Developing energy efficient technology,
Providing the best solution for wellbeing system

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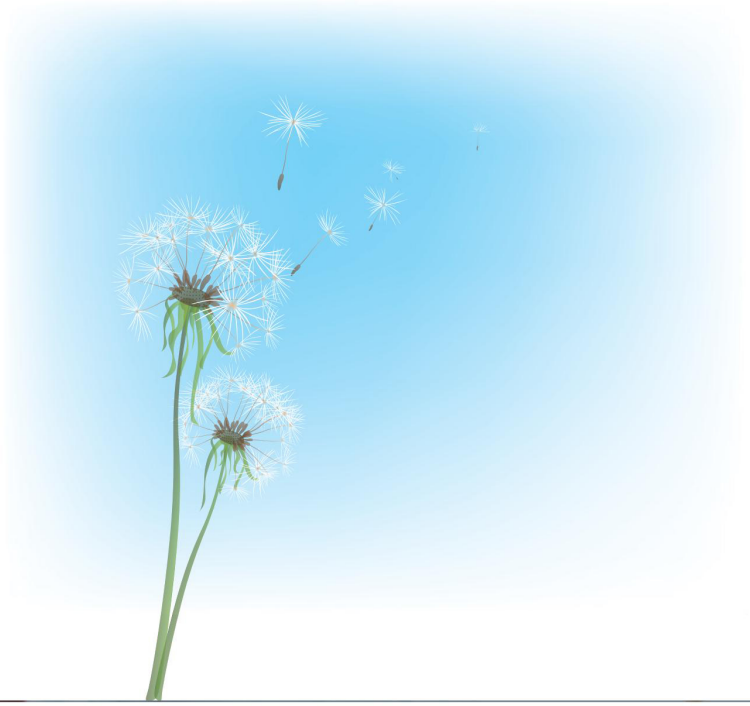
www.arp.co.kr

# AR creates a clean world



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AR

## Greetings from CEO

CEO Han Seung-il. PE

Hello?
Since founded in 1981, AR has been focusing on the air-conditioners and freezers to design, manufacture and install clean room equipment, air-conditioners, freezers, humidifiers, as well as thermo-hygrostats. Including me, all employees are certified technical masters, engineers, and technicians and working hard with pride to produce the world-best product. The R&D center spares no effort for R&D, the plant produces the best quality products, and offices around Korea including Seoul office provide perfect sales plans and A/S to give customers the top satisfaction.

Customers!
Try our products. Contact AR anytime. You will see diligent, qualified and modest staff. With business expansion through technology development, AR has ISO 9001 quality management system, ISO 14001 environment management system, SQ certificate, quality competitive company (seven years in a row since 2002), bronze medal from 2004 quality management grand prix, CE certificate, quality product selected by Public Procurement Service, and quality certificate from Small and Medium Business Administration; and will continue to expedite operation efficiency. I promise you that AR will work hard to be a good company loved by customers.

Thank you.

## History

**1981~2001**

1981. 09 Established Hanil Engineering, Inc.
1982. 02 Acquired Engineering Facility Cons. License
1984. 06 Acquired Refrigerator Manufacture License
1987. 07 Changed corp. into Hanil Plant Eng. Co., Ltd.
1995. 04 Established the Research Institute attached to the company
1996. 12 QS Certification (ISO9001 Certification)
2000. 06 Company name changed into AR Co., Ltd.
2000. 11 Acquired A/S Quality Company License

**2002~2007**

2003. 11 Trading business registration
2004. 11 Awarded the medal of Industrial bronze for good quality management from the Korean Government
2005. 01 Concluded exclusive sales contract with NORDMANN ENG.
2005. 03 Concluded an OEM supply of Scroll Compressor for Emerson/Copeland
2005. 04 Acquired Safety Certification (S mark) (Korea Occupational Safety & Health Agency)
2006. 04 Environmental management systems certification (ISO 14001:2004 Certification)

**2008~2012**

2007. 03 Acquired CE certification
2009. 01 Certified for energy saving precision air conditioner(GSMBA)
2010. 08 Acquired Certificate of INNO-BIZ (Technical innovation business)
2010. 11 Awarded service quality prize in the 2010 National Quality management Competition
2010. 12 Supply and install Precision Air Conditioner at BRAKA NEWCLEAL POWER PLANT in U.A.E.
2011. 11 Selected as Excellent Quality-Competitive firms (10 consecutive years)
2012. 04 Acquired Certificate of Excellent Quality Product from Public Procurement Service
2012. 10 Inducted into the Hall of Fame of the Certificate of Excellent Service Quality (Eleven consecutive years)

# General Type

## Precision air conditioner
## Chiller

AR • Precision Air Conditioner • Chiller

# Precision Air Conditioner

## Up Flow Type

## Down Flow Type

## Name and Structure

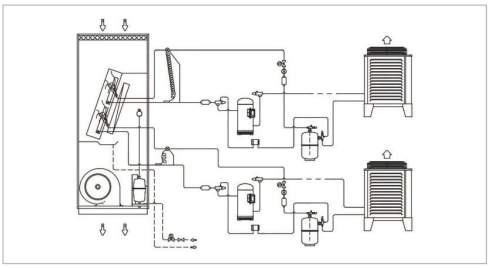
| NO | Name and Parts |
|---|---|
| 1 | Micom-Controller |
| 2 | Control Panel |
| 3 | Evaporator (DX-Coil) |
| 4 | Pressure Gauge & Switch (High, Low, Diff) |
| 5 | Reheating Heater (Electric) |
| 6 | Compressor |
| 7 | Humidifier |
| 8 | Shell & Tube Condenser |
| 9 | Freezing-Prevention System |
| 10 | Expansion Valve |
| 11 | Solenoid Valve |
| 12 | Filter Dryer |
| 13 | Blower (Sirocco Fan & Motor) |

## Special Feature

- Accuired CE certification from TUV
- Applying remote centralized management system (Monitoring through internet)
- Flexibility to maintain the condensing unit at operating condition (patent no. 0628849, 0756018)
- Applying digital pressure gauge to monitor remote centralized management system
- Micom touch pad control type
- Frost – prevention device for evaporator (patent no. 0653235)
- Applying scattering preventiondevice (patent no. 0788739)
- Corrosion-resistent condensate water drain plate (STS304)
- Freezing-prevention system
- Low-noise scroll compressor
- Electronic-electrode type humidifier (Swiss Walter Meier)

# Precision Air Conditioner

## Air Cooled Type



### Energy Saving Product

**Option 1. Waste Heat Recovery System**

- Reduce 30% of operation cost compare with standard precision air conditioner
- Compensate automatic temperature utilizing waste heat when dehumidifying, striking effect of Energy Efficient

## 380V-400V / 50Hz

| Section | | Model | Single Type | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PA003-A1ST | PA005-A1ST | PA008-A1ST | PA010-A1ST | PA015-A1ST | PA006-A2ST | PA010-A2ST | PA015-A2ST | PA020-A2ST | PA025-A2ST | PA030-A2ST |
| | | | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE |
| Cooling Capacity 23°c 50% | R-22 50Hz | BTU/h | 31,500 | 51,000 | 79,500 | 106,000 | 155,000 | 63,000 | 102,000 | 159,000 | 212,000 | 260,000 | 310,000 |
| | | kcal/h | 7,900 | 12,900 | 20,000 | 26,700 | 39,100 | 15,800 | 25,800 | 40,000 | 53,400 | 65,600 | 78,200 |
| | | kW | 9.23 | 14.90 | 23.30 | 31.10 | 45.40 | 18.46 | 29.80 | 46.60 | 62.20 | 76.20 | 90.80 |
| | R-407C 50Hz | BTU/h | 30,200 | 50,600 | 75,500 | 99,500 | 15,000 | 60,400 | 101,200 | 151,000 | 199,000 | 256,000 | 300,000 |
| | | kcal/h | 7,600 | 12,800 | 19,000 | 25,100 | 37,800 | 15,200 | 25,600 | 38,000 | 50,200 | 64,600 | 75,600 |
| | | kW | 8.84 | 14.80 | 22.10 | 29.20 | 44.00 | 17.68 | 29.60 | 44.20 | 58.40 | 75.00 | 88.00 |
| Ventilator | | Type | Sirocco Fan Type | | | | | | | | | | |
| | | CMM | 27 | 46 | 66 | 91 | 133 | 55 | 92 | 132 | 182 | 274 | 274 |
| | | kW | 0.66 | 0.98 | 0.86 | 1.37 | 3.57 | 1.32 | 0.98 x 2 | 0.86 x 2 | 1.37 x 2 | 3.57 x 2 | 3.57 x 2 |
| Condenser | | Model | ARCD-A030 | ARCD-A050 | ARCD-A075 | ARCD-A100 | ARCD-A150 | ARCD-A030 | ARCD-A050 | ARCD-A075 | ARCD-A100 | ARCD-A150 | ARCD-A150 |
| | | CMM | 55 | 95 | 160 | 170 | 240 | 110 | 190 | 320 | 340 | 480 | 480 |
| | | kW | 0.12 | 0.33 | 0.28 x 2 | 0.33 x 2 | 0.47 x 2 | 0.12 x 2 | 0.33 x 2 | 0.28 x 4 | 0.33 x 4 | 0.47 x 4 | 0.47 x 4 |
| Power Consumption | | kW | 9.03(7.03) | 12.10(8.10) | 19.42(13.52) | 24.53(15.63) | 36.45(26.45) | 18.06(14.16) | 25.20(16.30) | 34.84(24.84) | 44.06(29.06) | 65.90(41.90) | 68.90(44.90) |

## 380V-400V / 60Hz

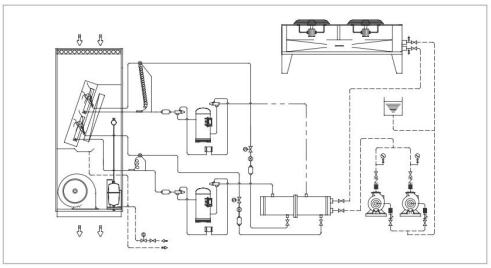
| Section | | Model | Single Type | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PA003-A1ST | PA005-A1ST | PA008-A1ST | PA010-A1ST | PA015-A1ST | PA006-A2ST | PA010-A2ST | PA015-A2ST | PA020-A2ST | PA025-A2ST | PA030-A2ST |
| | | | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE |
| Cooling Capacity 23°c 50% | R-22 60Hz | BTU/h | 37,800 | 62,000 | 96,500 | 128,000 | 190,000 | 75,600 | 124,000 | 193,000 | 256,000 | 320,000 | 380,000 |
| | | kcal/h | 9,500 | 15,600 | 24,300 | 32,300 | 47,900 | 19,000 | 31,200 | 48,600 | 64,600 | 80,600 | 95,800 |
| | | kW | 11.07 | 18.20 | 28.30 | 37.50 | 55.70 | 22.15 | 36.40 | 56.60 | 75.00 | 93.80 | 111.40 |
| | R-407C 60Hz | BTU/h | 36,200 | 62,000 | 91,000 | 120,000 | 181,000 | 72,400 | 124,000 | 182,000 | 240,000 | 308,000 | 362,000 |
| | | kcal/h | 9,100 | 15,600 | 22,900 | 30,200 | 46 | 18,200 | 31,200 | 45,800 | 60,400 | 77,600 | 91,200 |
| | | kW | 10.61 | 18.20 | 26.70 | 35.20 | 53.00 | 21.22 | 36.40 | 53.40 | 70.40 | 90.20 | 106.00 |
| Ventilator | | Type | Sirocco Fan Type | | | | | | | | | | |
| | | CMM | 33 | 55 | 80 | 110 | 160 | 66 | 110 | 160 | 220 | 330 | 330 |
| | | kW | 0.79 | 1.18 | 1.04 | 1.65 | 4.30 | 1.56 | 1.18 x 2 | 1.04 x 2 | 1.65 x 2 | 4.30 x 2 | 4.30 x 2 |
| Condenser | | Model | ARCD-A030 | ARCD-A050 | ARCD-A075 | ARCD-A100 | ARCD-A150 | ARCD-A030 | ARCD-A050 | ARCD-A075 | ARCD-A100 | ARCD-A150 | ARCD-A150 |
| | | CMM | 68 | 120 | 200 | 220 | 300 | 136 | 240 | 400 | 440 | 600 | 600 |
| | | kW | 0.15 | 0.40 | 0.34 x 2 | 0.40 x 2 | 0.57 x 2 | 0.15 x 2 | 0.40 x 2 | 0.34 x 4 | 0.40 x 4 | 0.57 x 4 | 0.57 x 4 |
| Power Consumption | | kW | 9.19(7.19) | 12.37(8.37) | 19.72(13.82) | 24.95(16.05) | 37.38(27.28) | 18.36(14.46) | 25.74(16.84) | 35.44(25.44) | 44.90(29.90) | 67.76(43.76) | 70.76(46.76) |

## Common Application

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reheater | kcal/h | 4,300 | 6,020 | 10,320 | 12,900 | 17,200 | 8,600 | 12,900 | 17,200 | 21,500 | 25,800 | 30,960 |
| | Type | STS-Aero Finned Tube Type | | | | | | | | | | |
| | kW | 5(3) | 7(3) | 12(6) | 15(6) | 20(10) | 10(6) | 15(6) | 20(10) | 25(10) | 36(12) | 36(12) |
| Humidifier | kg/h | 4 | 4 | 8 | 8 | 13 | 8 | 8 | 13 | 13 | 15 | 15 |
| | Type | Electrode Type | | | | | | | | | | |
| | kW | 3.00 | 3.00 | 6.10 | 6.10 | 9.90 | 6.10 | 6.10 | 9.90 | 9.90 | 11.40 | 11.40 |
| Compressor | Type | Hermetic(Scroll) Type | | | | | | | | | | |
| | kW | 3.25 | 3.79 | 6.00 | 7.50 | 11.94 | 3.25 x 2 | 3.79 x 2 | 6.00 x 2 | 7.50 x 2 | 10.44 x 2 | 11.94 x 2 |
| Evaporator | Type | Multi-Pass Cross Finned Tube Type | | | | | | | | | | |
| | Face Area(m²) | 0.268 | 0.462 | 0.572 | 0.730 | 1.116 | 0.533 | 0.894 | 1.335 | 1.831 | 1.831 | 2.238 |
| Pipe Diameter (mm) | Suction | 15.875 | 19.050 | 25.400 | 25.400 | 28.575 | 15.875 | 19.050 | 25.400 | 25.400 | 28.575 | 28.575 |
| | Discharge | 12.700 | 15.875 | 19.050 | 19.050 | 25.400 | 12.700 | 15.875 | 19.050 | 19.050 | 25.400 | 25.400 |
| | Liquid Pipe | 9.525 | 12.700 | 12.700 | 15.875 | 22.225 | 9.525 | 12.700 | 12.700 | 15.875 | 22.225 | 22.225 |
| | Water Supply | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 |
| | Drain | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 |
| Electric Wire | Wire Thickness(mm) | 6((6) | 10(6) | 16(10) | 16(10) | 25(16) | 16(10) | 16(10) | 25(16) | 35(25) | 50(35) | 50(35) |

- Reheater capacity can be fluctuated according to indoor loads
- Usage of electric power can be changed in the equipment.
- Design standard is ET 7.2°c CT 54.4°c.
- Power consumption is based on design standard of nominal condition
- (  ) means the places such as IDC, data processing center and the place needless of heating load.

