



# Air-cooled Flooded Screw Chiller

## TASFV Series

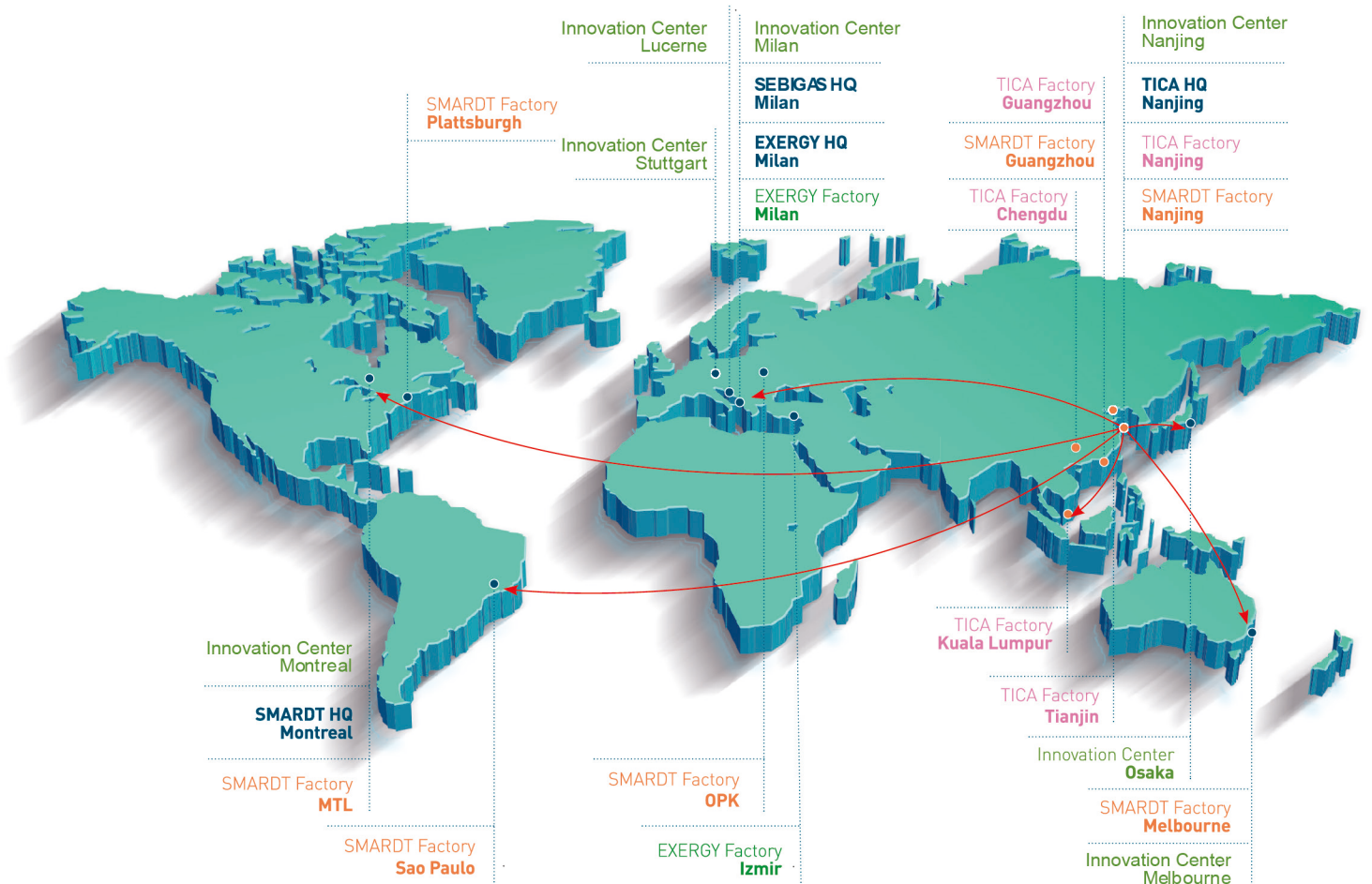


**TASFV-A-C1**

FORM NO.B20924G02

# About TICA

Clean Air and Green Energy  
Global Leading System Supplier and Service Provider for 34 years



