 | 4.36 | 9.00 | 3.91 | 9.00 | 3.46 | 9.00 | 3.00 | 9.00 | 2.55 |
| 15 | 9.00 | 6.26 | 9.00 | 5.77 | 9.00 | 5.27 | 9.00 | 4.78 | 9.00 | 4.28 | 9.00 | 3.79 | 9.00 | 3.29 | 9.00 | 2.80 |
| 18 | 9.00 | 6.59 | 9.00 | 6.07 | 9.00 | 5.55 | 9.00 | 5.03 | 9.00 | 4.51 | 9.00 | 3.99 | 9.00 | 3.47 | 9.00 | 2.95 |
| 20 | 9.00 | 6.80 | 9.00 | 6.27 | 9.00 | 5.73 | 9.00 | 5.20 | 9.00 | 4.66 | 9.00 | 4.12 | 9.00 | 3.59 | 9.00 | 3.05 |
| 35 | 9.00 | 8.43 | 9.00 | 7.77 | 9.00 | 7.11 | 9.00 | 6.44 | 9.00 | 5.78 | 9.00 | 5.12 | 9.00 | 4.46 | 9.00 | 3.80 |

Note

1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C), LPM : Liter per minute (ℓ/min)
2. TC : Total capacity(kW), EER: Energy efficiency ratio(kW/kW), COP : Coefficient of performance (kW/kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN14511.
 - Rated values are based on standard conditions, and it can be found on specifications.
 - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
 - In accordance with the test standard(or nations), the results may vary.
5. The Shaded areas are not guaranteed continuous operation.

9. Sound levels

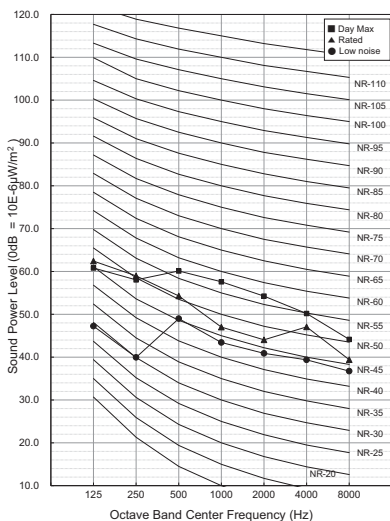
9.1 Sound power level

Note

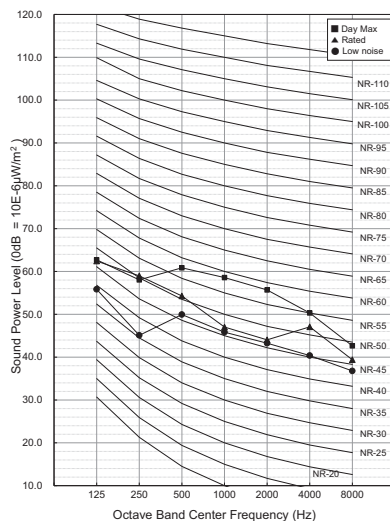
1. Data is valid at diffuse field condition.
2. Reference acoustic intensity 0dB = 10E-6μW/m²
3. Sound power level is measured on the rated condition in the reverberation rooms. Refer to the Model Specifications for nominal conditions(Power source and Ambient temperature, etc)
4. Sound levels can be increased in accordance with installation and operating conditions.
5. Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular installed place in which the equipment in installed.
6. 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.

| Model | Heating [dB(A)] | | |
|-------------------------|-----------------|-------|-----------|
| | Day max | Rated | Low noise |
| ZHBW056A1 [HM051MR U44] | 63 | 57 | 54 |
| ZHBW076A1 [HM071MR U44] | 64 | 57 | 55 |
| ZHBW096A1 [HM091MR U44] | 64 | 57 | 55 |
| ZHBW098A1 [HM093MR U44] | 64 | 57 | 55 |
| ZHBW126A1 [HM121MR U34] | 65 | 60 | 56 |
| ZHBW146A1 [HM141MR U34] | 66 | 61 | 57 |
| ZHBW166A1 [HM161MR U34] | 66 | 61 | 57 |
| ZHBW128A1 [HM123MR U34] | 65 | 60 | 56 |
| ZHBW148A1 [HM143MR U34] | 66 | 61 | 57 |
| ZHBW168A1 [HM163MR U34] | 66 | 61 | 57 |

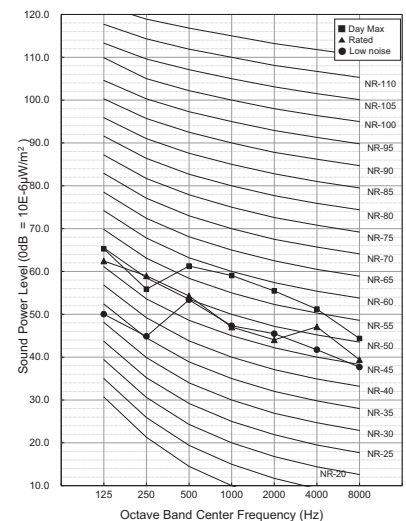
ZHBW056A1 [HM051MR U44]



ZHBW071A1 [HM071MR U44]



ZHBW096A1 [HM091MR U44]
ZHBW098A1 [HM093MR U44]



10. Hydraulic Performance

The water pump is variable type which is capable to change flow rate, so it may be required to change default water pump capacity in case of noise by water flow. In most case, however, it is strongly recommended to set capacity as Maximum.

■ Pressure Drop

◆ For GRUNDFOS Water Pump

| Capacity [kW] | Rated flow-rate [LPM] | Pump Head [m] (at rated flow- rate) | Product pressure drop [m] (Plate heat exchanger) | Serviceable Head [m] | Min. flow-rate [LPM] (Recommend) |
|---------------|-----------------------|--|---|----------------------|-------------------------------------|
| 5 | 15.8 | 7.5 | 0.2 | 7.3 | 15 |
| 7 | 20.1 | 7.3 | 0.3 | 7.0 | |
| 9 | 25.9 | 6.1 | 0.4 | 5.7 | |
| 12 | 34.5 | 9.8 | 0.8 | 9.0 | 20 |
| 14 | 40.3 | 9.3 | 1.1 | 8.2 | |
| 16 | 46.0 | 9.0 | 1.4 | 7.6 | |

◆ For OH SUNG Water Pump

| Capacity [kW] | Rated flow-rate [LPM] | Pump Head [m] (at rated flow- rate) | Product pressure drop [m] (Plate heat exchanger) | Serviceable Head [m] | Min. flow-rate [LPM] (Recommend) |
|---------------|-----------------------|--|---|----------------------|-------------------------------------|
| 5 | 15.8 | 7.6 | 0.2 | 7.4 | 15 |
| 7 | 20.1 | 7.1 | 0.3 | 6.8 | |
| 9 | 25.9 | 6.1 | 0.4 | 5.7 | |
| 12 | 34.5 | 9.7 | 0.8 | 8.9 | 20 |
| 14 | 40.3 | 9.1 | 1.1 | 8.0 | |
| 16 | 46.0 | 8.3 | 1.4 | 6.9 | |

Note

- To secure enough water flow rate, do not set water pump capacity as Minimum. It can lead unexpected flow rate error CH14.
- When installing the product, install additional pump in consideration of the pressure loss and pump performance.
- If flow-rate is low, overloading of product can occur.