# Water Cooled Type(Ethylene Glycol Type)



## Energy Saving Product

### Option 1. Waste Heat Recovery System

- Reduce 30% of operation cost compare with standard precision air conditioner
- Compensate automatic temperature utilizing waste heat when dehumidifying, striking effect of Energy Efficient

### Option 2. Economizer Coil System

- Utilize low temperature outdoor air in winter season, Reduce 17% annual energy consumption compare with standard precision air conditioner
- Applying cooling water & cold water switching system utilizing ethylene glycol tower

## 380V-400V / 50Hz

| Section | | Model | Single Type | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PA003-W1ST | PA005-W1ST | PA008-W1ST | PA010-W1ST | PA015-W1ST | PA006-W2ST | PA010-W2ST | PA015-W2ST | PA020-W2ST | PA025-W2ST | PA030-W2ST |
| | | | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE |
| Cooling Capacity 23°C 50% | R-22 50Hz | BTU/h | 31,500 | 51,000 | 79,500 | 106,000 | 155,000 | 63,000 | 102,000 | 159,000 | 212,000 | 260,000 | 310,000 |
| | | kcal/h | 7,900 | 12,900 | 20,000 | 26,700 | 39,100 | 15,800 | 25,800 | 40,000 | 53,400 | 65,600 | 78,200 |
| | | kW | 9.23 | 14.90 | 23.30 | 31.10 | 45.40 | 18.46 | 29.80 | 46.60 | 62.20 | 76.20 | 90.80 |
| | R-407C 50Hz | BTU/h | 30,200 | 50,600 | 75,500 | 99,500 | 15,000 | 60,400 | 101,200 | 151,000 | 199,000 | 256,000 | 300,000 |
| | | kcal/h | 7,600 | 12,800 | 19,000 | 25,100 | 37,800 | 15,200 | 25,600 | 38,000 | 50,200 | 64,600 | 75,600 |
| | | kW | 8.84 | 14.80 | 22.10 | 29.20 | 44.00 | 17.68 | 29.60 | 44.20 | 58.40 | 75.00 | 88.00 |
| Ventilator | | Type | Sirocco Fan Type | | | | | | | | | | |
| | | CMM | 27 | 46 | 66 | 91 | 133 | 55 | 92 | 132 | 182 | 274 | 274 |
| | | kW | 0.66 | 0.98 | 0.86 | 1.37 | 3.57 | 1.32 | 0.98 x 2 | 0.86 x 2 | 1.37 x 2 | 3.57 x 2 | 3.57 x 2 |
| Power Consumption | | kW | 8.91(6.91) | 11.77(7.77) | 18.86(12.36) | 23.87(14.97) | 35.51(25.51) | 17.82(13.92) | 24.54(15.64) | 33.72(23.72) | 42.74(27.74) | 64.02(40.02) | 67.02(43.02) |

## 380V-400V / 60Hz

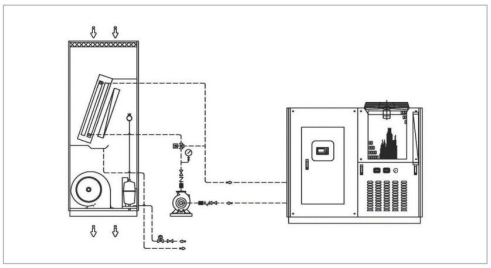
| Section | | Model | Single Type | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PA003-W1ST | PA005-W1ST | PA008-W1ST | PA010-W1ST | PA015-W1ST | PA006-W2ST | PA010-W2ST | PA015-W2ST | PA020-W2ST | PA025-W2ST | PA030-W2ST |
| | | | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE |
| Cooling Capacity 23°C 50% | R-22 60Hz | BTU/h | 37,800 | 62,000 | 96,500 | 128,000 | 190,000 | 75,600 | 124,000 | 193,000 | 256,000 | 320,000 | 380,000 |
| | | kcal/h | 9,500 | 15,600 | 24,300 | 32,300 | 47,900 | 19,000 | 31,200 | 48,600 | 64,600 | 80,600 | 95,800 |
| | | kW | 11.07 | 18.20 | 28.30 | 37.50 | 55.70 | 22.15 | 36.40 | 56.60 | 75.00 | 93.80 | 111.40 |
| | R-407C 60Hz | BTU/h | 36,200 | 62,000 | 91,000 | 120,000 | 181,000 | 72,400 | 124,000 | 182,000 | 240,000 | 308,000 | 362,000 |
| | | kcal/h | 9,100 | 15,600 | 22,900 | 30,200 | 46 | 18,200 | 31,200 | 45,800 | 60,400 | 77,600 | 91,200 |
| | | kW | 10.61 | 18.20 | 26.70 | 35.20 | 53.00 | 21.22 | 36.40 | 53.40 | 70.40 | 90.20 | 106.00 |
| Ventilator | | Type | Sirocco Fan Type | | | | | | | | | | |
| | | CMM | 33 | 55 | 80 | 110 | 160 | 66 | 110 | 160 | 220 | 330 | 330 |
| | | kW | 0.79 | 1.18 | 1.04 | 1.65 | 4.30 | 1.56 | 1.18 x 2 | 1.04 x 2 | 1.65 x 2 | 4.30 x 2 | 4.30 x 2 |
| Power Consumption | | kW | 9.04(7.04) | 11.97(7.97) | 19.04(13.14) | 24.15(15.25) | 36.24(26.24) | 18.06(14.16) | 24.94(16.04) | 34.08(24.08) | 43.30(28.30) | 65.48(41.48) | 68.48(44.48) |

## Common Application

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reheater | kcal/h | 4,300 | 6,020 | 10,320 | 12,900 | 17,200 | 8,600 | 12,900 | 17,200 | 21,500 | 25,800 | 30,960 |
| | Type | STS-Aero Finned Tube Type | | | | | | | | | | |
| | kW | 5(3) | 7(3) | 12(6) | 15(6) | 20(10) | 10(6) | 15(6) | 20(10) | 25(10) | 36(12) | 36(12) |
| Humidifier | kg/h | 4 | 4 | 8 | 8 | 13 | 8 | 8 | 13 | 13 | 15 | 15 |
| | Type | Electrode Type | | | | | | | | | | |
| | kW | 3.00 | 3.00 | 6.10 | 6.10 | 9.90 | 6.10 | 6.10 | 9.90 | 9.90 | 11.40 | 11.40 |
| Compressor | Type | Hermetic(Scroll) Type | | | | | | | | | | |
| | kW | 3.25 | 3.79 | 6.00 | 7.50 | 11.94 | 3.25 x 2 | 3.79 x 2 | 6.00 x 2 | 7.50 x 2 | 10.44 x 2 | 11.94 x 2 |
| Evaporator | Type | Multi-Pass Cross Finned Tube Type | | | | | | | | | | |
| | Face Area(m²) | 0.268 | 0.462 | 0.533 | 0.572 | 0.730 | 0.894 | 1.116 | 1.335 | 1.831 | 1.831 | 2.238 |
| Pipe Diameter (mm) | Suction | 15.875 | 19.050 | 25.400 | 25.400 | 28.575 | 15.875 | 19.050 | 25.400 | 25.400 | 28.575 | 28.575 |
| | Discharge | 12.700 | 15.875 | 19.050 | 19.050 | 25.400 | 12.700 | 15.875 | 19.050 | 19.050 | 25.400 | 25.400 |
| | Liquid Pipe | 9.525 | 12.700 | 12.700 | 15.875 | 22.225 | 9.525 | 12.700 | 12.700 | 15.875 | 22.225 | 22.225 |
| | Water Supply | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 |
| | Drain | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 |
| | Plumbing | 25A | 32A | 40A | 50A | 50A | 40A | 50A | 50A | 65A | 80A | 80A |
| Refrigerant | | R-22 / R-407C | | | | | | | | | | |
| E/Glycol Tower | Model | EG-D0030 | EG-D0050 | EG-D0075 | EG-D0100 | EG-D0150 | EG-D0060 | EG-D0100 | EG-D0150 | EG-D0200 | EG-D0250 | EG-D0300 |
| | Air Volume(CMM) | 78 | 130 | 195 | 260 | 390 | 156 | 260 | 390 | 520 | 780 | 780 |
| | Motor(kW) | 0.40 | 0.75 | 0.40 x 2 | 0.75 x 2 | 0.75 x 2 | 0.40 x 2 | 0.75 x 2 | 0.75 x 2 | 0.75 x 4 | 0.75 x 4 | 0.75 x 4 |
| Circulation Pump | Flow(LPM) | 45 | 75 | 113 | 150 | 225 | 90 | 150 | 225 | 300 | 450 | 450 |
| | Motor(kW) | 0.56 | 0.75 | 0.75 | 1.50 | 2.20 | 0.75 | 1.50 | 2.20 | 2.20 | 3.70 | 3.70 |
| Free Cooling Valve (Option) | Type | 3 Way Control Valve | | | | | | | | | | |
| | OCT Water | 25A | 25A | 32A | 40A | 40A | 32A | 40A | 40A | 50A | 65A | 65A |
| | CT Water | 25A | 25A | 32A | 40A | 40A | 32A | 40A | 40A | 50A | 65A | 65A |
| Electric Wire | Wire Thickness(mm) | 6(6) | 10(6) | 16(10) | 16(10) | 25(16) | 16(10) | 16(10) | 25(16) | 35(25) | 50(35) | 50(35) |

- Reheater capacity can be fluctuated according to indoor loads.
- Usage of electric power can be changed in the equipment.
- Design standard is ET 7.2°c CT 54.4°c.
- Power consumption is based on design standard of nominal condition
- ( ) means the places such as IDC, data processing center and the place needless of heating load.

# Chilled Water Type



## Energy Saving Product

### Option 3. Energy Saving Chiller System

- Utilize low temperature outdoor air in winter season, Reduce 25% annual energy consumption compare with standard precision air conditioner
- Reduce operational costs in winter season utilizing Energy Efficient Chiller

## 380V-400V / 50Hz

| Section | Model | PA003-C1ST | PA005-C1ST | PA006-C1ST | PA008-C1ST | PA010-C1ST | PA015-C1ST | PA020-C1ST | PA030-C1ST |
|---|---|---|---|---|---|---|---|---|---|
| Cooling Capacity | BTU/h | 36,000 | 60,000 | 72,000 | 90,000 | 120,000 | 180,000 | 240,000 | 360,000 |
| | kcal/h | 9,072 | 15,120 | 18,144 | 22,680 | 30,240 | 45,360 | 60,480 | 90,720 |
| | kW | 10.55 | 17.58 | 20.10 | 26.37 | 35.16 | 52.74 | 70.33 | 105.49 |
| Ventilator | Type | Sirocco Fan Type | | | | | | | |
| | CMM | 27 | 46 | 55 | 66 | 91 | 133 | 182 | 274 |
| | kW | 0.66 | 0.98 | 1.29 | 0.86 | 1.37 | 0.86 x 2 | 1.37 x 2 | 3.57 x 2 |
| Power Consumption | kW | 5.66(3.66) | 7.98(3.98) | 11.29(7.39) | 12.86(6.96) | 16.37(7.47) | 21.72(11.72) | 27.74(12.74) | 43.14(19.14) |
| Electric Wire | Wire Thickness(mm) | 4(2.5) | 6(2.5) | 10(6) | 10(6) | 10(6) | 16(10) | 25(10) | 35(16) |

## 380V-400V / 60Hz

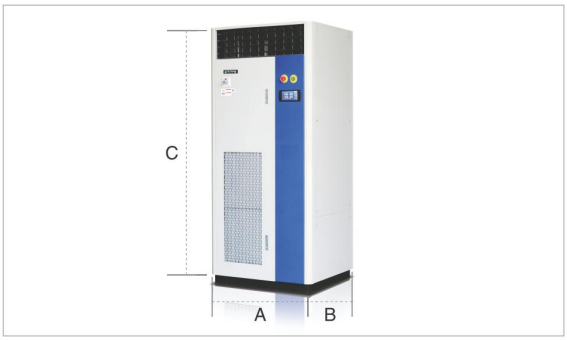
| Section | Model | PA003-C1ST | PA005-C1ST | PA006-C1ST | PA008-C1ST | PA010-C1ST | PA015-C1ST | PA020-C1ST | PA030-C1ST |
|---|---|---|---|---|---|---|---|---|---|
| Cooling Capacity | BTU/h | 36,000 | 60,000 | 72,000 | 90,000 | 120,000 | 180,000 | 240,000 | 360,000 |
| | kcal/h | 9,072 | 15,120 | 18,144 | 22,680 | 30,240 | 45,360 | 60,480 | 90,720 |
| | kW | 10.55 | 17.58 | 20.10 | 26.37 | 35.16 | 52.74 | 70.33 | 105.49 |
| Ventilator | Type | Sirocco Fan Type | | | | | | | |
| | CMM | 33 | 55 | 66 | 80 | 110 | 160 | 220 | 330 |
| | kW | 0.79 | 1.18 | 1.56 | 1.04 | 1.65 | 1.04 x 2 | 1.65 x 2 | 4.3 x 2 |
| Power Consumption | kW | 5.79(3.79) | 8.18(4.18) | 11.56(7.66) | 13.04(7.14) | 16.65(7.75) | 22.08(12.08) | 28.30(13.30) | 44.60(20.60) |
| Electric Wire | Wire Thickness(mm) | 6(2.5) | 6(4) | 10(6) | 10(6) | 16(6) | 16(10) | 25(16) | 35(16) |

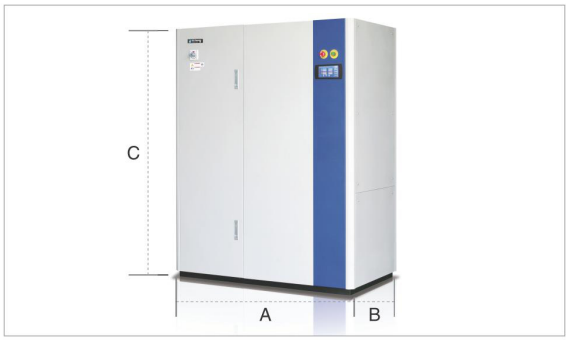
## Common Application

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Reheater | kcal/h | 4,300 | 6,020 | 8,600 | 10,320 | 12,900 | 17,200 | 21,500 | 30,900 |
| | Type | STS-Aero Finned Tube Type | | | | | | | |
| | kW | 5(3) | 7(3) | 10(6) | 12(6) | 15(6) | 20(10) | 25(10) | 36(12) |
| Humidifier | kg/h | 4 | 4 | 8 | 8 | 8 | 13 | 13 | 15 |
| | Type | Electrode Type | | | | | | | |
| | kW | 3.00 | 3.00 | 6.10 | 6.10 | 6.10 | 9.90 | 9.90 | 11.40 |
| Cooling Coil | Type | Multi-Pass Cross Finned Tube Type | | | | | | | |
| | Face Area(m²) | 0.254 | 0.420 | 0.496 | 0.537 | 0.730 | 1.247 | 1.619 | 2.188 |
| | Row | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Pipe Diameter (mm) | Water Supply | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 |
| | Drain | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 |
| | Plumbing | 31.75 | 31.75 | 44.45 | 44.45 | 50.80 | 50.80 | 63.50 | 63.50 |
| Circulation Volume | Flow(LPM) | 30 | 50 | 60 | 75 | 100 | 150 | 200 | 300 |

- In case of suppling cold water(5~7°c) from Chilling Unit or existing refrigerator.
- Reheater capacity can be fluctuated according to indoor loads.
- Usage of electric power can be changed in the equipment.
- Power consumption is based on design standard of nominal condition
- (  ) means the places such as IDC, data processing center and the place needless of heating load.

# Dimension



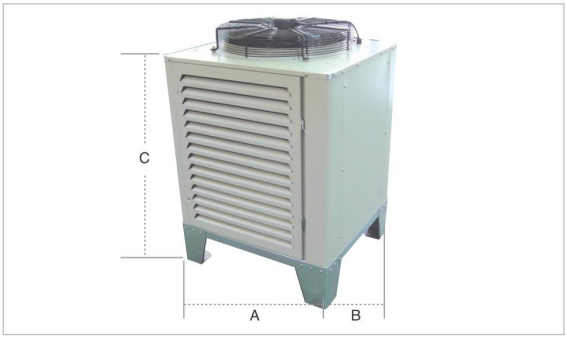



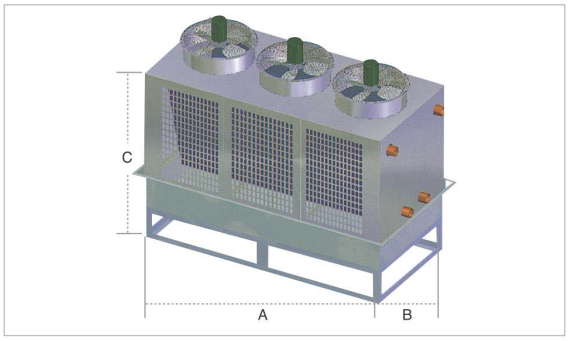

## Up Flow Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Air Cooled Type | Single Type | PA003-A1ST | 765 | 650 | 2,050 | 260 |
| | | PA005-A1ST | 900 | 800 | 2,050 | 310 |
| | | PA008-A1ST | 1,000 | 870 | 2,050 | 330 |
| | | PA010-A1ST | 1,200 | 900 | 2,200 | 400 |
| | | PA015-A1ST | 1,500 | 970 | 2,200 | 660 |
| | Dual Type | PA006-A2ST | 1,000 | 750 | 2,050 | 480 |
| | | PA010-A2ST | 1,500 | 830 | 2,150 | 670 |
| | | PA015-A2ST | 1,800 | 870 | 2,150 | 730 |
| | | PA020-A2ST | 2,100 | 970 | 2,205 | 925 |
| | | PA025-A2ST | 2,100 | 1,000 | 2,205 | 1,105 |
| | | PA030-A2ST | 2,600 | 1,000 | 2,205 | 1,130 |
| Water Cooled Type (Ethylene Glycol Type) | Single Type | PA003-W1ST | 765 | 650 | 2,050 | 300 |
| | | PA005-W1ST | 900 | 800 | 2,050 | 380 |
| | | PA008-W1ST | 1,000 | 870 | 2,050 | 400 |
| | | PA010-W1ST | 1,200 | 900 | 2,200 | 500 |
| | | PA015-W1ST | 1,500 | 970 | 2,200 | 810 |
| | Dual Type | PA006-W2ST | 1,000 | 750 | 2,050 | 545 |
| | | PA010-W2ST | 1,500 | 830 | 2,150 | 780 |
| | | PA015-W2ST | 1,800 | 870 | 2,150 | 25 |
| | | PA020-W2ST | 2,100 | 970 | 2,205 | 1,030 |
| | | PA025-W2ST | 2,100 | 1,000 | 2,205 | 1,175 |
| | | PA030-W2ST | 2,600 | 1,000 | 2,205 | 1,250 |