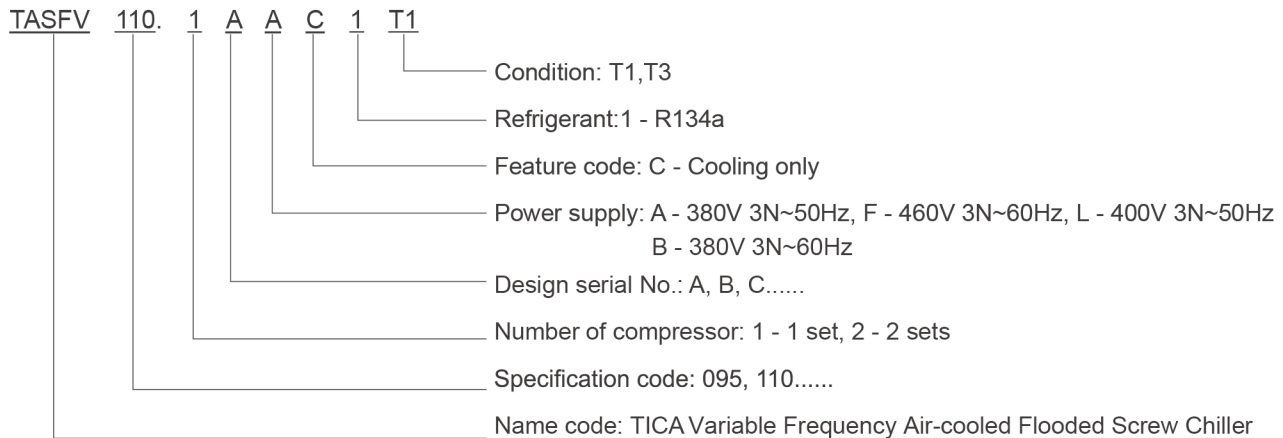
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|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|  <b>2 Billion USD</b><br>(2024 Revenue) |  <b>4500+</b><br>Global Employees |  <b>17</b><br>Factories               |  <b>1100+</b><br>Global R&D Engineers |
|  <b>200+</b><br>Laboratories            |  <b>87</b><br>Countries           |  <b>100+</b><br>International Patents |                                                                                                                            |

# Product Overview

Coming with the twin screw compressor specifically designed for the R134a refrigerant, TASFV inverter air-cooled flooded screw chiller also adopts sophisticated inverter technology, high-efficiency flooded heat exchanger, unique oil return technology, and economizer for circulation. Selective cooling parts and control components provided by world-famous manufacturers, together with the most cutting-edge intelligent control system, contribute to the high efficiency, energy conservation, stability and reliability of this air-conditioning main unit. TICA boasts a lab for testing performance of large 600RT air-cooled screw units where a variety of extreme operating conditions are simulated to ensure the quality and performance of the unit. The unit can be reliably applied to comfort and industrial scenarios, such as hotel, hospital, office building, shopping mall, apartment, and factory.



## Nomenclature



## Operating range

| Operating range |                                              |                     |           |                                    |
|-----------------|----------------------------------------------|---------------------|-----------|------------------------------------|
| Model           | Water leaving temperature (during operation) | Ambient temperature | Voltage   | Water flow                         |
| TASFV-AAC1T1    | 4°C-20°C                                     | -10°C-45°C          | 360V-400V | 50%-120% of the nominal water flow |
| TASFV-ALC1T1    |                                              |                     | 380V-420V |                                    |
| TASFV-AFC1T1    |                                              |                     | 440V-480V |                                    |
| TASFV-AAC1T3    |                                              | -10°C-52°C          | 360V-400V |                                    |
| TASFV-ABC1T3    |                                              |                     | 360V-400V |                                    |
|                 |                                              |                     |           |                                    |

## Option:

**Low Temperature Brine:** ethylene glycol (maximum concentration 50%) and propylene glycol (maximum concentration 40%) can be chosen as optional and leaving water temperature shall not less than -5.6°C.

**Anti-corrosion:** Blygold coating or electrophoretic coating can be chosen as optional.

**Vibration Isolators:** Vibration Isolators provide isolation between chiller and structure to help eliminate vibration transmission.

# Advanced Technology

## High-efficiency Compressor

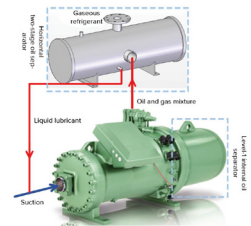
The high-efficiency semi-hermetic twin-screw compressor, which is specially designed for the R134a refrigerant, can realize stepless regulation for energy through its slide valve. The energy regulation range of a single-compressor unit is from 25% to 100%, and regulation range of a dual-compressor unit is from 12.5% to 100%, which can well avoid the problems faced by ordinary units such as frequent start and stop, large fluctuations in water temperature and especially, excessive temperature and humidity control in technological places, thus minimizing the operation cost.



## Two-stage High-efficiency Oil Separator + Unique Oil Return Technology

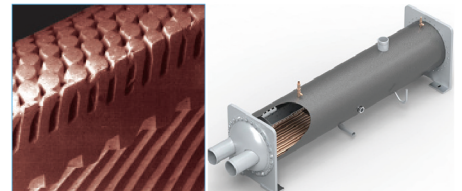
The external level-2 oil separator, which is a high-efficiency horizontal oil separator of independent research and development, has a built-in high-strength stainless steel filter screen. Through collision, filtering and gravity, the oil separator can realize an oil separation efficiency of over 99.9%, which greatly reduces oil residual in the heat exchanger and increases the operating efficiency of the entire unit.

The patented continuous oil return technology of TICA - oil injected by oil - ensures the safety of oil supply for the compressor as it can take the residual 0.1% refrigeration oil in the evaporator back to the compressor without increasing the power consumption of the compressor.



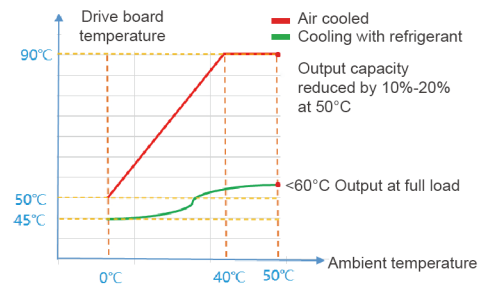
## High-efficiency Heat Exchanger

As for the high-efficiency flooded heat exchanger, the complex tooth-type structure on the external surface of the heat exchange tube facilitates nuclear boiling, thus largely improving the heat transmission outside of the tube; The spiral tooth-type structure on the internal surface helps increase the disturbance of refrigerating medium when it is flowing in the tube, which greatly increases the heat exchange efficiency in the tube.



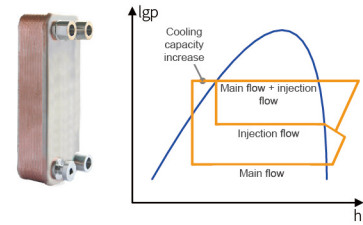
## Advanced Refrigerant Cooling Inverter

With the advanced refrigerant cooling inverter, the unit inverter is more compact and dissipates heat better. This can take away 90% heat generated by the inverter while in operation, cool and make the electrical components live longer, and allow the inverter to operate without compromised capacity even at very high temperatures.



## Economizer Circulation

Each unit of the TASF series is designed with an economizer, which dramatically improves the performance and reliability of the unit. This significantly increases the compressor efficiency and reduces the discharge temperature of the compressor, as well as dramatically improves the cooling and heating performance and reliability of the unit.



## Low-noise Fan

The unit, which adopts a large airflow and low-noise inner rotor axial flow fan of a well-known brand and is equipped with a long air duct for air diversion, can effectively reduce the noise caused by airflow. Before delivery, the fan has undergone strict tests on static and dynamic equilibrium to ensure stable and low-noise operation.



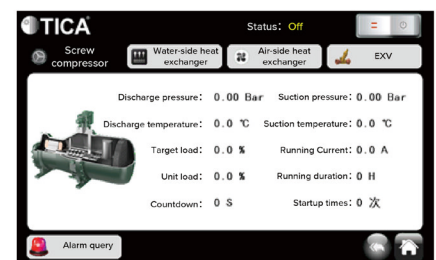
## Electronic Expansion Valve

The unit is equipped with an electronic expansion valve that has a high control accuracy and fast response. Under full load and partial load, the electronic expansion valve can always have an excellent performance that helps greatly increase the energy conservation performance and stability of the unit as well as lower the operation cost.



## Intelligent Control System

- The industrial-level microcomputer controller and the LCD screen constitute the control center of the unit. In addition, TICA's auto control technology of independent development features the world's most advanced control technology and enables powerful control functions.
- With a cutting-edge intelligent control program and an advanced capacity regulation system, the compressor can realize stepless regulation at a load range of 25% - 100%. The unit load and the load at the user side which are highly matched ensures precise control of water temperature by the unit under all working conditions, and the temperature control precision can reach  $\pm 0.3^{\circ}\text{C}$ .
- The application of graded control for the unit fan effectively reduces the power consumption of the unit in the transitional ambient temperature;
- The advanced pre-control function makes it possible for the operator to take relevant remedy measures in a timely manner before any failure occurs to avoid frequent shutdown of the unit;
- The unit supports the compiling of weekly operating schedules to implement comprehensive automatic start and stop control of the unit, which truly implements unattended and automatic operation.



# Features

## Energy-efficient

### High IPLV

The integrated part load value (IPLV) of the unit can reach 4.93. Compared with conventional air-cooled screw units, energy efficiency is increased by 20%, high energy efficiency will help you to significantly shorten the project payback period.

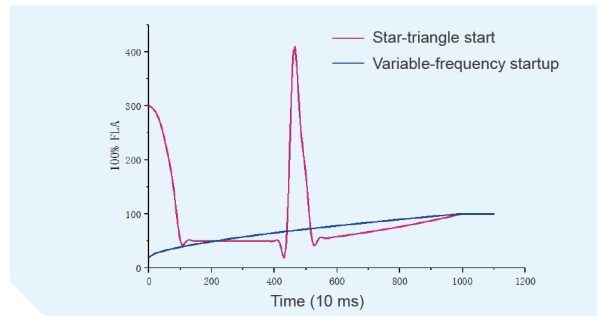
### High Power Factor

For a conventional air-cooled screw unit, its power factor is low, which even decreases as the unit load decreases. For the TASFV unit, its power factor can reach up to 0.95 while operating at full load. Therefore, the unit consumes less electricity and resolves the problem of power factor decreasing with the decrease of load.

## Comfortable and Low Noise

The unit adopts the variable frequency start mode. This allows the unit starting current to increase slowly with the loading process, with maximum current not greater than its rated current, resulting in "zero" impact on the power grid. It makes the power grid safer and more reliable, and reduces impact on the power grid and has lower requirement for capacity of the transformer.

The compressor feet are equipped with rubber shock pads which cannot only reduce unit vibration transmission but also can significantly decrease unit noise; A noise enclosure and spring shock absorber are also optional for the unit to further reduce noise.