## Down Flow Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Air Cooled Type | Single Type | PA003-A1ST | 765 | 670 | 1,850 | 260 |
| | | PA005-A1ST | 900 | 750 | 1,850 | 310 |
| | | PA008-A1ST | 1,000 | 870 | 1,915 | 330 |
| | | PA010-A1ST | 1,200 | 970 | 2,095 | 400 |
| | | PA015-A1ST | 1,500 | 970 | 2,095 | 680 |
| | Dual Type | PA006-A2ST | 1,000 | 750 | 1,850 | 475 |
| | | PA010-A2ST | 1,500 | 830 | 1,915 | 660 |
| | | PA015-A2ST | 1,800 | 900 | 1,915 | 715 |
| | | PA020-A2ST | 2,100 | 970 | 2,095 | 905 |
| | | PA025-A2ST | 2,100 | 1,000 | 2,095 | 1,075 |
| | | PA030-A2ST | 2,600 | 1,000 | 2,095 | 1,100 |
| Water Cooled Type (Ethylene Glycol Type) | Single Type | PA003-W1ST | 765 | 670 | 1,850 | 300 |
| | | PA005-W1ST | 900 | 750 | 1,850 | 380 |
| | | PA008-W1ST | 1,000 | 870 | 1,915 | 400 |
| | | PA010-W1ST | 1,200 | 970 | 2,095 | 500 |
| | | PA015-W1ST | 1,500 | 970 | 2,095 | 790 |
| | Dual Type | PA006-W2ST | 1,000 | 800 | 1,850 | 540 |
| | | PA010-W2ST | 1,500 | 830 | 1,915 | 770 |
| | | PA015-W2ST | 1,800 | 900 | 1,915 | 810 |
| | | PA020-W2ST | 2,100 | 970 | 2,095 | 1,010 |
| | | PA025-W2ST | 2,100 | 1,000 | 2,095 | 1,145 |
| | | PA030-W2ST | 2,600 | 1,000 | 2,095 | 1,200 |




## Air Cooled Condenser

| Model | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|
| CD-003-A | 675 | 682 | 995 | 86 |
| CD-005-A | 835 | 782 | 1,085 | 120 |
| CD-008-A | 1,300 | 732 | 1,135 | 145 |
| CD-010-A | 1,415 | 822 | 1,195 | 185 |
| CD-015-A | 1,650 | 880 | 1,300 | 300 |

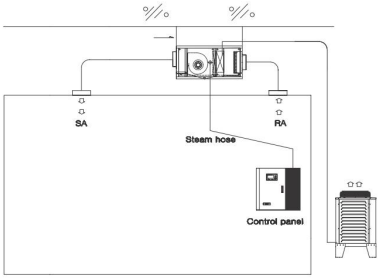
* Its size can be changed as the circumstance of the country

## Ethylene Glycol Tower

| Model | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|
| Dry Type | EG008-D | 1,600 | 985 | 970 | 270 |
| | EG010-D | 1,750 | 1,140 | 970 | 340 |
| | EG020-D | 3,300 | 1,100 | 970 | 700 |
| | EG030-D | 4,800 | 1,100 | 970 | 850 |
| Spray Type | EG050-S | 2,410 | 1,330 | 1,745 | 2,000 |
| | EG070-S | 3,230 | 1,330 | 1,745 | 2,500 |
| | EG100-S | 4,450 | 1,350 | 1,760 | 3,500 |
| | EG120-S | 4,450 | 1,350 | 2,170 | 4,000 |
| | EG150-S | 7,320 | 1,500 | 1,930 | 5,500 |

# Precision Air Conditioner

## Ceiling Concealed Type



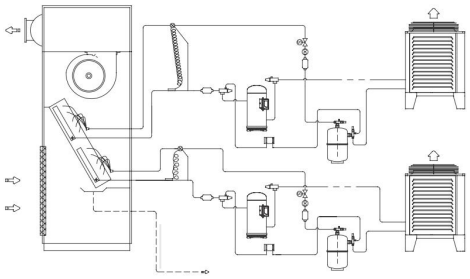

### 380V-400V / 50Hz

| Section | | Model | PA003-A1STC | PA005-A1STC |
|---|---|---|---|---|
| Cooling Capacity | R-22 50Hz | BTU/h | 31,500 | 51,000 |
| | | kcal/h | 7,900 | 12,900 |
| | | kW | 9.23 | 14.90 |
| | R-407C 50Hz | BTU/h | 30,200 | 50,600 |
| | | kcal/h | 7,600 | 12,800 |
| | | kW | 8.84 | 14.80 |
| Reheater | | kcal/h | 4,300 | 6,020 |
| | | Type | STS-Aero Finned Tube Type | |
| | | kW | 5 | 7 |
| Humidifier | | kg/h | 4 | 4 |
| | | Type | Electrode Type | |
| | | kW | 3.00 | 3.00 |
| Ventilator | | Type | Sirocco Fan Type | |
| | | Air Volume(CMM) | 27 | 46 |
| | | Motor(kW) | 0.33 | 0.66 |
| Compressor | | Type | Hermetic(Scroll) Type | |
| | | kW | 3.25 | 3.79 |
| Condenser | | Model | ARCD-A030 | ARCD-A050 |
| | | Air Volume(CMM) | 55 | 95 |
| | | Motor(kW) | 0.12 | 0.33 |
| Control | | Electricity | Micom Control Type | |
| | | Refrigerant | Thermostatic Type | |
| Evaporator | | Type | Multi-Pass Cross Finned Tube Type | |
| | | Front Size(m²) | 0.327 | 0.545 |
| Power Consumption | | kW | 8.70 | 11.78 |
| Electric Wire | | Wire Thickness(mm) | 6((6) | 10(6) |
| External Size | | Indoor Unit(WxLxH) | 1100 x 1100 x 550 | 1300 x 1350 x 570 |
| | | Outdoor Unit(WxLxH) | 675 x 682 x 995 | 835 x 782 x 1085 |
| Weight(kg) | | Indoor Unit | 220 | 300 |
| | | Outdoor Unit | 86 | 120 |

### 380V-400V / 60Hz

| Section | | Model | PA003-A1STC | PA005-A1STC |
|---|---|---|---|---|
| Cooling Capacity | R-22 60Hz | BTU/h | 37,800 | 62,000 |
| | | kcal/h | 9,500 | 15,600 |
| | | kW | 11.07 | 18.20 |
| | R-407C 60Hz | BTU/h | 36,200 | 62,000 |
| | | kcal/h | 9,100 | 15,600 |
| | | kW | 10.61 | 18.20 |
| Reheater | | kcal/h | 4,300 | 6,020 |
| | | Type | STS-Aero Finned Tube Type | |
| | | kW | 5 | 7 |
| Humidifier | | kg/h | 4 | 4 |
| | | Type | Electrode Type | |
| | | kW | 3.00 | 3.00 |
| Ventilator | | Type | Sirocco Fan Type | |
| | | Air Volume(CMM) | 33 | 55 |
| | | Motor(kW) | 0.2 x 2 | 0.4 x 2 |
| Compressor | | Type | Hermetic(Scroll) Type | |
| | | kW | 3.25 | 3.79 |
| Condenser | | Model | ARCD-A030 | ARCD-A050 |
| | | Air Volume(CMM) | 68 | 120 |
| | | Motor(kW) | 0.15 | 0.40 |
| Control | | Electricity | Micom Control Type | |
| | | Refrigerant | Thermostatic Type | |
| Evaporator | | Type | Multi-Pass Cross Finned Tube Type | |
| | | Front Size(m²) | 0.327 | 0.545 |
| Power Consumption | | kW | 8.80 | 11.99 |
| Electric Wire | | Wire Thickness(mm) | 6(6) | 10(6) |
| External Size | | Indoor Unit(WxLxH) | 1100 x 1100 x 550 | 1300 x 1350 x 570 |
| | | Outdoor Unit(WxLxH) | 675 x 682 x 995 | 835 x 782 x 1085 |
| Weight(kg) | | Indoor Unit | 220 | 300 |
| | | Outdoor Unit | 86 | 120 |

## Special Air Conditioner



# Chiller

① Control Panel
② Compressor
③ Circulation Pump
④ Tank (SUS)
⑤ Fan & Motor
⑥ Condenser Coil
⑦ Evaporator
⑧ Digipressure & Gauge
⑨ Accumulator

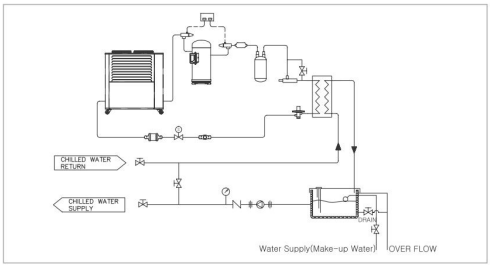
## Application

- Medical Treatment Equipment Cooling System : MRI Cooling System, CT Cooling System
- Food, Pharmacy, Chemical Factory production process Cooling System
- Semiconductor equipment & Industry Lazer Cooling System
- RC type Cooling System for high density server room

## Features

- Applying remote centralized management system (Monitoring through internet)
- Applying digital pressure gauge to monitor remote centralized management system
- Micom touch pad control type
- Freezing-prevention system
- Low-noise scroll compressor
- Can be manufactured Temperature of cold water or BRINE by - 40℃~20℃
- Easy to adjust capacity by temperature selecting
- Applied automatic water supply conversion device when equipment breakdown(option)
- Installed Scale prevention filter(option)

# Chiller




## 380V-400V / 50Hz

| Section | | Model | Single Type | | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1 | CH008-A1 | CH010-A1 | CH015-A1 | CH020-A1 | CH030-A1 | CH010-A2 | CH015-A2 | CH020-A2 | CH030-A2 | CH040-A2 | CH060-A2 |
| Cooling Capacity | R-22 50Hz | BTU/h | 39,300 | 62,500 | 85,000 | 121,000 | 162,000 | 252,000 | 78,600 | 125,000 | 170,000 | 242,000 | 324,000 | 504,000 |
| | | kcal/h | 9,900 | 15,800 | 21,400 | 30,500 | 40,800 | 63,500 | 19,800 | 31,600 | 42,800 | 61,000 | 81,600 | 127,000 |
| | | kW | 11.52 | 18.31 | 24.91 | 35.46 | 47.47 | 73.84 | 23.04 | 36.62 | 49.82 | 70.92 | 94.94 | 147.68 |
| | R-407C 50Hz | BTU/h | 36,800 | 60,700 | 80,100 | 116,000 | 156,000 | 240,000 | 73,600 | 121,400 | 160,200 | 232,000 | 312,000 | 480,000 |
| | | kcal/h | 9,300 | 15,300 | 20,200 | 29,200 | 39,300 | 60,500 | 18,600 | 30,600 | 40,400 | 58,400 | 78,600 | 121,000 |
| | | kW | 10.78 | 17.79 | 23.47 | 33.99 | 45.71 | 70.33 | 21.56 | 35.58 | 46.94 | 67.98 | 91.42 | 140.66 |
| Condenser | | Type | Air Cooled Condenser Coil | | | | | | Air Cooled Condenser Coil | | | | | |
| | | AirVolume(CMM) | 100 | 170 | 180 | 250 | 330 | 500 | 200 | 340 | 360 | 500 | 660 | 1,000 |
| | | Motor(kW) | 0.12 x 2 | 0.29 x 2 | 0.33 x 2 | 0.47 x 2 | 0.56 x 2 | 0.56 x 3 | 0.24 x 2 | 0.58 x 2 | 0.66 x 2 | 0.47 x 4 | 0.56 x 4 | 0.56 x 6 |
| Power Consumption | | kW | 6.59 | 10.23 | 12.96 | 15.08 | 24.72 | 37.98 | 12.48 | 19.66 | 25.12 | 29.76 | 49.04 | 73.46 |
| Electric Wire | | Wire Thickness(mm) | 4 | 10 | 10 | 10 | 16 | 25 | 10 | 16 | 16 | 25 | 35 | 50 |

## 380V-400V / 60Hz

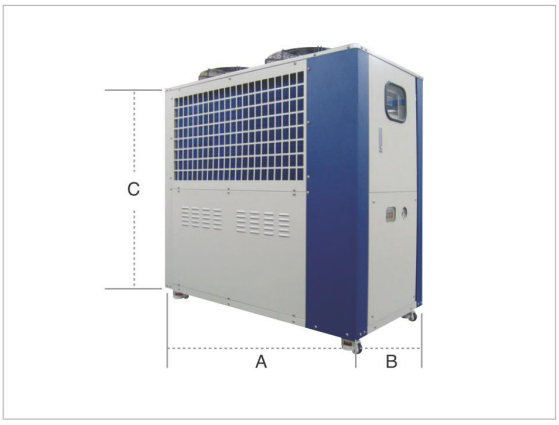
| Section | | Model | Single Type | | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1 | CH008-A1 | CH010-A1 | CH015-A1 | CH020-A1 | CH030-A1 | CH010-A2 | CH015-A2 | CH020-A2 | CH030-A2 | CH040-A2 | CH060-A2 |
| Cooling Capacity | R-22 60Hz | BTU/h | 49,000 | 76,500 | 104,000 | 151,000 | 199,000 | 303,000 | 98,000 | 153,000 | 208,000 | 302,000 | 398,000 | 606,000 |
| | | kcal/h | 12,400 | 19,300 | 26,200 | 38,100 | 50,200 | 76,400 | 24,800 | 38,600 | 52,400 | 76,200 | 100,400 | 152,800 |
| | | kW | 14.36 | 22.42 | 30.47 | 44.25 | 58.31 | 88.79 | 28.72 | 44.84 | 60.94 | 88.50 | 116.62 | 177.58 |
| | R-407C 60Hz | BTU/h | 44,600 | 72,600 | 97,900 | 140,500 | 188,000 | 293,000 | 89,200 | 145,200 | 195,800 | 281,000 | 376,000 | 586,000 |
| | | kcal/h | 11,200 | 18,300 | 24,700 | 35,400 | 47,400 | 73,800 | 22,400 | 36,600 | 49,400 | 70,800 | 94,800 | 147,600 |
| | | kW | 13.07 | 21.27 | 28.69 | 41.17 | 55.09 | 85.86 | 26.14 | 42.54 | 57.38 | 82.34 | 110.18 | 171.72 |
| Condenser | | Type | Air Cooled Condenser Coil | | | | | | Air Cooled Condenser Coil | | | | | |
| | | AirVolume(CMM) | 120 | 200 | 220 | 300 | 400 | 600 | 240 | 400 | 440 | 600 | 800 | 1,200 |
| | | Motor(kW) | 0.15 x 2 | 0.35 x 2 | 0.4 x 2 | 0.57 x 2 | 0.67 x 2 | 0.67 x 3 | 0.30 x 2 | 0.70 x 2 | 0.80 x 2 | 0.57 x 4 | 0.67 x 4 | 0.67 x 6 |
| Power Consumption | | kW | 6.65 | 10.35 | 13.10 | 15.28 | 24.94 | 38.31 | 12.60 | 19.90 | 25.40 | 30.16 | 49.48 | 74.12 |
| Electric Wire | | Wire Thickness(mm) | 6 | 10 | 10 | 10 | 16 | 25 | 10 | 16 | 16 | 25 | 35 | 50 |

## Common Application

| Section | | Model | Single Type | | | | | | Dual Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1 | CH008-A1 | CH010-A1 | CH015-A1 | CH020-A1 | CH030-A1 | CH010-A2 | CH015-A2 | CH020-A2 | CH030-A2 | CH040-A2 | CH060-A2 |
| Compressor | Type | | Hermetic Scroll Type | | | | | | Hermetic Scroll Type | | | | | |
| | kW | | 5.25 | 8.15 | 10.80 | 11.94 | 21.40 | 32.30 | 5.25 x 2 | 8.15 x 2 | 10.80 x 2 | 11.94 x 2 | 21.40 x 2 | 32.30 x 2 |
| Control | Electricity | | Micom Control | | | | | | Micom Control | | | | | |
| | Regrigerant | | Expansion Valve Type | | | | | | Expansion Valve Type | | | | | |
| Cooler | | | Brazed Plate Heat Exchanger Type or Tank & Coil Type | | | | | | Brazed Plate Heat Exchanger Type or Tank & Coil Type | | | | | |
| Circulation Pump | Type | | Horizontal, Multi Stage Pump | | | | | | Horizontal, Multi Stage Pump | | | | | |
| | Flow Rate(LPM) | | 47 | 70 | 93 | 140 | 187 | 280 | 93 | 140 | 187 | 280 | 375 | 560 |
| | Motor(kW) | | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 4.00 | 1.50 | 2.20 | 2.20 | 4.00 | 4.00 | 5.50 |
| Pipe Diameter(mm) | Chilled Water In/Out | | 32A | 40A | 50A | 50A | 65A | 65A | 50A | 50A | 65A | 65A | 80A | 80A |
| | Water Supply | | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A |
| | Drain | | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A |