## Reliable Operation

The unit provides multiple safety protection functions to conduct all-round comprehensive monitoring for the unit and the system. In case of any abnormality occurring to the application environment or the system, the functions can protect the unit from damage in a timely manner. The unit has three levels of passwords in order to prevent operations by unauthorized personnel and to ensure safe operation of the unit.



- Protection of power supply default phase, reverse phase, and unbalanced phase
- Compressor oil level protection
- Compressor motor overheat protection
- Compressor motor overload protection
- Fan overload protection
- Compressor start failure protection
- Compressor reverse rotation protection
- Protection of too high condensation pressure

- Protection of too low evaporation pressure
- Protection of air suction/discharge pressure difference
- Disconnection protection
- Protection of too high discharge temperature
- Protection of too high water temperature
- Excessive temperature difference protection

# Specifications

## T1 Condition.(380V 3N~50Hz)

|                           |                            |                                         |        |        |        |        |        |        |        |                                |        |        |        |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------------------------------|--------|--------|--------|--------|
| Model TASFV-AAC1T1        |                            | 095.1                                   | 120.1  | 140.1  | 155.1  | 180.1  | 205.1  | 225.1  | 240.1  | 140.2                          | 160.2  | 180.2  | 205.2  |        |
| Nominal cooling capacity  | kW                         | 336                                     | 425    | 495    | 556    | 645    | 725    | 791    | 820    | 503                            | 568    | 644    | 732    |        |
|                           | kcal/h                     | 288960                                  | 365500 | 425700 | 478160 | 554700 | 623500 | 680260 | 705200 | 432580                         | 488480 | 553840 | 629520 |        |
| Cooling power input       | kW                         | 101.7                                   | 136.0  | 150.3  | 169.7  | 195.0  | 220.6  | 250.0  | 261.1  | 158.3                          | 181.5  | 204.9  | 229.6  |        |
| EER                       | kW/kW                      | 3.30                                    | 3.13   | 3.29   | 3.28   | 3.31   | 3.29   | 3.17   | 3.14   | 3.18                           | 3.13   | 3.14   | 3.19   |        |
| IPLV                      | kW/kW                      | 4.90                                    | 4.65   | 4.88   | 4.87   | 4.91   | 4.88   | 4.69   | 4.66   | 4.72                           | 4.65   | 4.66   | 4.74   |        |
| Cooling rated current     | A                          | 178                                     | 228    | 259    | 289    | 334    | 373    | 425    | 442    | 277                            | 314    | 355    | 393    |        |
| Maximum operating current | A                          | 254                                     | 303    | 353    | 388    | 439    | 480    | 563    | 504    | 435                            | 486    | 562    | 562    |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Refrigerant circuit number | 1                                       |        |        |        |        |        | 2      |        |                                |        |        |        |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Energy regulation range    | 25%-100% stepless regulation            |        |        |        |        |        |        |        | 12.5%-100% stepless regulation |        |        |        |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |        |        |                                |        |        |        |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 147000 | 147000 | 196000 | 196000 | 245000 | 245000 | 294000 | 294000                         | 196000 | 196000 | 294000 | 294000 |
|                           | Quantity                   | Set                                     | 6      | 6      | 8      | 8      | 10     | 10     | 12     | 12                             | 8      | 8      | 12     | 12     |
|                           | Fan motor                  | kW                                      | 13.8   | 13.8   | 18.4   | 18.4   | 23.0   | 23.0   | 27.6   | 27.6                           | 18.4   | 18.4   | 27.6   | 27.6   |
|                           | Current                    | A                                       | 31.8   | 31.8   | 42.4   | 42.4   | 53.0   | 53.0   | 63.6   | 63.6                           | 42.4   | 42.4   | 63.6   | 63.6   |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 58     | 73     | 85     | 96     | 111    | 125    | 136    | 141                            | 87     | 98     | 111    | 126    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 150    | 150    | 150    | 150    | 150    | 150    | 200                            | 150    | 150    | 150    | 150    |
|                           | Water pressure drop        | kPa                                     | 62     | 68     | 71     | 68     | 67     | 71     | 72     | 67                             | 62     | 66     | 68     | 71     |
| Design Pressure           | MPa                        | 1.0                                     |        |        |        |        |        |        |        |                                |        |        |        |        |
| Dimensions                | Length                     | mm                                      | 4100   | 4100   | 5290   | 5290   | 6490   | 6490   | 7680   | 7680                           | 5290   | 5290   | 7680   | 7680   |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |        |        |                                |        |        |        |        |
|                           | High                       | mm                                      | 2460   |        |        |        |        |        |        |                                |        |        |        |        |
| Weight of unit            | Transportation             | kg                                      | 3860   | 4350   | 4800   | 4900   | 5730   | 5850   | 6400   | 6580                           | 5820   | 5960   | 7720   | 7852   |
|                           | Operation                  | kg                                      | 3910   | 4410   | 4870   | 4980   | 5820   | 5950   | 6510   | 6700                           | 5890   | 6040   | 7830   | 7972   |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 360V~400V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T1 Condition.(380V 3N~50Hz)

|                           |                            |                                         |        |        |        |         |         |         |         |         |         |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|--------|
| Model TASFV-AAC1T1        |                            | 240.2                                   | 260.2  | 280.2  | 310.2  | 340.2   | 360.2   | 375.2   | 410.2   | 445.2   | 475.2   |        |
| Nominal cooling capacity  | kW                         | 850                                     | 894    | 989    | 1112   | 1184    | 1291    | 1316    | 1450    | 1564    | 1682    |        |
|                           | kcal/h                     | 731000                                  | 768840 | 850540 | 956320 | 1018240 | 1110260 | 1131760 | 1247000 | 1345040 | 1446520 |        |
| Cooling power input       | kW                         | 272.0                                   | 274.6  | 300.5  | 342.9  | 348.8   | 380.8   | 391.7   | 429.4   | 484.2   | 523.3   |        |
| EER                       | kW/kW                      | 3.13                                    | 3.26   | 3.29   | 3.24   | 3.32    | 3.32    | 3.29    | 3.30    | 3.16    | 3.14    |        |
| IPLV                      | kW/kW                      | 4.65                                    | 4.84   | 4.88   | 4.81   | 4.93    | 4.93    | 4.88    | 4.90    | 4.69    | 4.66    |        |
| Cooling rated current     | A                          | 457                                     | 478    | 517    | 583    | 617     | 667     | 684     | 743     | 835     | 897     |        |
| Maximum operating current | A                          | 606                                     | 707    | 707    | 777    | 878     | 878     | 960     | 960     | 1104    | 986     |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |         |         |         |         |         |         |        |
|                           | Refrigerant circuit number | 2                                       |        |        |        |         |         |         |         |         |         |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |         |         |         |         |         |         |        |
|                           | Energy regulation range    | 12.5%-100% stepless regulation          |        |        |        |         |         |         |         |         |         |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |         |         |         |         |         |         |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 294000 | 392000 | 392000 | 392000  | 490000  | 490000  | 490000  | 490000  | 450000  | 450000 |
|                           | Quantity                   | Set                                     | 12     | 16     | 16     | 16      | 20      | 20      | 20      | 20      | 20      | 20     |
|                           | Fan motor                  | kW                                      | 27.6   | 36.8   | 36.8   | 36.8    | 46.0    | 46.0    | 46.0    | 46.0    | 46.0    | 46     |
|                           | Current                    | A                                       | 63.6   | 84.8   | 84.8   | 84.8    | 106.0   | 106.0   | 106.0   | 106.0   | 106.0   | 106.0  |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |         |         |         |         |         |         |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 146    | 154    | 170    | 191     | 204     | 222     | 226     | 249     | 269     | 289    |
|                           | Water pipe diameter        | DN(mm)                                  | 200    | 200    | 200    | 200     | 200     | 200     | 200     | 200     | 200     | 200    |
|                           | Water pressure drop        | kPa                                     | 71     | 68     | 71     | 69      | 69      | 68      | 71      | 72      | 72      | 70     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |         |         |         |         |         |         |        |
| Dimensions                | Length                     | mm                                      | 7680   | 9570   | 9570   | 9570    | 11970   | 11970   | 11970   | 11970   | 11970   | 11970  |
|                           | Width                      | mm                                      | 2250   |        |        |         |         |         |         |         |         |        |
|                           | High                       | mm                                      | 2460   | 2520   |        |         |         |         |         |         |         |        |
| Weight of unit            | Transportation             | kg                                      | 8700   | 9480   | 9600   | 9800    | 11310   | 11460   | 11520   | 11700   | 12250   | 12350  |
|                           | Operation                  | kg                                      | 8830   | 9620   | 9750   | 9960    | 11480   | 11640   | 11710   | 11900   | 12460   | 12570  |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 360V~400V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T1 Condition.(400V 3N~50Hz)