- Design standard is ET 0°c, CT 54/4°c, Ethylene Glycol 30%

# Dimension

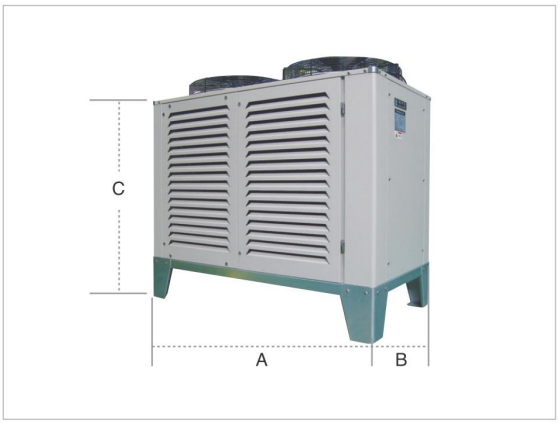


## Integrated Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Integrated Type | Single Type | CH005-A1 | 1,435 | 732 | 1,280 | 468 |
| | | CH008-A1 | 1,535 | 732 | 1,480 | 589 |
| | | CH010-A1 | 1,635 | 782 | 1,578 | 698 |
| | | CH015-A1 | 1,735 | 880 | 1,690 | 819 |
| | | CH020-A1 | 1,935 | 990 | 1,890 | 1,160 |
| | | CH030-A1 | 2,755 | 990 | 1,920 | 1,660 |
| | Dual Type | CH010-A2 | 2,150 | 830 | 1,280 | 468 |
| | | CH015-A2 | 2,300 | 910 | 1,480 | 589 |
| | | CH020-A2 | 2,530 | 1,060 | 1,578 | 698 |
| | | CH030-A2 | 3,600 | 1,060 | 1,690 | 819 |
| | | CH040-A2 | 4,100 | 1,060 | 1,890 | 1,160 |
| | | CH060-A2 | 5,900 | 1,060 | 1,920 | 1,660 |

## Separated Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Separated Type | Single Type | CH005-A1 | 880 | 670 | 1,600 | 260 |
| | | CH008-A1 | 1,000 | 670 | 1,600 | 374 |
| | | CH010-A1 | 1,000 | 800 | 1,635 | 443 |
| | | CH015-A1 | 1,200 | 800 | 1,690 | 520 |
| | | CH020-A1 | 1,250 | 1,000 | 1,690 | 755 |
| | | CH030-A1 | 1,700 | 1,200 | 1,720 | 975 |




## Air Cooled Condenser

| Model | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|
| CD003-A | 675 | 682 | 995 | 86 |
| CD005-A | 835 | 782 | 1,085 | 120 |
| CD008-A | 1,300 | 732 | 1,135 | 145 |
| CD010-A | 1,415 | 822 | 1,195 | 185 |
| CD015-A | 1,650 | 880 | 1,300 | 300 |

* Its size can be changed as the circumstance of the country

# Energy Saving Type

## Precision Air Conditioner

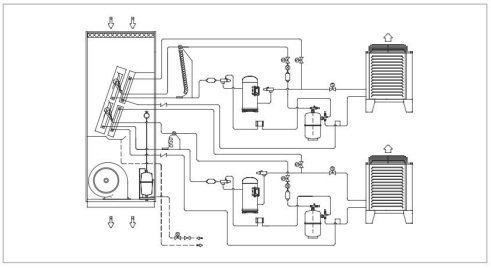
### Option 1
Waste Heat Recovery System

### Option 2
Economizer Coil System

## Chiller

### Option 3
Energy Saving Chiller System

# Precision Air Conditioner



## Option 1. Waste Heat Recovery System

## Comparison of energy conservation effect for Energy Saving precision air conditioner (Basis on 7.5R/T, Korea)

### • Power calculation data of standard precision air conditioner

| Operating Condition | Power Equipment | Power Consumption(kW) | Number of Operating Month | Number of Operating Days | Operating Time | Operating Rate(%) | Power Consumption(kW) | Hourly Power Cost | Annual Operating Cost(US$) |
|---|---|---|---|---|---|---|---|---|---|
| Basic operation | Blower | 0.75 | 12 | 30 | 24 | 100 | 6,480 | 80 | 472.00 |
| Cooling operation | Compressor | 5.64 | 12 | 30 | 24 | 70 | 34,111 | 80 | 2,481.00 |
| Dehumidifying Operation | Heater | 12.00 | 5 | 30 | 24 | 70 | 30,240 | 80 | 2,200.00 |
| Humidifying Operation | Humidifier | 6.10 | 7 | 30 | 24 | 50 | 15,372 | 80 | 1,118.00 |
| Heating operation | Heater | 12.00 | 3 | 30 | 24 | 50 | 12,960 | 80 | 943.00 |
| Total | | | | | | | 99,163 | (A) | 7,214.00 |

### • Power calulation data of Energy Saving precision air conditioner

| Operating Condition | Power Equipment | Power Consumption(kW) | Number of Operating Month | Number of Operating Days | Operating Time | Operating Rate(%) | Power Consumption(kW) | Hourly Power Cost | Annual Operating Cost(US$) |
|---|---|---|---|---|---|---|---|---|---|
| Basic operation | Blower | 0.75 | 12 | 30 | 24 | 100 | 6,480 | 80 | 472.00 |
| Cooling operation | Compressor | 5.64 | 12 | 30 | 24 | 70 | 34,111 | 80 | 2,481.00 |
| Dehumidifying Operation | Hot Gas | 0 | 5 | 30 | 24 | 70 | 0 | 80 | 0.00 |
| Humidifying Operation | Humidifier | 6.10 | 7 | 30 | 24 | 50 | 15,372 | 80 | 1,118.00 |
| Heating operation | Heater | 12.00 | 3 | 30 | 24 | 50 | 12,960 | 80 | 943.00 |
| Total | | | | | | | 68,923 | (B) | 5,014.00 |
| Remark | (A)-(B) = US$2,200.00 ( 30% reduction) | | | | | | | | |

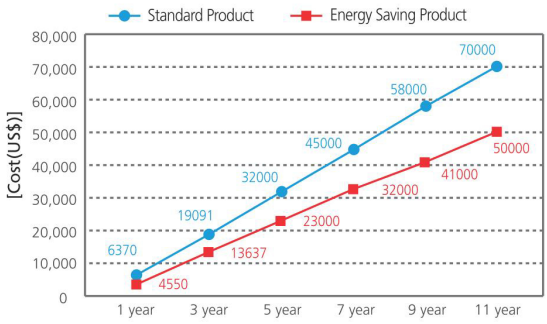


## Summary table for reduction of annual operation cost by precision air conditioner capacity

| Precision Air Conditioner Dimensions | Annual Power Consumption(kW) | | | Annual Operation Cost Reduction (US$) |
|---|---|---|---|---|
| | Standards Products | Energy Efficient Products | Reduction Rate (%) | |
| 3RT | 42,745 | 30,145 | 29 | 917.00 |
| 5RT | 64,581 | 46,941 | 27 | 1,283.00 |
| 6RT | 85,310 | 60,110 | 30 | 1,833.00 |
| 7.5RT | 99,163 | 68,923 | 30 | 2,200.00 |
| 10RT | 133,014 | 95,214 | 28 | 2,750.00 |
| 15RT | 178,129 | 127,729 | 28 | 3,666.00 |
| 20RT | 234,698 | 171,698 | 27 | 4,582.00 |
| 30RT | 352,901 | 262,181 | 26 | 6,598.00 |

* Expected results: Ex. Installed 20RT X 100units of Energy Saving precision air conditioner at OO Data Center
1. Saved operation cost for 1 year : 100units X 4,582.00 years = US$458,200.00
2. Saved usage cost for 5 year : US$458,200.00 X 5 years = US$2,291,000.00
3. Saved usage cost for 10 year : US$4,582.00 X 10 years = US$4,582,000.00

## Annual energy use rate (Basis on 7.5R/T, Korea)



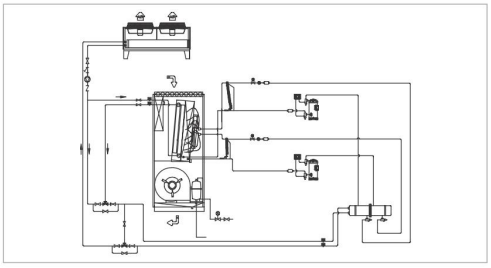
Certificate of Patent

Test Reports

Performance Certificate

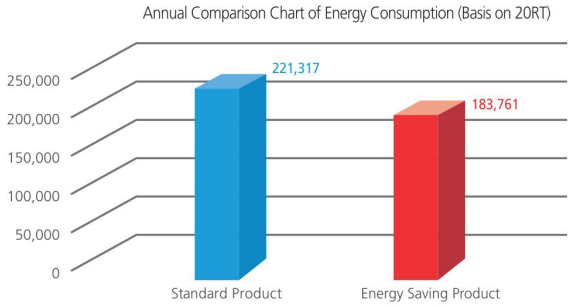
## Dimension The same as general type

# Precision Air Conditioner



## Option 2. Economizer Coil System

## Annual energy use rate (Basis on 20R/T, Korea)

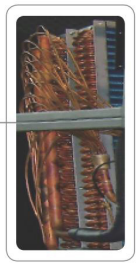


Certificate of Patent

Test Report

## Main component of Outdoor Air Switching System

Applied 3 Way-Valve.
According to cooling Load fluctuation, this system control the flow of cold water & cooling water by electronic signal (modulating control), and possible to set up the maximum & minimum point with program logic.



Applied Multipass Cross Finned Tube Type to Refrigerant Direct Expansion Coil and Cold Water Coil. Using Hydrophilic Coating Fin in order to minimize the reduction of thermal efficiency caused by Condensation water, and stainless steel plate, excellent corrosion resistance is used to the frame.

## Option 2. Economizer Coil System

# Dimension

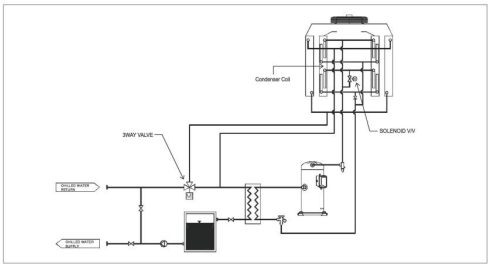
### Up Flow Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Air Cooled Type | Single Type | PA003-A1EO | 1,065 | 750 | 2,050 | 350 |
| | | PA005-A1EO | 1,200 | 900 | 2,050 | 430 |
| | | PA008-A1EO | 1,300 | 970 | 2,050 | 450 |
| | | PA010-A1EO | 1,500 | 1,000 | 2,200 | 550 |
| | | PA015-A1EO | 1,900 | 1,070 | 2,200 | 860 |
| | Dual Type | PA006-A2EO | 1,300 | 850 | 2,050 | 595 |
| | | PA010-A2EO | 1,800 | 930 | 2,150 | 830 |
| | | PA015-A2EO | 2,200 | 970 | 2,150 | 855 |
| | | PA020-A2EO | 2,500 | 1,070 | 2,205 | 1,080 |
| | | PA025-A2EO | 2,500 | 1,100 | 2,205 | 1,250 |
| | | PA030-A2EO | 3,000 | 1,100 | 2,205 | 1,300 |

### Down Flow Type

| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Water Cooled Type (Ethylene Glycol Type) | Single Type | PA003-W1EO | 1,065 | 770 | 1,850 | 350 |
| | | PA005-W1EO | 1,200 | 850 | 1,850 | 430 |
| | | PA008-W1EO | 1,300 | 970 | 1,915 | 450 |
| | | PA010-W1EO | 1,500 | 1,070 | 2,095 | 550 |
| | | PA015-W1EO | 1,900 | 1,070 | 2,095 | 860 |
| | Dual Type | PA006-W2EO | 1,300 | 900 | 1,850 | 595 |
| | | PA010-W2EO | 1,800 | 930 | 1,915 | 830 |
| | | PA015-W2EO | 2,200 | 1,000 | 1,915 | 855 |
| | | PA020-W2EO | 2,500 | 1,070 | 2,095 | 1,080 |
| | | PA025-W2EO | 2,500 | 1,100 | 2,095 | 1,250 |
| | | PA030-W2EO | 3,000 | 1,100 | 2,095 | 1,300 |

# Chiller




## Option 3. Energy Saving Chiller System

## 380V-400V / 50Hz

| Section | | Model | Single Type | | | | | | Single Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1EO | CH008-A1EO | CH010-A1EO | CH015-A1EO | CH020-A1EO | CH030-A1EO | CH010-A2EO | CH015-A2EO | CH020-A2EO | CH030-A2EO | CH040-A2EO | CH060-A2EO |
| Cooling Capacity | R-22 50Hz | BTU/h | 39,300 | 62,500 | 85,000 | 121,000 | 162,000 | 252,000 | 78,600 | 125,000 | 170,000 | 242,000 | 324,000 | 504,000 |
| | | kcal/h | 9,900 | 15,800 | 21,400 | 30,500 | 40,800 | 63,500 | 19,800 | 31,600 | 42,800 | 61,000 | 81,600 | 127,000 |
| | | kW | 11.52 | 18.31 | 24.91 | 35.46 | 47.47 | 73.84 | 23.04 | 36.62 | 49.82 | 70.92 | 94.94 | 147.68 |
| | R-407C 50Hz | BTU/h | 36,800 | 60,700 | 80,100 | 116,000 | 156,000 | 240,000 | 73,600 | 121,400 | 160,200 | 232,000 | 312,000 | 480,000 |
| | | kcal/h | 9,300 | 15,300 | 20,200 | 29,200 | 39,300 | 60,500 | 18,600 | 30,600 | 40,400 | 58,400 | 78,600 | 121,000 |
| | | kW | 10.78 | 17.79 | 23.47 | 33.99 | 45.71 | 70.33 | 21.56 | 35.58 | 46.94 | 67.98 | 91.42 | 140.66 |
| Free Cooling Capacity | | BTU/h | 25,000 | 39,300 | 57,900 | 76,600 | 100,400 | 155,200 | 56,300 | 76,600 | 100,400 | 155,600 | 210,700 | 319,000 |
| | | kcal/h | 6,300 | 9,900 | 14,600 | 19,300 | 25,300 | 39,100 | 14,190 | 19,300 | 25,300 | 39,200 | 53,100 | 80,400 |
| | | kW | 7.30 | 11.50 | 17.00 | 22.40 | 29.40 | 45.50 | 16.50 | 22.40 | 29.40 | 45.60 | 61.70 | 93.50 |
| Condenser | | Type | Air Cooled Condenser Coil | | | | | | Air Cooled Condenser Coil | | | | | |
| | | Air Volume(CMM) | 100 | 170 | 180 | 250 | 330 | 500 | 180 | 250 | 330 | 500 | 660 | 1,000 |
| | | Motor(kW) | 0.29 x 2 | 0.33 x 2 | 0.47 x 2 | 0.50 x 2 | 0.62 x 2 | 0.62 x 3 | 0.47 x 2 | 0.50 x 2 | 0.62 x 2 | 0.50 x 4 | 0.62 x 4 | 0.62 x 6 |
| Free Cooling | | Type | Air cooled Coil | | | | | | Air cooled Coil | | | | | |
| Power Consumption | | kW | 6.93 | 10.31 | 13.25 | 15.13 | 24.84 | 38.17 | 12.95 | 19.49 | 25.04 | 29.87 | 49.29 | 72.59 |
| Electric Wire | | Wire Thickness(mm) | 4 | 10 | 10 | 10 | 16 | 25 | 10 | 16 | 16 | 25 | 35 | 50 |

## 380V-400V / 60Hz

| Section | | Model | Single Type | | | | | | Single Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1EO | CH008-A1EO | CH010-A1EO | CH015-A1EO | CH020-A1EO | CH030-A1EO | CH010-A2EO | CH015-A2EO | CH020-A2EO | CH030-A2EO | CH040-A2EO | CH060-A2EO |
| Cooling Capacity | R-22 60Hz | BTU/h | 49,000 | 76,500 | 104,000 | 151,000 | 199,000 | 303,000 | 98,000 | 153,000 | 208,000 | 302,000 | 398,000 | 606,000 |
| | | kcal/h | 12,400 | 19,300 | 26,200 | 38,100 | 50,200 | 76,400 | 24,800 | 38,600 | 52,400 | 76,200 | 100,400 | 152,800 |
| | | kW | 14.36 | 22.42 | 30.47 | 44.25 | 58.31 | 88.79 | 28.72 | 44.84 | 60.94 | 88.50 | 116.62 | 177.58 |
| | R-407C 60Hz | BTU/h | 44,600 | 72,600 | 97,900 | 140,500 | 188,000 | 293,000 | 89,200 | 145,200 | 195,800 | 281,000 | 376,000 | 586,000 |
| | | kcal/h | 11,200 | 18,300 | 24,700 | 35,400 | 47,400 | 73,800 | 22,400 | 36,600 | 49,400 | 70,800 | 94,800 | 147,600 |
| | | kW | 13.07 | 21.27 | 28.69 | 41.17 | 55.09 | 85.86 | 26.14 | 42.54 | 57.38 | 82.34 | 110.18 | 171.72 |
| Free Cooling Capacity | | BTU/h | 25,000 | 39,300 | 57,900 | 76,600 | 100,400 | 155,200 | 56,300 | 76,600 | 100,400 | 155,600 | 210,700 | 319,000 |
| | | kcal/h | 6,300 | 9,900 | 14,600 | 19,300 | 25,300 | 39,100 | 14,190 | 19,300 | 25,300 | 39,200 | 53,100 | 80,400 |
| | | kW | 7.30 | 11.50 | 17.00 | 22.40 | 29.40 | 45.50 | 16.50 | 22.40 | 29.40 | 45.60 | 61.70 | 93.50 |
| Condenser | | Type | Air Cooled Condenser Coil | | | | | | Air Cooled Condenser Coil | | | | | |
| | | Air Volume(CMM) | 120 | 200 | 220 | 300 | 400 | 600 | 220 | 300 | 400 | 600 | 800 | 1,200 |
| | | Motor(kW) | 0.35 x 2 | 0.40 x 2 | 0.57 x 2 | 0.60 x 2 | 0.75 x 2 | 0.75 x 3 | 0.57 x 2 | 0.60 x 2 | 0.75 x 2 | 0.60 x 4 | 0.75 x 4 | 0.75 x 6 |
| Free Cooling | | Type | Air cooled Coil | | | | | | Air cooled Coil | | | | | |
| Power Consumption | | kW | 7.05 | 10.45 | 13.44 | 15.34 | 25.10 | 38.55 | 13.14 | 19.70 | 25.30 | 30.28 | 49.80 | 74.60 |
| Electric Wire | | Wire Thickness(mm) | 6 | 10 | 10 | 10 | 16 | 25 | 10 | 16 | 16 | 25 | 35 | 50 |