|                           |                            |                                         |        |        |        |        |        |        |        |                                |        |        |        |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------------------------------|--------|--------|--------|--------|
| Model TASFV-ALC1T1        |                            | 095.1                                   | 120.1  | 140.1  | 155.1  | 180.1  | 205.1  | 225.1  | 240.1  | 140.2                          | 160.2  | 180.2  | 205.2  |        |
| Nominal cooling capacity  | kW                         | 336                                     | 425    | 495    | 556    | 645    | 725    | 791    | 820    | 503                            | 568    | 644    | 732    |        |
|                           | kcal/h                     | 288960                                  | 365500 | 425700 | 478160 | 554700 | 623500 | 680260 | 705200 | 432580                         | 488480 | 553840 | 629520 |        |
| Cooling power input       | kW                         | 101.7                                   | 136.0  | 150.3  | 169.7  | 195.0  | 220.6  | 250.0  | 261.1  | 158.3                          | 181.5  | 204.9  | 229.6  |        |
| EER                       | kW/kW                      | 3.30                                    | 3.13   | 3.29   | 3.28   | 3.31   | 3.29   | 3.17   | 3.14   | 3.18                           | 3.13   | 3.14   | 3.19   |        |
| IPLV                      | kW/kW                      | 4.90                                    | 4.65   | 4.88   | 4.87   | 4.91   | 4.88   | 4.69   | 4.66   | 4.72                           | 4.65   | 4.66   | 4.74   |        |
| Cooling rated current     | A                          | 169                                     | 217    | 246    | 274    | 317    | 355    | 403    | 420    | 263                            | 298    | 337    | 374    |        |
| Maximum operating current | A                          | 241                                     | 288    | 336    | 369    | 417    | 456    | 534    | 478    | 413                            | 462    | 534    | 534    |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Refrigerant circuit number | 1                                       |        |        |        |        |        | 2      |        |                                |        |        |        |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Energy regulation range    | 25%-100% stepless regulation            |        |        |        |        |        |        |        | 12.5%-100% stepless regulation |        |        |        |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |        |        |                                |        |        |        |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 147000 | 147000 | 196000 | 196000 | 245000 | 245000 | 294000 | 294000                         | 196000 | 196000 | 294000 | 294000 |
|                           | Quantity                   | Set                                     | 6      | 6      | 8      | 8      | 10     | 10     | 12     | 12                             | 8      | 8      | 12     | 12     |
|                           | Fan motor                  | kW                                      | 13.8   | 13.8   | 18.4   | 18.4   | 23.0   | 23.0   | 27.6   | 27.6                           | 18.4   | 18.4   | 27.6   | 27.6   |
|                           | Current                    | A                                       | 30.2   | 30.2   | 40.3   | 40.3   | 50.4   | 50.4   | 60.4   | 60.4                           | 40.3   | 40.3   | 60.5   | 60.4   |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 58     | 73     | 85     | 96     | 111    | 125    | 136    | 141                            | 87     | 98     | 111    | 126    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 150    | 150    | 150    | 150    | 150    | 150    | 200                            | 150    | 150    | 150    | 150    |
|                           | Water pressure drop        | kPa                                     | 62     | 68     | 71     | 68     | 67     | 71     | 72     | 67                             | 62     | 66     | 68     | 71     |
| Design Pressure           | MPa                        | 1.0                                     |        |        |        |        |        |        |        |                                |        |        |        |        |
| Dimensions                | Length                     | mm                                      | 4100   | 4100   | 5290   | 5290   | 6490   | 6490   | 7680   | 7680                           | 5290   | 5290   | 7680   | 7680   |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |        |        |                                |        |        |        |        |
|                           | High                       | mm                                      | 2460   |        |        |        |        |        |        |                                |        |        |        |        |
| Weight of unit            | Transportation             | kg                                      | 3860   | 4350   | 4800   | 4900   | 5730   | 5850   | 6400   | 6580                           | 5820   | 5960   | 7720   | 7852   |
|                           | Operation                  | kg                                      | 3910   | 4410   | 4870   | 4980   | 5820   | 5950   | 6510   | 6700                           | 5890   | 6040   | 7830   | 7972   |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 380V~420V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T1 Condition.(400V 3N~50Hz)

|                           |                            |                                         |        |        |        |         |         |         |         |         |         |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|--------|
| Model TASFV-ALC1T1        |                            | 240.2                                   | 260.2  | 280.2  | 310.2  | 340.2   | 360.2   | 375.2   | 410.2   | 445.2   | 475.2   |        |
| Nominal cooling capacity  | kW                         | 850                                     | 894    | 989    | 1112   | 1184    | 1291    | 1316    | 1450    | 1564    | 1682    |        |
|                           | kcal/h                     | 731000                                  | 768840 | 850540 | 956320 | 1018240 | 1110260 | 1131760 | 1247000 | 1345040 | 1446520 |        |
| Cooling power input       | kW                         | 272.0                                   | 274.6  | 300.5  | 342.9  | 356.3   | 389.2   | 400.4   | 438.9   | 495.2   | 535.2   |        |
| EER                       | kW/kW                      | 3.13                                    | 3.26   | 3.29   | 3.24   | 3.32    | 3.32    | 3.29    | 3.30    | 3.16    | 3.14    |        |
| IPLV                      | kW/kW                      | 4.65                                    | 4.84   | 4.88   | 4.81   | 4.93    | 4.93    | 4.88    | 4.90    | 4.69    | 4.66    |        |
| Cooling rated current     | A                          | 434                                     | 454    | 491    | 554    | 586     | 634     | 649     | 706     | 793     | 852     |        |
| Maximum operating current | A                          | 575                                     | 671    | 671    | 738    | 834     | 834     | 912     | 912     | 1049    | 937     |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |         |         |         |         |         |         |        |
|                           | Refrigerant circuit number | 2                                       |        |        |        |         |         |         |         |         |         |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |         |         |         |         |         |         |        |
|                           | Energy regulation range    | 12.5%-100% stepless regulation          |        |        |        |         |         |         |         |         |         |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |         |         |         |         |         |         |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 294000 | 392000 | 392000 | 392000  | 490000  | 490000  | 490000  | 490000  | 450000  | 450000 |
|                           | Quantity                   | Set                                     | 12     | 16     | 16     | 16      | 20      | 20      | 20      | 20      | 20      | 20     |
|                           | Fan motor                  | kW                                      | 27.6   | 36.8   | 36.8   | 36.8    | 46.0    | 46.0    | 46.0    | 46.0    | 46.0    | 46.0   |
|                           | Current                    | A                                       | 60.4   | 80.6   | 80.6   | 80.6    | 100.7   | 100.7   | 100.7   | 100.7   | 100.7   | 100.7  |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |         |         |         |         |         |         |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 146    | 154    | 170    | 191     | 204     | 222     | 226     | 249     | 269     | 289    |
|                           | Water pipe diameter        | DN(mm)                                  | 200    | 200    | 200    | 200     | 200     | 200     | 200     | 200     | 200     | 200    |
|                           | Water pressure drop        | kPa                                     | 71     | 68     | 71     | 69      | 69      | 68      | 71      | 72      | 72      | 70     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |         |         |         |         |         |         |        |
| Dimensions                | Length                     | mm                                      | 7180   | 9570   | 9570   | 9570    | 11970   | 11970   | 11970   | 11970   | 11970   | 11970  |
|                           | Width                      | mm                                      | 2250   |        |        |         |         |         |         |         |         |        |
|                           | High                       | mm                                      | 2460   | 2520   |        |         |         |         |         |         |         |        |
| Weight of unit            | Transportation             | kg                                      | 8700   | 9480   | 9600   | 9800    | 11310   | 11460   | 11520   | 11700   | 12250   | 12350  |
|                           | Operation                  | kg                                      | 8830   | 9620   | 9750   | 9960    | 11480   | 11640   | 11710   | 11900   | 12460   | 12570  |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 380V~420V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T1 Condition.(460V 3N~60Hz)

| Model TASFV-AFC1T         |                            | 100.1                                   | 120.1  | 145.1  | 165.1  | 190.1  | 215.1  | 245.1  | 265.1  | 285.1  | 150.2  | 165.2                          | 200.2  |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------------------|--------|--------|
| Nominal cooling capacity  | kW                         | 355                                     | 430    | 513    | 579    | 667    | 755    | 867    | 940    | 1011   | 528    | 589                            | 709    |        |
|                           | kcal/h                     | 305300                                  | 369800 | 441180 | 497940 | 573620 | 649300 | 745620 | 808400 | 869460 | 454080 | 506540                         | 609740 |        |
| Cooling power input       | kW                         | 109.7                                   | 136.9  | 161.1  | 182.3  | 207.7  | 236.8  | 262.5  | 298.7  | 318.5  | 168.3  | 188.0                          | 217.2  |        |
| Cooling rated current     | A                          | 162                                     | 195    | 230    | 261    | 298    | 337    | 374    | 427    | 452    | 246    | 273                            | 321    |        |
| EER                       | kW/kW                      | 3.23                                    | 3.14   | 3.19   | 3.18   | 3.21   | 3.19   | 3.30   | 3.15   | 3.18   | 3.14   | 3.13                           | 3.26   |        |
| IPLV                      | kW/kW                      | 4.79                                    | 4.66   | 4.72   | 4.72   | 4.76   | 4.74   | 4.90   | 4.68   | 4.70   | 4.66   | 4.65                           | 4.84   |        |
| Maximum operating current | A                          | 219                                     | 268    | 296    | 335    | 378    | 416    | 466    | 545    | 490    | 370    | 417                            | 438    |        |
| Power supply              |                            | 460V~3N~60Hz                            |        |        |        |        |        |        |        |        |        |                                |        |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |        |        |        |        |                                |        |        |
|                           | Refrigerant circuit number | 1                                       |        |        |        |        |        |        |        |        |        | 2                              |        |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |        |        |        |        |                                |        |        |
|                           | Energy regulation range    | 25%-100% stepless regulation            |        |        |        |        |        |        |        |        |        | 12.5%-100% stepless regulation |        |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |        |        |        |        |                                |        |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 147000 | 147000 | 196000 | 196000 | 245000 | 245000 | 294000 | 343000 | 343000 | 196000                         | 196000 | 294000 |
|                           | Quantity                   | Set                                     | 6      | 6      | 8      | 8      | 10     | 10     | 12     | 14     | 14     | 8                              | 8      | 12     |
|                           | Fan motor                  | kW                                      | 13.2   | 13.2   | 17.6   | 17.6   | 22     | 22     | 26.4   | 30.8   | 30.8   | 17.6                           | 17.6   | 26.4   |
|                           | Current                    | A                                       | 31.8   | 31.8   | 42.4   | 42.4   | 53     | 53     | 63.6   | 74.2   | 74.2   | 42.4                           | 42.4   | 63.6   |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |        |        |        |        |                                |        |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 61     | 74     | 88     | 100    | 115    | 130    | 149    | 162    | 174    | 91                             | 101    | 122    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 150    | 150    | 150    | 150    | 150    | 200    | 200    | 200    | 150                            | 150    | 150    |
|                           | Water pressure drop        | kPa                                     | 69     | 70     | 76     | 74     | 72     | 77     | 74     | 73     | 71     | 68                             | 71     | 68     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |        |        |        |        |        |        |                                |        |        |
| Dimensions                | Length                     | mm                                      | 4100   | 4100   | 5290   | 5290   | 6490   | 6490   | 7680   | 8880   | 8880   | 5290                           | 5290   | 7680   |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |        |        |        |        |                                |        |        |
|                           | High                       | mm                                      | 2460   |        |        |        |        |        |        |        |        |                                |        |        |
| Weight of unit            | Transportation             | kg                                      | 3830   | 4320   | 4770   | 4870   | 5720   | 5810   | 6340   | 7220   | 7250   | 5640                           | 5740   | 7660   |
|                           | Operation                  | kg                                      | 3880   | 4370   | 4830   | 4930   | 5810   | 5900   | 6440   | 7340   | 7395   | 5720                           | 5820   | 7760   |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 440V~480V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T1 Condition.(460V 3N~60Hz)