## Common Application

| Section | | Model | Single Type | | | | | | Single Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CH005-A1EO | CH008-A1EO | CH010-A1EO | CH015-A1EO | CH020-A1EO | CH030-A1EO | CH010-A2EO | CH015-A2EO | CH020-A2EO | CH030-A2EO | CH040-A2EO | CH060-A2EO |
| Compressor | | Type | Hermetic Scroll Type | | | | | | Hermetic Scroll Type | | | | | |
| | | kW | 5.25 | 8.15 | 10.80 | 11.94 | 21.40 | 32.30 | 5.25 x 2 | 8.15 x 2 | 10.80 x 2 | 11.94 x 2 | 21.40 x 2 | 32.30 x 2 |
| Control | | Electricity | Micom Control | | | | | | Micom Control | | | | | |
| | | Regrigerant | Expansion Valve Type | | | | | | Expansion Valve Type | | | | | |
| Cooler | | | Brazed Plate Heat Exchanger Type or Tank & Coil Type | | | | | | Brazed Plate Heat Exchanger Type or Tank & Coil Type | | | | | |
| Circulation Pump | | Type | Horizontal, Multi Stage Pump | | | | | | Horizontal, Multi Stage Pump | | | | | |
| | | Flow Rate(LPM) | 47 | 70 | 93 | 140 | 187 | 280 | 93 | 140 | 187 | 280 | 375 | 560 |
| | | Motor(kW) | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 4.00 | 1.50 | 2.20 | 2.20 | 4.00 | 4.00 | 5.50 |
| Pipe Diameter (mm) | | Chilled Water In/Out | 32A | 40A | 50A | 50A | 65A | 65A | 50A | 50A | 65A | 65A | 80A | 80A |
| | | Water Supply | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A | 15A |
| | | Drain | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A | 25A |

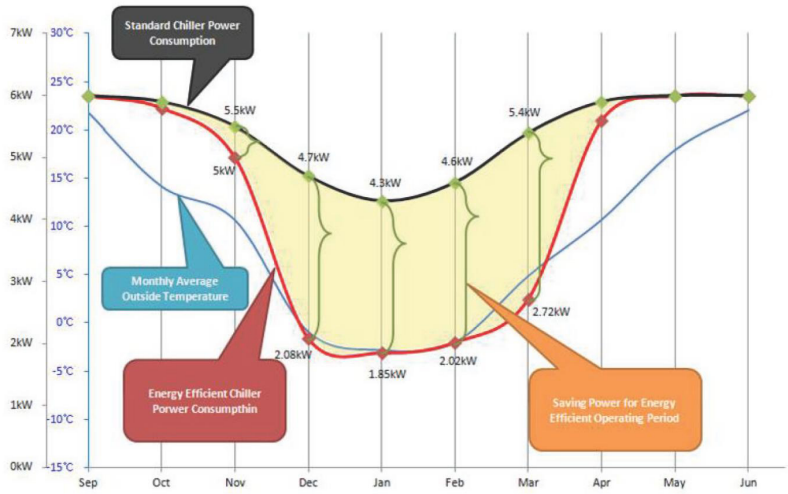
- Design standard is ET 0°c, CT 54/4°c, Ethylene Glycol 30%
- Free Cooling: Based on the outdoor temperature(5°c), and Ethylene Glycol(30%)

## Option 3. Energy Saving Chiller System

### Dimension

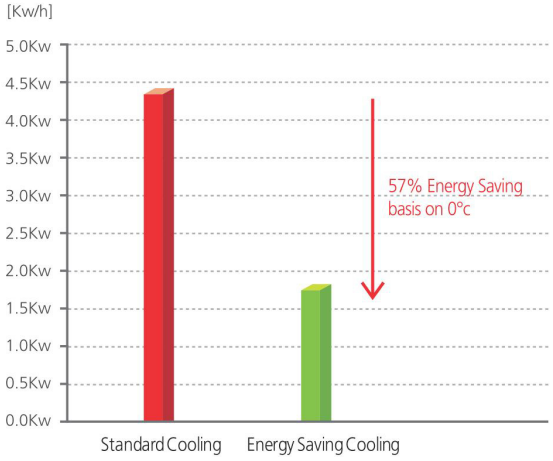
| Model | | | A(mm) | B(mm) | C(mm) | Weight(kg) |
|---|---|---|---|---|---|---|
| Energy Efficient Type | Single Type | CH005-A1EO | 1,850 | 950 | 1,320 | 650 |
| | | CH008-A1EO | 1,950 | 950 | 1,525 | 809 |
| | | CH010-A1EO | 2,150 | 1,070 | 1,580 | 979 |
| | | CH015-A1EO | 2,300 | 1,150 | 1,725 | 1,157 |
| | | CH020-A1EO | 2,530 | 1,300 | 1,930 | 1,582 |
| | | CH030-A1EO | 3,250 | 1,300 | 2,070 | 1,729 |
| | Dual Type | CH010-A2EO | 2,150 | 1,070 | 1,580 | 1,002 |
| | | CH015-A2EO | 2,300 | 1,150 | 1,725 | 1,232 |
| | | CH020-A2EO | 2,530 | 1,300 | 1,930 | 1,565 |
| | | CH030-A2EO | 3,600 | 1,300 | 2,070 | 2,123 |
| | | CH040-A2EO | 4,100 | 1,300 | 2,120 | 2,991 |
| | | CH060-A1EO | 5,900 | 1,300 | 2,250 | 4,794 |

### Using Period of Energy Efficient Chiller for the year




57% Energy Saving basis on 0°C

### Comparison Graph of Standard & Energy Saving Cooling

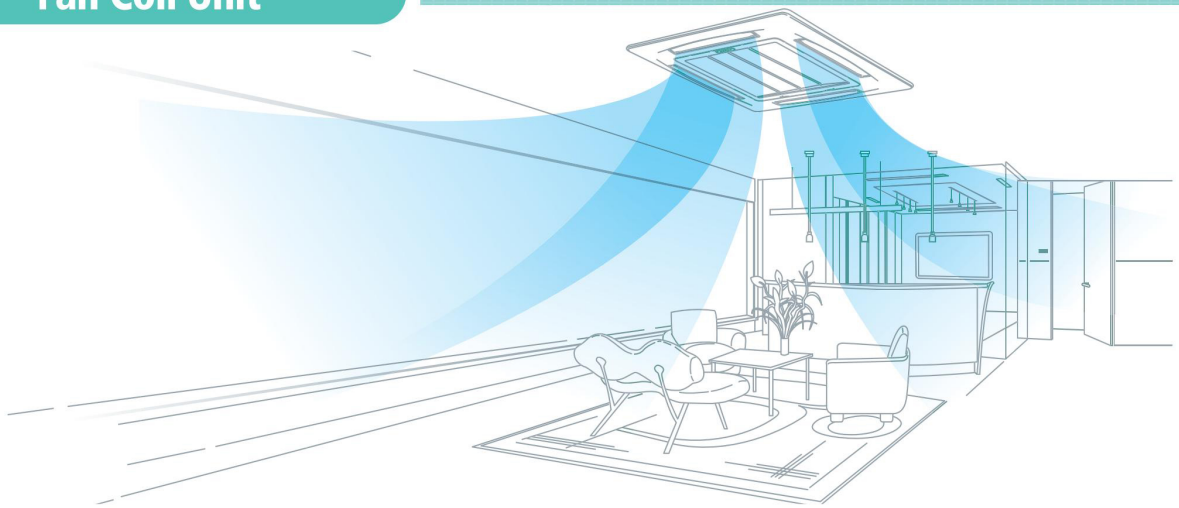


Certificate of Patent

Test Report

- Fan Coil Unit
- Air Handling Unit
- Clean Room System
- Freezer System
- Humidifier
- Blazed Plate Heat Exchanger
- Electric Boiler
- Air Cleaning & Humidifying System
- Leakage Detection System
- Digipressure

# Fan Coil Unit



## 1, 2, 4 -WAY CEILING CASSETTE TYPE



**Casing**
The cases are made so that their colors and outfits are well harmonized with the surrounding, and also their heat insulating materials and sound absorbs materials use hard-to-be flame resistance in order to minimize noise and condensation.

**Automatic Drain Pump**
Drain Pump is operated by time control, and it is designed to have its maximum head of 600mm.

**Interior Grile Panel**
Interior Grille Panel is beautifully equipped, and it swings 4way Air Guide Vane with angle of 30˚~70˚ for ideal air distribution. In addition, it is designed to be completely closed in order to prevent influx of foreign substance when it is stopped.

**Coil**
Single-body-typed circular heat exchanger uses water-friendly slit fin whose heat efficiency is maximized, and the connection areas for copper pipes and fins used high-pressured hydraulic extended pipe method in order to improve heat transferring efficiency.

**Control Switches**
It uses wireless remote controller to reduce construction cost and improve convenience for consumers, and automatic compensation function for power failure and automatic function are added so that wind flow rate can be automatically converted by difference between indoor and desired temperature. (Wired remote controller can be also used with wireless one simultaneously)

**Fan & Motor Ass'y**
It uses condenser driving single phase inducing motor that has strong durability.
In addition, it is running very calmly by introducing high-quality turbo fan made of ABS, and it is designed to select wind flow rates suitable for indoor air-conditioning by adjusting RPMs by 4-steps in turbo, high, medium and low.

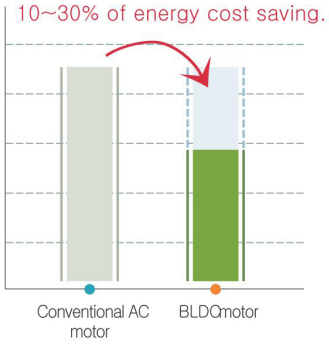
# Fan Coil Unit

## Low noised design using turbo fan

It strengthen wind flow and reduces noise by adopting 3-dimensional aerodynamic typed-turbo fan, and it is also designed to be very slim-type making it easier to be installed even at the low ceiling height.

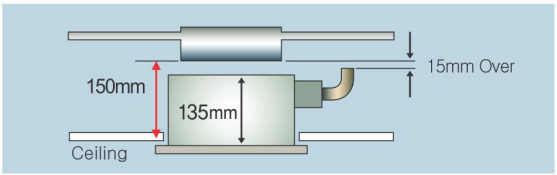
## Low noise and extremely light weight BLDC motor is used

It saves energy cost with its high efficiency and low noise BLDC fan motor and provides comfortable environment.



## Slim, Compact & Clean Design

Compact design for installation in low ceiling is not an issue.
In various places can be installed without the constraints of space.
Slim, stylish design, grille panel created by the curve consistent with the ceiling, matching Indoor decoration well.



## Comfortable and Convenient

It is clean with its high-capacity and bacteria-proof filter
It is easy to be cleaned with removable front grill structure.
It provides very comfortable cooling and heating system in a way that produces optimized air flow as its smooth swing blades on the ceiling generate winds uniformly wireless and wired remote control functions for making the product look more deluxe

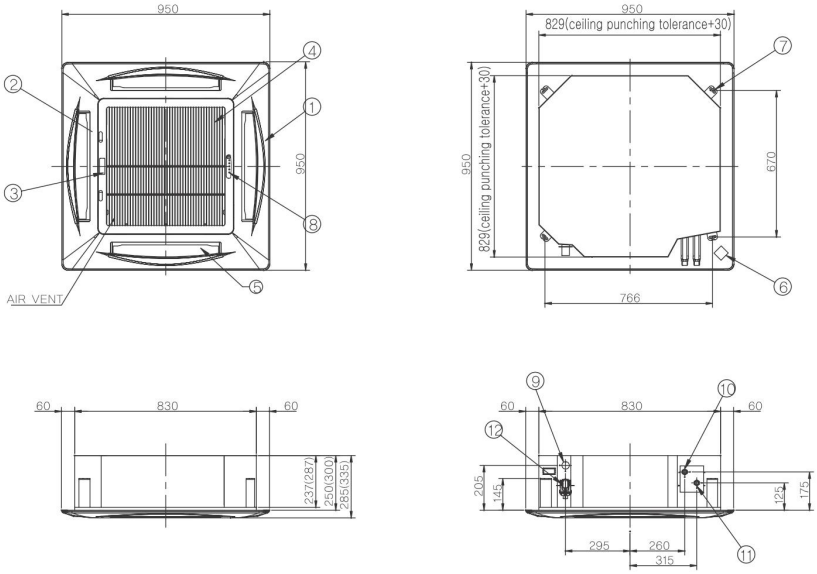
## Strong structural design with base pan (cassette type)

Its whole indoor equipment is strengthened with strong structural design, and it is designed to be low noise by completely removing resonance noise from vibration of body

### Standard specification for fan coil unit BLDC motor

| Division / Model | | Model No. | Rating Cooling Capacity | | Rating Heating Capacity | | Air flow rate | Flow rate | Power consumption | Motor |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | kw | kcal/hr | kw | kcal/hr | m³/hr | lpm | w | |
| CASSETTE TYPE | 4-WAY Cassette | SFC - 3K | 3.7 | 3,150 | 5.8 | 5,050 | 780 | 11.0 | 25 | BLDC |
| | | SFC - 4K | 5.0 | 4,300 | 7.9 | 6,850 | 960 | 14.0 | 35 | |
| | | SFC - 5K | 6.1 | 5,250 | 9.7 | 8,400 | 1,140 | 18.0 | 40 | |
| | | SFC - 6K | 7.2 | 6,250 | 11.6 | 10,000 | 1,320 | 21.0 | 56 | |
| | | SFC - 8K | 9.4 | 8,150 | 15.1 | 13,000 | 1,560 | 27.0 | 96 | |
| | | SFC - 10K | 11.6 | 10,000 | 18.0 | 15,500 | 1,980 | 33.3 | 130 | |
| | 2-WAY Cassette | SFC2 - 3K | 3.6 | 3,150 | 5.8 | 5,050 | 660 | 11.0 | 36 | |
| | | SFC2 - 4K | 5.0 | 4,300 | 7.9 | 6,850 | 780 | 14.0 | 48 | |
| | | SFC2 - 5K | 6.1 | 5,250 | 9.7 | 8,400 | 960 | 18.0 | 92 | |
| | 1-WAY Cassette | SFC1 - 1.5K | 1.9 | 1,600 | 3.0 | 2,560 | 420 | 5.3 | 27 | |
| | | SFC1 - 2K | 2.5 | 2,100 | 3.6 | 3,090 | 480 | 7.0 | 33 | |
| | | SFC1 - 2.5K | 2.9 | 2,500 | 4.3 | 3,700 | 540 | 9.3 | 38 | |
| | | SFC1 - 3K | 3.6 | 3,100 | 5.1 | 4,400 | 540 | 10.3 | 38 | |
| | | SFC1 - 3.5K | 4.1 | 3,500 | 6.2 | 5,150 | 660 | 11.7 | 48 | |
| 1-WAY Ceiling Cassette Slim Type | | SFC1 - S3K | 3.4 | 3,000 | 5.2 | 4,500 | 660 | 10.0 | 45 | |
| | | SFC1 - S4K | 4.6 | 4,000 | 6.9 | 6,000 | 780 | 13.3 | 65 | |

# 4-WAY CEILING CASSETTE TYPE




| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | INTERIOR GRILLE ASS ' Y | | HIPS | 1 | COLOR : WHITE BEIGE |
| 2 | GRILLE BUTTON ATTACHMENT SNAPS | | HIPS | 2 | SLIDING TYPE |
| 3 | NAME PLATE | | | 1 | |
| 4 | RETURN GRILLE | | HIPS | 1 | COLOR : WHITE BEIGE |
| 5 | AIR GUIDE VANE | | ASS ' Y | 4 | |
| 6 | SWING MOTOR | | ASS ' Y | 1 | STEPPING MOTOR:DC12V 150 Ω |

| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 7 | HANGING BRACKET | t1.6 | GI | 4 | |
| 8 | RECEIVER REMOTE CONTROL | | Acrylic | 1 | Wireless remote controller |
| 9 | DRAIN JOINT PORT | ∅16(External diameter) | | 1 | |
| 10 | COLD / HOT WATER OUTLET | | BS | 1 | |
| 11 | COLD/HOT WATER INLET | PF 3/4˝(20A) | BS | 1 | |
| 12 | DRAIN PUMP | PF 3/4˝(20A) | | 1 | 1∅, 220V, 60Hz |

※ Dimension in ( ) is for SFC-10k

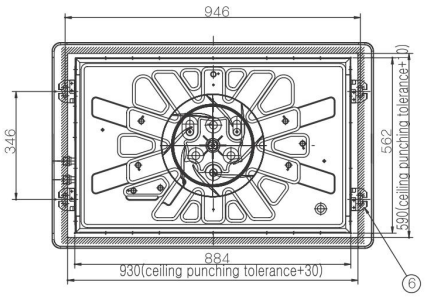
| Section | | Unit | SFC-3K | | SFC-4K | | SFC-5K | | SFC-6K | | SFC-8K | | SFC-10K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity | Capacity condition | | A | B | A | B | A | B | A | B | A | B | A | B |
| | Cooling capacity | Kcal/h | 4,350 | 3,150 | 5,950 | 4,300 | 7,250 | 5,250 | 8,650 | 6,250 | 11,300 | 8,150 | 13,500 | 10,000 |
| | Heating capacity | Kcal/h | 8,080 | 5,050 | 10,900 | 6,850 | 13,400 | 8,400 | 16,000 | 10,000 | 21,000 | 13,000 | 25,000 | 15,500 |
| | Volume flow | ℓ / min | 15 | 11 | 20 | 14 | 24 | 18 | 29 | 21 | 38 | 27 | 45 | 33.3 |
| | Head loss | mAq | 2.9 | 2.6 | 3.1 | 2.8 | 3.7 | 2.9 | 5.1 | 3.5 | 5.8 | 4.9 | 8.1 | 7.2 |
| Fan | Type | | Single suction turbo type | | | | | | | | | | | |
| | Size | mm | ∅480 | | | | | | | | | | | |
| | Air flow rate | $m^3$/min | 13 | | 16 | | 19 | | 22 | | 26 | | 33 | |
| | Driving | | Motor connected driving | | | | | | | | | | | |
| | Number | EA | 1 | | | | | | | | | | | |
| Motor | Type | | Semi - hermetic (six pole, b type insulation) | | | | | | | | | | | |
| | Power consumption | W | 110 (40) | | 110 (40) | | 110 (40) | | 140 (56) | | 140 (96) | | 200 (130) | |
| | Number | EA | 1 | | | | | | | | | | | |
| Heat exchanger | Type | | Unite type Multi-Pass Cross Finned Tube (Slit Fin) | | | | | | | | | | | |
| | Fin Pitch | mm | 2.1 | | | | | | | | | | 1.8 | |
| Piping | Inlet | A | PF 3/4˝ (20A) | | | | | | | | | | | |
| | Outlet | A | PF 3/4˝ (20A) | | | | | | | | | | | |
| | Drain | mm | ∅16 ( external diameter) / Drain Pump embedded (10W) / Head 600mm | | | | | | | | | | | |
| Exterior | | | Body : Galvanized steel (0.8t, 1.0t), grille panel : plastic (HIPS, ABS material) | | | | | | | | | | | |
| Lagging sound-absorbing materials | | | P.U Foam, Styrofoam, P.E Foam / Flame resistance | | | | | | | | | | | |
| Air flow rate control | | | Turbo and high, medium, weak, operated by wireless remote control (Wire remote control option) | | | | | | | | | | | |
| Electricity | | | Single phase 220V, 60Hz | | | | | | | | | | | |
| Air Filter | | | Vinyl chloride (Flush) | | | | | | | | | | | |
| Discharge grille swing motor | | | DC 12V, Stepping Motor | | | | | | | | | | | |
| Weight | | Kg | 34.0 | | | | 34.5 | | | | 35.5 | | 39.0 | |

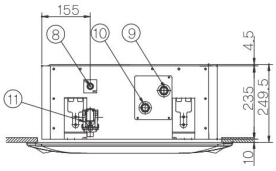
(Note) 1. capacity condition A : cooling capacity : indoor air DB 27 ℃ WB 21 ℃ entrance water temperature 5℃ heating capacity : indoor air 18 ℃ entrance water temperature 80 ℃
2. capacity condition B : cooling capacity : indoor air DB 27 ℃ WB 19.5 ℃ entrance water temperature 7℃ heating capacity : indoor air 21 ℃ entrance water temperature 60 ℃

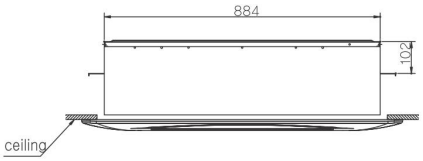
※ ( )adopting BLDC motor

# 2-WAY CEILING CASSETTE TYPE

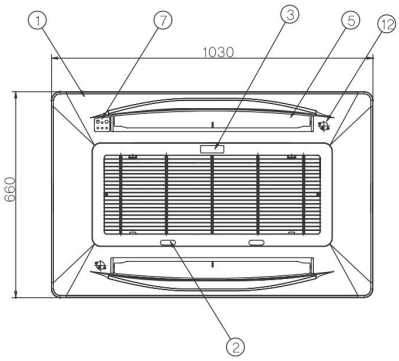
| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | INTERIOR GRILLE ASS ' Y | | HIPS | 1 | COLOR : WHITE BEIGE |
| 2 | GRILLE BUTTON ATTACHMENT SNAPS | | HIPS | 2 | SLIDING TYPE |
| 3 | NAME PLATE | | | 1 | |
| 4 | RETURN GRILLE | | HIPS | 1 | COLOR : WHITE BEIGE |
| 5 | AIR GUIDE VANE | | ASS ' Y | 4 | |
| 6 | HANGING BRACKET | t1.6 | GI | 4 | |




| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 7 | RECEIVER REMOTE CONTROL | | ACRYLIC | 4 | BLACK (WIRELESS REMOTE CONTROLLER) |
| 8 | DRAIN JOINT PORT | ∅16(External diameter) | | 1 | |
| 9 | COLD / HOT WATER OUTLET | PF 3/4"(20A) | | 1 | |
| 10 | COLD/HOT WATER INLET | PF 3/4"(20A) | | 1 | |
| 11 | DRAIN PUMP | | | 1 | 1∅, 220V, 60HZ |
| 12 | SWING MOTOR | DC12V 150 Ω | | 2 | STEPPING MOTOR |



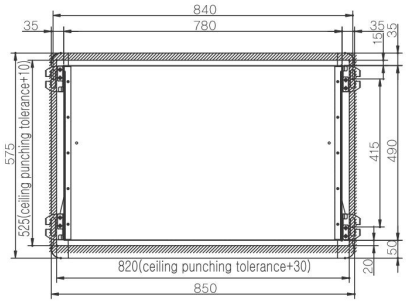

| Section | | Unit | SFC2-3K | | SFC2-4K | | SFC2-5K | |
|---|---|---|---|---|---|---|---|---|
| Capacity | Capacity condition | | A | B | A | B | A | B |
| | Cooling capacity | Kcal/h | 4,850 | 3,150 | 5,700 | 4,200 | 6,435 | 5,000 |
| | Heating capacity | Kcal/h | 8,900 | 5,050 | 10,400 | 6,335 | 11,900 | 7,300 |
| | Volume flow | ℓ / min | 15 | 11 | 20 | 14 | 24 | 18 |
| | Head loss | mAq | 0.7 | 0.6 | 2.0 | 1.0 | 2.9 | 1.6 |
| Fan | Type | | Single suction turbo type | | | | | |
| | Size | mm | ∅325 | | | | | |
| | Air flow rate | $m^3$/min | 11 | | 13 | | 16 | |
| | Driving | | Motor connected driving | | | | | |
| | Number | EA | 1 | | | | | |
| Motor | Type | | Semi-hermetic (six pole, b type insulation) | | | | | |
| | power consumption | W | 80 (36) | | 95 (48) | | 110 (92) | |
| | Number | EA | 1 | | | | | |
| Heat exchanger | Type | | Unite type Multi-Pass Cross Finned Tube (Slit Fin) | | | | | |
| | Fin Pitch | mm | 2.1 | | | | | |
| Piping | Inlet | A | PF 3/4" (20A) | | | | | |
| | Outlet | A | PF 3/4" (20A) | | | | | |
| | Drain | mm | ∅16 ( external diameter) / Drain Pump embedded (10W) / head 600mm | | | | | |
| Exterior | | | Body : Galvanized steel (0.8t, 1.0t), grille panel: plastic (HIPS, ABS material) | | | | | |
| Lagging sound-absorbing materials | | | P.U Foam, Styrofoam, P.E Foam / flame resistant | | | | | |
| Air flow rate control | | | Turbo and high, medium, weak, operated by wireless remote control (wire remote control option) | | | | | |
| Electricity | | | Single phase 220V, 60Hz | | | | | |
| Air Filter | | | Vinyl chloride(wash) | | | | | |
| Discharge grille swing motor | | | DC 12V, Stepping Motor | | | | | |
| Weight | | Kg | 31 | | 31 | | 33 | |

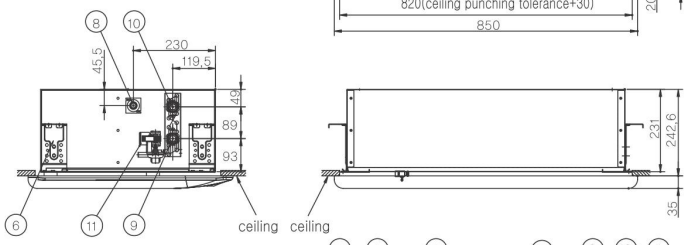
(Note) 1. capacity condition A : cooling capacity : indoor air DB 27 ℃ WB 21 ℃ entrance water temperature 5℃ heating capacity : indoor air 18 ℃ entrance water temperature 80 ℃
2. capacity condition B : cooling capacity : indoor air DB 27 ℃ WB 19.5 ℃ entrance water temperature 7℃ heating capacity : indoor air 21 ℃ entrance water temperature 60 ℃

※ ( )adopting BLDC motor

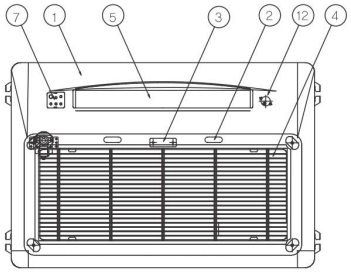
# 1-WAY CEILING CASSETTE TYPE

| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | INTERIOR GRILLE ASS ' Y | | HIPS | 1 | COLOR : WHITE BEIGE |
| 2 | GRILLE BUTTON ATTACHMENT SNAPS | | HIPS | 1 | SLIDING TYPE |
| 3 | NAME PLATE | | | 1 | |
| 4 | RETURN GRILLE | | HIPS | 2 | COLOR : WHITE BEIGE |
| 5 | AIR GUIDE VANE | | ASS ' Y | 2 | |
| 6 | HANGING BRACKET | | GI | 4 | |




| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 7 | RECEIVER REMOTE CONTROL | | Acrylic | 4<br>1 | BLACK (WIRELESS REMOTE CONTROLLER) |
| 8 | DRAIN JOINT PORT | ⌀16(External diameter) | | 1 | |
| 9 | COLD/HOT WATER OUTLET | PF 3/4˝(20A) | | 1 | |
| 10 | COLD/HOT WATER INLET | PF 3/4˝(20A) | | 1 | |
| 11 | DRAIN PUMP | | | 1 | 1⌀, 220V, 60Hz |
| 12 | SWING MOTOR | DC12V 15 Ω | | | STEPPING MOTOR |




| Section | | Unit | SFC1-1.5K | | SFC1-2K | | SFC1-2.5K | | SFC1-3K | | SFC1-3.5K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity | Capacity condition | | A | B | A | B | A | B | A | B | A | B |
| | Cooling capacity | Kcal/h | 2,240 | 1,600 | 2,700 | 2,100 | 3,020 | 2,500 | 4,000 | 3,100 | 4,550 | 3,500 |
| | Heating capacity | Kcal/h | 4,400 | 2,560 | 5,000 | 3,200 | 5,780 | 3,700 | 7,300 | 4,500 | 8,450 | 5,300 |
| | Volume flow | ℓ / min | 7.5 | 5.3 | 9.0 | 7.0 | 10.1 | 8.3 | 13.3 | 10.3 | 15.2 | 11.7 |
| | Head loss | mAq | 0.43 | 0.22 | 0.62 | 0.38 | 0.78 | 0.53 | 2.05 | 1.24 | 2.64 | 1.56 |
| Fan | Type | | Double suction turbo type | | | | | | | | | |
| | Size | mm | ⌀ 140 x 165 x 1 | | ⌀ 140 x 200 x 1 | | ⌀ 140 x 200 x 2 | | ⌀ 140 x 200 x 2 | | ⌀ 140 x 200 x 2 | |
| | Air flow rate | $m^3$/min | 5.6 | | 7 | | 9 | | 9 | | 11 | |
| | Driving | | Motor connected driving | | | | | | | | | |
| | Number | EA | 1set | | | | | | | | | |
| Motor | Type | | Semi-hermetic (six pole, b type insulation) | | | | | | | | | |
| | Power consumption | W | 50 (27) | | 50 (33) | | 65 (38) | | 65 (38) | | 65 (48) | |
| | Number | EA | 1 | | | | | | | | | |
| Heat exchanger | Type | | Unite type Multi-Pass Cross Finned Tube (Slit Fin) | | | | | | | | | |
| | Fin Pitch | mm | 2.1 | | | | | | | | | |
| Piping | Inlet | A | PF 3/4" (20A) | | | | | | | | | |
| | Outlet | A | PF 3/4" (20A) | | | | | | | | | |
| | Drain | mm | ⌀ 16 ( external diameter) / Drain Pump embedded (10W) / head 600mm | | | | | | | | | |
| Exterior | | | Body : galvanized steel (0.8t, 1.0t), grille panel : plastic (HIPS, ABS material) | | | | | | | | | |
| Lagging sound-absorbing | | | P.U Foam, Styrofoam, P.E Foam / Flame resistant | | | | | | | | | |
| Materials | | | Turbo and high, medium, weak, operated by wireless remote control (Wire remote control option) | | | | | | | | | |
| Air flow rate control | | | Single phase 220V, 60Hz | | | | | | | | | |
| Electricity | | | DC 12V, Stepping Motor | | | | | | | | | |
| Air Filter | | | Vinyl chloride (Flush) | | | | | | | | | |
| Motor | | mm | 850 × 576 × 280 | | | | | | | | | |
| Weight | | Kg | 28 | | 28 | | 28 | | 30 | | 30 | |

(Note) 1. capacity condition A : cooling capacity : indoor air DB 27 ℃ WB 21 ℃ entrance water temperature 5℃ heating capacity : indoor air 18 ℃ entrance water temperature 80 ℃
2. capacity condition B : cooling capacity : indoor air DB 27 ℃ WB 19.5 ℃ entrance water temperature 7℃ heating capacity : indoor air 21 ℃ entrance water temperature 60 ℃

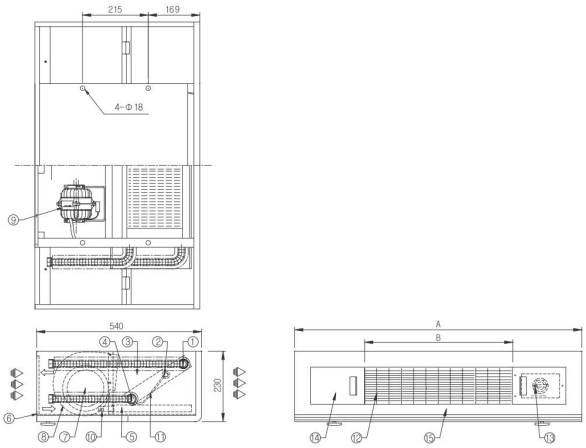
※ ( )adopting BLDC motor

# Fan Coil Unit

## CEILING EXPOSED TYPE

| MODEL | A | B | G | M | F |
|---|---|---|---|---|---|
| SFC-20C | 940 | 120 × 4=480 | 4 | 1 | 1 |
| SFC-30C | 1060 | 120 × 5=600 | 5 | 1 | 1 |
| SFC-40C | 1180 | 120 × 6=720 | 6 | 1 | 2 |
| SFC-60C | 1420 | 120 × 8=960 | 8 | 1 | 2 |
| SFC-80C | 1660 | 120 × 10=1200 | 10 | 2 | 3 |
| SFC-120C | 1900 | 120 × 12=1440 | 12 | 2 | 4 |

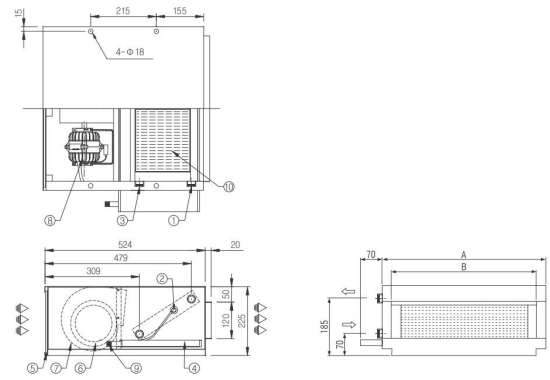
| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | WATER OUTLET | PF 3/4˝(20A) | BS | 1 | |
| 2 | AIR VENT | PT 1/8˝ | BS | 1 | |
| 3 | INNER SIDE CASING | t1.2 | GI | 2 | |
| 4 | WATER INLET | PF 3/4˝(20A) | BS | 1 | Manual |
| 5 | DRAIN PAN | | GI | 1 | |
| 6 | AIR FILTER | | vinyl chloride | 1 | vinyl chloride |
| 7 | FAN IMPELLER | ø145 | ABS | F | |
| 8 | FAN HOUSING | | ABS | F | |
| 9 | MOTOR | 1ø 220V 60Hz | ASS'Y | M | |
| 10 | DRAIN CONNECTION | NIPPLE 1/2˝(15A) | | 1 | |
| 11 | HEAT & COOLING COIL | OD3/8˝ × t0.35 | CU-AL | 1 | SLIT FINE adopt |
| 12 | GRILLE | 120 × 120 | 내열ABS | G | |
| 13 | CONTROL S/W | High, Medium, Low 3-stepped | | 1 | Rotary Type |
| 14 | ACCESS DOOR | 120 × 200 | ABS | 2 | |
| 15 | OUTER AIR PANEL | t1.0 | CR | 1 | |




## CEILING CONCEALED TYPE

| MODEL | A | B | M | F |
|---|---|---|---|---|
| SFC-20CM | 540 | 480 | 1 | 1 |
| SFC-30CM | 660 | 600 | 1 | 1 |
| SFC-40CM | 780 | 720 | 1 | 2 |
| SFC-60CM | 1020 | 960 | 1 | 2 |
| SFC-80CM | 1260 | 1200 | 2 | 3 |
| SFC-120CM | 1500 | 1440 | 2 | 4 |

| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | WATER OUTLET | PF 3/4˝(20A) | BS | 1 | |
| 2 | AIR VENT | PT 1/8˝ | BS | 1 | MANUAL |
| 3 | WATER INLET | PF 3/4˝(20A) | BS | 1 | |
| 4 | DRAIN PAN | | GI | 1 | |
| 5 | AIR FILTER | | VINYL CHLORIDE | 1 | FLUSH |
| 6 | FAN IMPELLER | ø145 | ABS | F | SIROCCO |
| 7 | FAN HOUSING | | ABS | F | |
| 8 | MOTOR | 1ø 220V 60Hz | ASS'Y | M | |
| 9 | DRAIN CONNECTION | NIPPLE 1/2˝(15A) | | 1 | |
| 10 | HEAT & COOLING COIL | OD3/8˝ × t0.35 | CU-AL | 1 | SILT FIN T |




| Section | | Unit | SFC-20C, CM | | SFC-30C, CM | | SFC-40C, CM | | SFC-60C, CM | | SFC-80C, CM | | SFC-120C, CM | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity | Capacity condition | | A | B | A | B | A | B | A | B | A | B | A | B |
| | Cooling capacity | Kcal/h | 2,670 | 1,820 | 3,500 | 2,420 | 4,730 | 3,480 | 6,370 | 4,720 | 9,320 | 6,770 | 12,020 | 8,820 |
| | Heating capacity | Kcal/h | 4,630 | 2,980 | 6,790 | 4,100 | 9,250 | 5,770 | 12,500 | 7,530 | 18,310 | 11,140 | 20,530 | 12,330 |
| | Volume flow | ℓ / min | 10 | 6 | 12 | 8 | 15 | 11.5 | 20 | 15.7 | 30 | 22.4 | 40 | 29.3 |
| | Head loss | mAq | 1.5 | 0.72 | 2.4 | 1.5 | 4.1 | 2.9 | 1.9 | 1.3 | 4.1 | 2.7 | 4.1 | 2.3 |
| Fan | Type | | Double suction turbo type | | | | | | | | | | | |
| | Size | mm | ø145 × L165 | | ø145 × L200 | | ø145 × L165 | | ø145 × L200 | | ø145 × L200 | | ø145 × L200 | |
| | Air flow rate | m³/min | 5.7 | | 8.5 | | 11.3 | | 17 | | 22.6 | | 34 | |
| | Driving | | Motor connected driving | | | | | | | | | | | |
| | Number | EA | 1 | | 1 | | 2 | | 2 | | 3 | | 4 | |
| Motor | Type | | Semi-hermetic (six pole, b type insulation) | | | | | | | | | | | |
| | Power consumption | W | 40 | | 50 | | 65 | | 80 | | 40 + 50 | | 80 × 2 | |
| | Number | EA | 1 | | 1 | | 1 | | 1 | | 2 | | 2 | |
| Heat exchanger | Type | | Unite type Multi-Pass Cross Finned Tube (Slit Fin) | | | | | | | | | | | |
| | Fin Pitch | mm | 2.1 | | | | | | | | 1.8 | | | |
| Piping | Inlet | A | PF 3/4" (20A) | | | | | | | | | | | |
| | Outlet | A | PF 3/4" (20A) | | | | | | | | | | | |
| | Drain | mm | NIPPLE 3/4" (20A) | | | | | | | | | | | |
| Exterior | | | Exposed Type : cold rolling steel(t1.0)+powder,heat and dry coating(white beige), Concealed Type : galvanized steel(t0.8) | | | | | | | | | | | |
| Lagging sound-absorbing materials | | | P.U Foam, Styrofoam, P.E Foam / Flame resistance | | | | | | | | | | | |
| Air flow rate control | | | High, Medium, Low 3 Steps Rotary Switch | | | | | | | | | | | |
| Electricity | | | Single phase 220V, 60Hz | | | | | | | | | | | |
| Air Filter | | | Vinyl chloride (Flush) | | | | | | | | | | | |
| Weight | | Kg | 23(15) | | 26(17) | | 29(20) | | 34(24) | | 41(32) | | 49(40) | |

(Note) 1. capacity condition A : cooling capacity : indoor air DB 27 ℃ WB 21 ℃ entrance water temperature 5℃ heating capacity : indoor air 18 ℃ entrance water temperature 80 ℃
2. capacity condition B : cooling capacity : indoor air DB 27 ℃ WB 19.5 ℃ entrance water temperature 7℃ heating capacity : indoor air 21 ℃ entrance water temperature 60 ℃

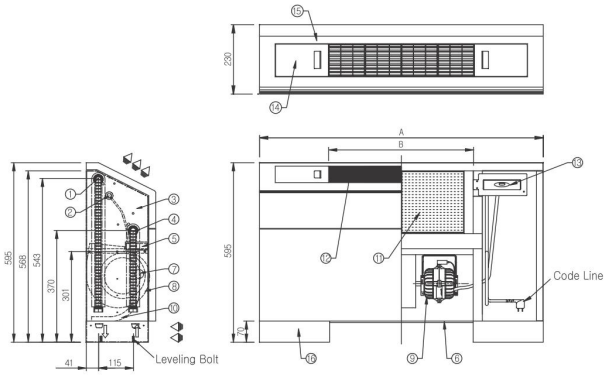
※Dimension in ( ) is for concealed type

# Fan Coil Unit

## FLOOR EXPOSED - SLANT DISCHARGE TYPE

| MODEL | A | B | G | M | F |
|---|---|---|---|---|---|
| SFC-20FT | 940 | 120 × 4=480 | 4 | 1 | 1 |
| SFC-30FT | 1060 | 120 × 5=600 | 5 | 1 | 1 |
| SFC-40FT | 1180 | 120 × 6=720 | 6 | 1 | 2 |
| SFC-60FT | 1420 | 120 × 8=960 | 8 | 1 | 2 |
| SFC-80FT | 1660 | 120 × 10=1200 | 10 | 2 | 3 |
| SFC-120FT | 1900 | 120 × 12=1440 | 12 | 2 | 4 |

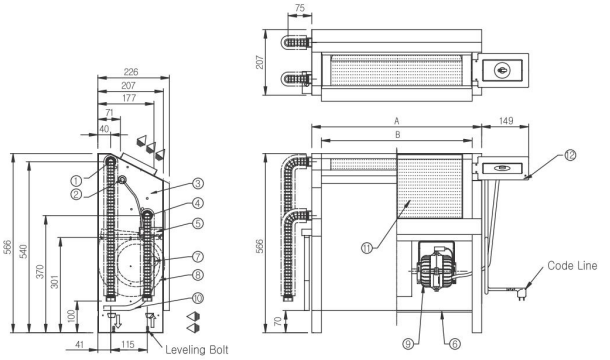
| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | WATER OUTLET | PF 3/4˝(20A) | BS | 1 | |
| 2 | AIR VENT | PT 1/8˝ | BS | 1 | MANUAL |
| 3 | INNER SIDE CASING | t1.2 | GI | 2 | |
| 4 | WATER INLET | PF 3/4˝(20A) | BS | 1 | |
| 5 | DRAIN PAN | | ABS | 1 | PLASTIC |
| 6 | AIR FILTER | | VINYL CHLORIDE | 1 | FLUSH |
| 7 | FAN IMPELLER | ø145 | ABS | F | SIROCCO |
| 8 | FAN HOUSING | | ABS | F | |
| 9 | MOTOR | 1ø 220V 60Hz | ASS'Y | M | |
| 10 | DRAIN HOSE | ID ø14, OD ø18 | SOFT VINYL | 1 | |
| 11 | HEAT & COOLING COIL | 3/8˝× t0.35 | CU-AL | 1 | SLIT FIN |
| 12 | GRILL | 120 × 120 | HEAT-RESISTING ABS | G | |
| 13 | CONTROL S/W | High, Medium, Low 3-steps | | 1 | ROTARY |
| 14 | ACCESS DOOR | 120 × 200 | ABS | 2 | COATING |
| 15 | EXTERIOR PANEL | t1.0 | CR | 1 | T/K 30% |
| 16 | BASE | t3.0 | COMPLEX PP | 2 | |




## FLOOR CONCEALED - SLANT DISCHARGE TYPE

| MODEL | A | B | M | F |
|---|---|---|---|---|
| SFC-20FTM | 540 | 480 | 1 | 1 |
| SFC-30FTM | 660 | 600 | 1 | 1 |
| SFC-40FTM | 780 | 720 | 1 | 2 |
| SFC-60FTM | 1020 | 960 | 1 | 2 |
| SFC-80FTM | 1260 | 1200 | 2 | 3 |
| SFC-120FTM | 1500 | 1440 | 2 | 4 |

| | DESCRIPTION | DIMENSION | MAT'L | Q'TY | REMARK |
|---|---|---|---|---|---|
| 1 | WATER OUTLET | PF 3/4˝(20A) | BS | 1 | |
| 2 | AIR VENT | PT 1/8˝ | BS | 1 | MANUAL |
| 3 | INNER SIDE CASING | t1.2 | GI | 2 | |
| 4 | WATER INLET | PF 3/4˝(20A) | BS | 1 | |
| 5 | DRAIN PAN | | ABS | 1 | PLASTIC |
| 6 | AIR FILTER | | VINYL CHLORIDE | 1 | FLUSH |
| 7 | FAN IMPELLER | ø145 | | F | SIROCCO |
| 8 | FAN HOUSING | | ABS | F | |
| 9 | MOTOR | 1ø 220V 60Hz | ABS | M | |
| 10 | DRAIN HOSE | ID ø14, OD ø18 | ASS'Y | 1 | |
| 11 | HEAT & COOLING COIL | 3/8˝× t0.35 | SOFT VINYL | 1 | SILT FIN |
| 12 | CONTROL S/W | High, Medium, Low 3-steps | CU-AL | 1 | ROTARY |



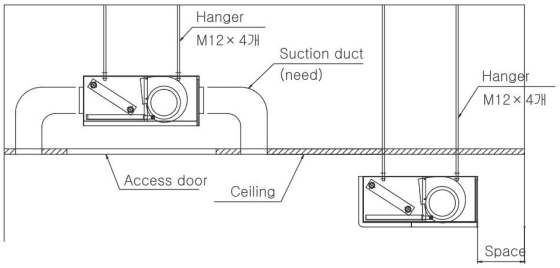

| Section | | Unit | SFC-20FT, FTM | | SFC-30FT, FTM | | SFC-40FT, FTM | | SFC-60FT, FTM | | SFC-80FT, FTM | | SFC-120FT, FTM | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity | Capacity condition | | A | B | A | B | A | B | A | B | A | B | A | B |
| | Cooling capacity | Kcal/h | 2,670 | 1,820 | 3,500 | 2,420 | 4,730 | 3,480 | 6,370 | 4,720 | 9,320 | 6,770 | 12,020 | 8,820 |
| | Heating capacity | Kcal/h | 4,630 | 2,980 | 6,790 | 4,100 | 9,250 | 5,770 | 12,500 | 7,530 | 18,310 | 11,140 | 20,530 | 12,330 |
| | Volume flow | ℓ / min | 10 | 6 | 12 | 8 | 15 | 11.5 | 20 | 15.7 | 30 | 22.4 | 40 | 29.3 |
| | Head loss | mAq | 1.5 | 0.72 | 2.4 | 1.5 | 4.1 | 2.9 | 1.9 | 1.3 | 4.1 | 2.7 | 4.1 | 2.3 |
| Fan | Type | | Double suction turbo type | | | | | | | | | | | |
| | Size | mm | ø145 × L165 | | ø145 × L200 | | ø145 × L165 | | ø145 × L200 | | ø145 × L200 | | ø145 × L200 | |
| | Air flow rate | $m^3$/min | 5.7 | | 8.5 | | 11.3 | | 17 | | 22.6 | | 34 | |
| | Driving | | Motor connected driving | | | | | | | | | | | |
| | Number | EA | 1 | | 1 | | 2 | | 2 | | 3 | | 4 | |
| Motor | Type | | Semi-hermetic (six pole, b type insulation) | | | | | | | | | | | |
| | Power consumption | W | 25 | | 35 | | 45 | | 65 | | 40 + 50 | | 65 × 2 | |
| | NUMBER | EA | 1 | | 1 | | 1 | | 1 | | 2 | | 2 | |
| Heat exchanger | Type | | Unite type Multi-Pass Cross Finned Tube (Slit Fin) | | | | | | | | | | | |
| | Fin Pitch | mm | 2.1 | | | | | | | | 1.8 | | | |
| Piping | Inlet | A | PF 3/4" (20A) | | | | | | | | | | | |
| | Outlet | A | PF 3/4" (20A) | | | | | | | | | | | |
| | Drain | mm | Soft vinyl hose( ID ø14 OD ø18) | | | | | | | | | | | |
| Exterior | | | Exposed type : cold rolling steel(t1.0)+powder,heat and dry coating(white beige), Concealed type : galvanized steel(t0.8) | | | | | | | | | | | |
| Lagging sound-absorbing materials | | | P.U Foam, Styrofoam, P.E Foam / Flame resistance | | | | | | | | | | | |
| Air flow rate control | | | High, Medium, Low 3 Steps Rotary Switch | | | | | | | | | | | |
| Electricity | | | Single phase 220V, 60Hz | | | | | | | | | | | |
| Air Filter | | | Vinyl chloride (Flush) | | | | | | | | | | | |
| Weight | | Kg | 23 (14) | | 26 (16) | | 29 (20) | | 34 (25) | | 39 (32) | | 47 (40) | |

(Note) 1. capacity condition A : cooling capacity : indoor air DB 27 ℃ WB 21 ℃ entrance water temperature 5℃ heating capacity : indoor air 18 ℃ entrance water temperature 80 ℃
2. capacity condition B : cooling capacity : indoor air DB 27 ℃ WB 19.5 ℃ entrance water temperature 7℃ heating capacity : indoor air 21 ℃ entrance water temperature 60 ℃

※Dimension in ( ) is for concealed type

# Fan Coil Unit

## Product installation diagram

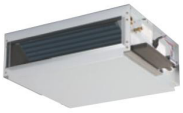



- Secure the area for air suction and discharge up to the area for filter.
- Make sure to keep the unit horizontal.
- Install a discharging duct for built-into the ceiling type.
- Make sure to secure hole and space (600mm× 600mm) for maintenance in filter side.
- Secure a space for unplugging the filter.

4-WAY CEILING CASSETTE TYPE

2-WAY CEILING CASSETTE TYPE

1-WAY CEILING CASSETTE TYPE



CEILING CONCEALED TYPE

CEILING EXPOSED TYPE

FLOOR EXPOSEDSLANT DISCHARGE TYPE

FLOOR CONCEALEDSLANT DISCHARGE TYPE



## Conversion table for cooling and heating area per 1 set.

| Use \ Type | Unit | SFC-20 | SFC-30 | SFC-40 | SFC-60 | SFC-80 | SFC-120 |
|---|---|---|---|---|---|---|---|
| OFFICE | $m^2$ | 13 - 16 | 21 - 27 | 28 - 35 | 41 - 50 | 54 - 66 | 80 - 97 |
| BANK | $m^2$ | 12 - 16 | 19 - 21 | 25 - 35 | 35 - 50 | 49 - 66 | 64 - 97 |
| HOSPITAL | $m^2$ | 9 - 15 | 15 - 28 | 19 - 31 | 27 - 44 | 37 - 59 | 71 - 79 |
| HOTEL | $m^2$ | 12 - 16 | 16 - 21 | 25 - 35 | 35 - 50 | 50 - 66 | 76 - 86 |
| RESTAURANT | $m^2$ | 8 - 11 | 13 - 18 | 16 - 23 | 23 - 33 | 32 - 44 | 71 - 79 |
| CONFERENCE ROOM | $m^2$ | 15 - 18 | 25 - 31 | 33 - 40 | 46 - 57 | 63 - 76 | 82 - 92 |

(note) Based on the ceiling is 3m high reinforced concrete building.

## Air Handling Unit

### Advantages of AHU

- Module type for easy moving and quick install
- Aluminum profile frame for simple assemble and disassemble
- Air-tight access door
- Stably fixed blower for low-noise and long bearing life-time
- Upgraded heat exchanger(coil for hot and cold water) for better performance

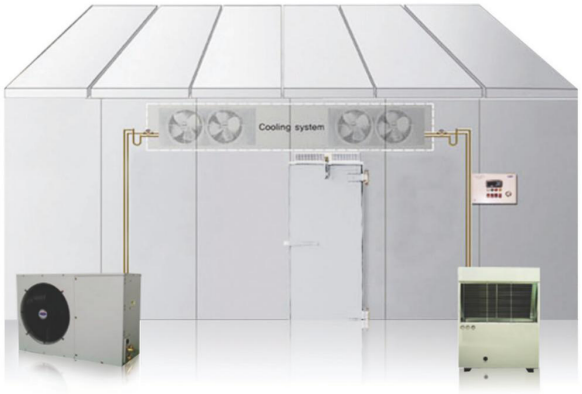
## Clean Room System

### Clean Room Equipment

- Air Shower
- Clean Booth
- Clean Locker
- Clean Unit
- Pass Box
- Relief Dampler
- Hepa Filter Box
- Blower Filter Unit
- Hume Hood

# Freezer System / Humidifier

## Freezer System




### Advantages of System

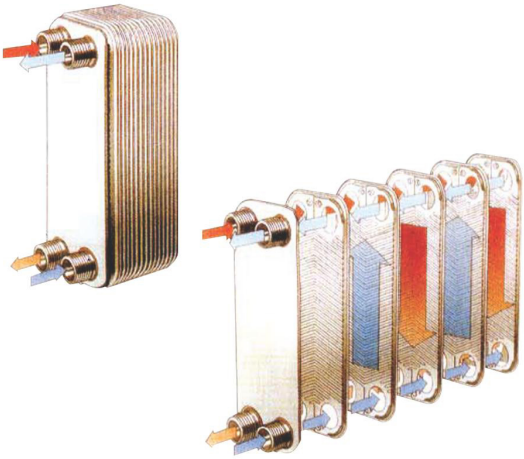
- Strong and high efficiency
- Various defrosting methods (electric heating, water spraying, hot gas)
- Highly heat-conductive, short defrosting time, easy repair and maintenance
- Improve corrosion resistance with zinc plating and twotime baking
- Small defrosting heater with smaller drain plates (Power cost saving)
- Automatic control monitoring system

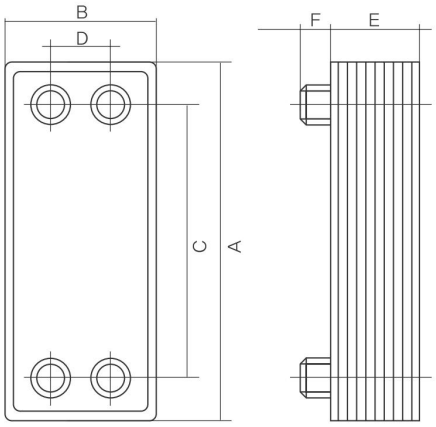
## Humidifier

### Advantages of Humidifier

- Sterilization
- Prevent infection by odorless and colorless germs
- Fast expansion-Small humid particles, fast absorption in the air
- World-proven humidifier with reliability and stability
- Constant humidification satisfying site requirements
- No need to feed water frequently
- Customized design
- Simple installation
- Humidifier and fan in one body
- LED display-simple setup and operation
- Real-time display of relative humidity

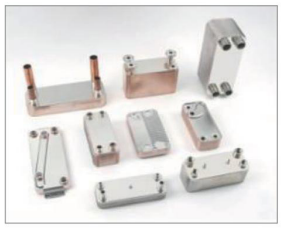
# Brazed Plate Heat Exchanger






## Feature

- Purification system for Evaporative Humidifying System (Invention Patent No. 140406)
- New humidifying pad to maximize humidifying effect
- Air Cleaning System
- Alpha-System (Scale Elimination device ) (Utility registration No.0310376, design registration No. 186905)



## Dimension

| Size | DIC(N) 193 | DIC(N) 285 | DIC(N) 503 | DIC(N) 750 | DIC(N) 800 |
|---|---|---|---|---|---|
| A | 193 | 285 | 503 | 480 | 570 |
| B | 83 | 105 | 123 | 230 | 280 |
| C | 154 | 230 | 450 | 396 | 475 |
| D | 42 | 50 | 70 | 146 | 185 |
| E | 5.8+nx2.2 | 8+nx2.3 | 8+nx2.7 | 8+nx2.8 | 8+nx2.8 |
| F | 13 | 25 | 25 | 25 | 25 |
| G | 0.19+nx0.055 | 0.4+nx0.126 | 10.4+nx0.252 | 2.08+nx0.504 | 12.94+nx0.67 |

- BPHE : Brazed Plate Heat Exchanger
- Max. allowed pressure : 30/cm$^2$
- Any other models could be manufactured on your demand.
- Above specification could be changed without any previous notice.

# DMAX Electric Boiler

### Economical Boiler
Stable and economical Boiler in the long term without any price advance effect of fossil fuel

### Safety Device
No toxic gas poisoning, explosion, fire
Realize safe operating with safety device

### Convenience
Solution of anxiety for the price advance of heating cost, leakage, etc.
Electricity is a always reserved energy.

### Automatic operation type
No noise on electrical contacts, no affect to other equipment, easy to control of all function such as room temperature controller and automatic operation indoors by electronic control and contactless SSR (solid state relay) type

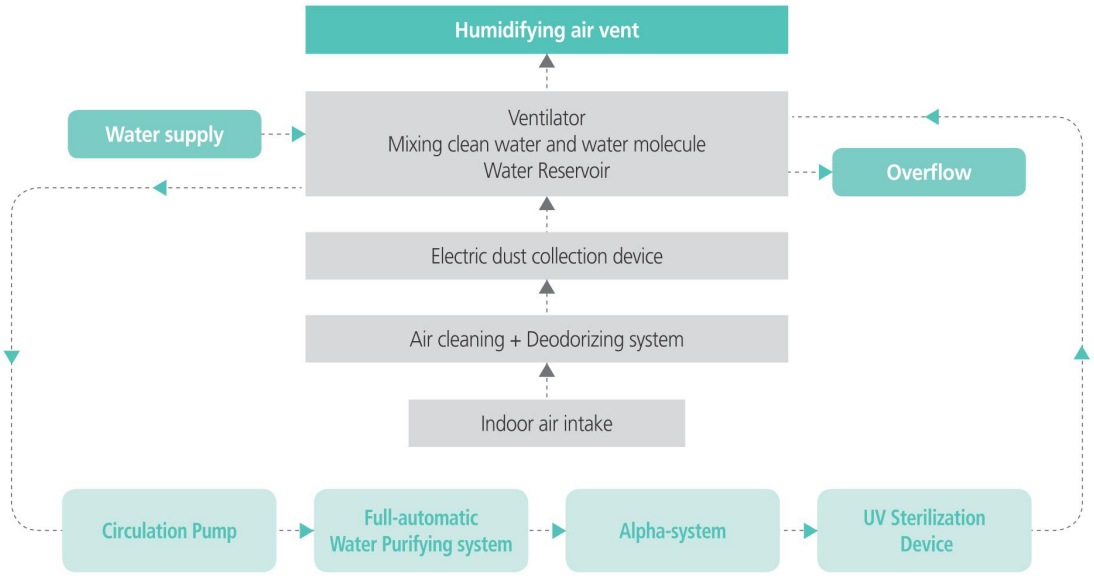
### Pleasant life
Eco boiler with no smog, ash, noise and etc

# Air Cleaning & Humidifying System

## Advantages

- Purification system for Evaporative Humidifying System (Invention Patent No. 140406)
- New humidifying pad to maximize humidifying effect
- Air Cleaning System
- Alpha-System (Scale Elimination device )
  (Utility registration No.0310376, design registration No. 186905)
- UV Sterilization Device
- Leak proof system
- Non-photo catalyst
- Incorporation of Air cleaning system and Humidification system in a single-body
  (Design registration No. 2023211)

## System Flow

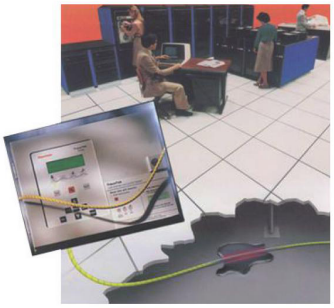



## System Flow

| Model No. | Unit | DYHAC-500 | DYHAC-800 | DYHAC-1000 | DYHAC-1500 | DYHAC-2000 | DYHAC-2500 |
|---|---|---|---|---|---|---|---|
| Humidifying Capacity | kg/h | 5 | 8 | 10 | 15 | 20 | 25 |
| Dimension (W x L x H) | mm | 600 X 500 X 1730 | 600 X 500 X 1820 | 700 X 500 X 2000 | 800 X 500 X 2000 | 900 X 500 X 2000 | 1000 X 500 X 2000 |
| Air flow rate | CMH | 1200 | 1500 | 1800 | 2400 | 2700 | 3000 |
| Power Supply | V | AC200V, 60Hz | AC200V, 60Hz | AC200V, 60Hz | AC200V, 60Hz | AC200V, 60Hz | AC200V, 60Hz |
| Operation Power | A | 1.9 | 2.2 | 2.4 | 3 | 3.3 | 4.5 |
| Power Consumption | W | 410 | 490 | 500 | 630 | 700 | 900 |

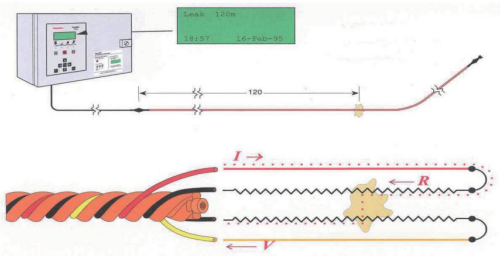
# Leakage Detection System

Trace Tek Leak Detection System technology let you know the location of Various type of liquid (water, oil etc) from mechanical equipments pipeline early and correctly. The sensing cable has two insulated wires and two conductive polymer coated electrodes. The digital readout of the location is generated by measuring the voltage drop along the sensing cable between the leak and the module. The voltage drop is linear and proportional to the leak location.



## Advantages

- Using an electro-chemical principles leak can be detected accurately and reliably.
- Using various types of sensing Cable any kind of liquid leaks can be detected.
- Flexible polymer sensing cable can be installed easily and detect dangerous leak area.
- Easy installation, expansion and maintenance.
- User can be satisfied by variable monitoring system.
- TT1000 and TT3000 sensing cable can be used semlpermanently as they can use through cleaning up after leak detection.
- All leak detection system is modularized and easy to install and maintain.






# Digipressure

Trace Tek Leak Detection System technology let you know the location of Various type of liquid (water, oil etc) from mechanical equipments pipeline early and correctly.
The sensing cable has two insulated wires and two conductive polymer coated electrodes. The digital readout of the location is generated by measuring the voltage drop along the sensing cable between the leak and the module. The voltage drop is linear and proportional to the leak location.

Pressure Range

- Low -1-50Kgf/cm2g,High-1-50Kgf/cm2g.
- Production orders can be 0 - 200BAR ($CO_2$ system)
- High Differential 3 Fixed kgf/cm2g, Low Differential 0.1kgf/cm2g,
- Reset Low Auto, Reset High Auto/Manual,
- Pressure Connection 7/16-20 UNF(1/4 In Flare ), Mounting Any Position,
- Voltage DC24V, 80 - 265V~,
- R-12,R-22,R-134A and R-404.410A.407.$CO_2$ Commercial Refrigeration and Air Conditioning

## Specific Features

All pressure switches and gauges can be replaced by One Digipressure.
And you can also use any kinds of compressors.

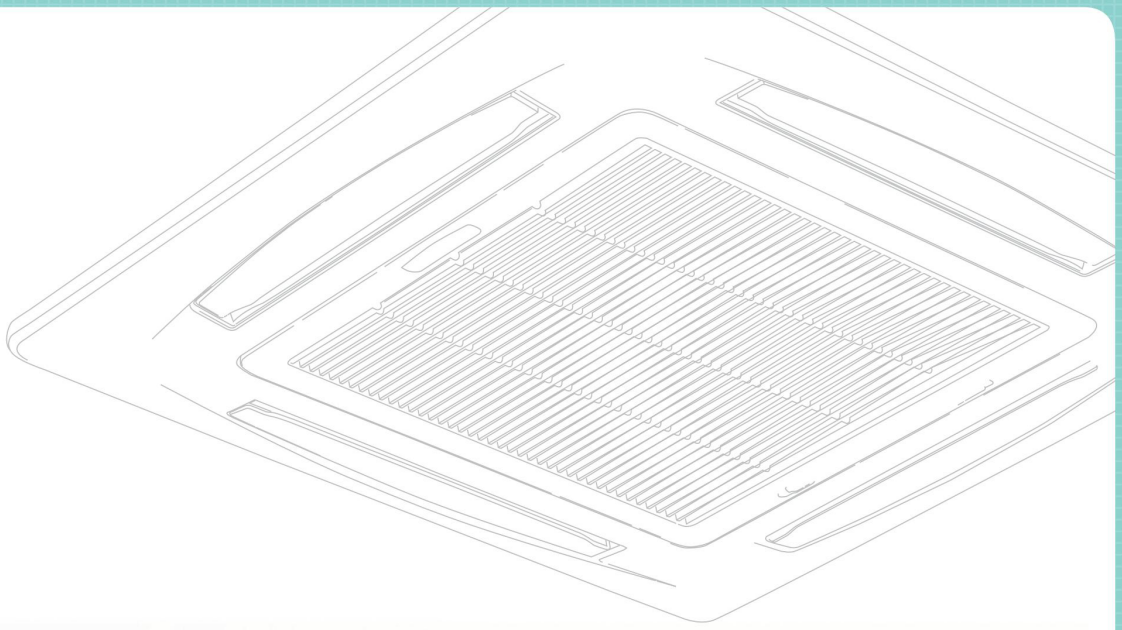
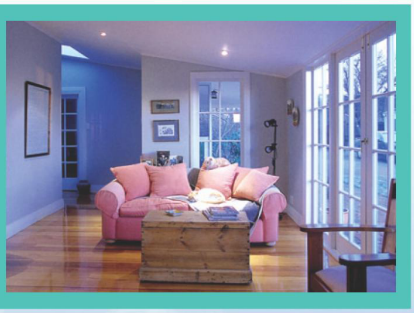
| Model No. | DYHAC-500 |
|---|---|
| DPC-HL | Dual + Single Pressure Controller<br>Semi-Hermetic Reciprocating Compressors |
| MPC-HL-L | 4-step control of multi Pressure Controller<br>Semi-Hermetic Screw Compressors |
| DPC-DIF | Differential pressure systems Controller |
| MPC Series | Roltec, Bitzer, Whsen, Hitachi, and Kobe copeland compressor |
| | Semi-Hermetic Reciprocating Compressors,<br>Screw Compressors, scroll compressors |
| MPC-H2L2<br>(Dual Type) | 2step Compressors systems controller,<br>AHU, HEAT PUMP, CHILLER |
| NEW MPC-H4&L4 | Multi-rack system, high/low four control only |

DPC-SERIES

DPC-SERIES

## Exhibition

- HARFKO (Heating, Air-Conditioning, Refrigeration and Fluid Exhibition)
- The Exhibition of Government Procurement Excellent Products.
- Acrex India
- CHINA Refrigeration
- Hi-Tech Defense Industry Fair

## Reference

SAMSUNG 삼성전자
IBM
SONY
HSBC The world's local bank
LG Electronics
Microsoft
PHILIPS Let's make things better
Standard Chartered SC제일은행
HYUNDAI ENGINEERING & CONSTRUCTION
FUJITSU
SIEMENS
HEWLETT PACKARD
KEPCO KOREA ELECTRIC POWER CORPORATION
GM DAEWOO A General Motors Company
posco
SK telecom
KIA MOTORS The Power to Surprise
BC 비씨카드
MERITZ 메리츠금융그룹
olleh kt
koscom
KAC KOREA AIRPORTS CORPORATION
ex The Way ToMorrow 한국도로공사
KRX 한국거래소 KOREA EXCHANGE