|                           |                            |                                         |        |        |        |        |        |         |         |         |         |         |         |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|--------|
| Model TASFV-AFC1T1        |                            | 225.2                                   | 240.2  | 260.2  | 290.2  | 300.2  | 330.2  | 345.2   | 380.2   | 395.2   | 430.2   | 445.2   | 485.2   |        |
| Nominal cooling capacity  | kW                         | 795                                     | 860    | 922    | 1026   | 1052   | 1159   | 1210    | 1335    | 1393    | 1511    | 1566    | 1715    |        |
|                           | kcal/h                     | 683700                                  | 739600 | 792920 | 882360 | 904720 | 996740 | 1040600 | 1148100 | 1197980 | 1299460 | 1346760 | 1474900 |        |
| Cooling power input       | kW                         | 246.7                                   | 273.8  | 288.0  | 322.2  | 335.9  | 364.6  | 377.2   | 411.1   | 432.8   | 468.6   | 480.2   | 522.3   |        |
| Cooling rated current     | A                          | 359                                     | 390    | 417    | 459    | 487    | 522    | 549     | 591     | 622     | 668     | 682     | 735     |        |
| EER                       | kW/kW                      | 3.22                                    | 3.14   | 3.20   | 3.19   | 3.13   | 3.18   | 3.21    | 3.25    | 3.22    | 3.22    | 3.26    | 3.28    |        |
| IPLV                      | kW/kW                      | 4.78                                    | 4.66   | 4.75   | 4.72   | 4.65   | 4.72   | 4.76    | 4.82    | 4.78    | 4.78    | 4.84    | 4.87    |        |
| Maximum operating current | A                          | 482                                     | 536    | 593    | 593    | 671    | 671    | 756     | 756     | 832     | 832     | 910     | 910     |        |
| Power supply              |                            | 460V~3N~60Hz                            |        |        |        |        |        |         |         |         |         |         |         |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Refrigerant circuit number | 2                                       |        |        |        |        |        |         |         |         |         |         |         |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Energy regulation range    | 12.5%-100% stepless regulation          |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |         |         |         |         |         |         |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 294000 | 294000 | 392000 | 392000 | 392000 | 392000  | 490000  | 490000  | 490000  | 490000  | 450000  | 450000 |
|                           | Quantity                   | Set                                     | 12     | 12     | 16     | 16     | 16     | 16      | 20      | 20      | 20      | 20      | 20      | 20     |
|                           | Fan motor                  | kW                                      | 26.4   | 26.4   | 35.2   | 35.2   | 35.2   | 35.2    | 44      | 44      | 44      | 44      | 44      | 44     |
|                           | Current                    | A                                       | 63.6   | 63.6   | 84.8   | 84.8   | 84.8   | 84.8    | 106     | 106     | 106     | 106     | 106     | 106    |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 137    | 148    | 159    | 177    | 181    | 199     | 208     | 230     | 240     | 260     | 269     | 295    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 200    | 200    | 200    | 200    | 200     | 200     | 200     | 200     | 200     | 200     | 200    |
|                           | Water pressure drop        | kPa                                     | 71     | 73     | 72     | 68     | 71     | 67      | 72      | 73      | 72      | 72      | 72      | 73     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |        |        |         |         |         |         |         |         |        |
| Dimensions                | Length                     | mm                                      | 7680   | 7680   | 9570   | 9570   | 9570   | 9570    | 11970   | 11970   | 11970   | 11970   | 11970   | 11970  |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |         |         |         |         |         |         |        |
|                           | High                       | mm                                      | 2460   |        |        | 2520   |        |         |         |         |         |         |         |        |
| Weight of unit            | Transportation             | kg                                      | 8570   | 8640   | 9380   | 9540   | 9660   | 9740    | 11250   | 11440   | 11480   | 11680   | 12030   | 12440  |
|                           | Operation                  | kg                                      | 8680   | 8760   | 9490   | 9660   | 9790   | 9880    | 11400   | 11600   | 11650   | 11860   | 12220   | 12640  |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. Allowable voltage fluctuation range is 440V~480V.
3. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T3 Condition.(380V 3N~50Hz)

|                           |                            |                                         |        |        |        |        |        |        |                                |        |        |        |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------------------------------|--------|--------|--------|--------|
| Model TASFV-AAC1T3        |                            | 095.1                                   | 120.1  | 140.1  | 155.1  | 180.1  | 205.1  | 225.1  | 140.2                          | 160.2  | 180.2  | 205.2  |        |
| Nominal cooling capacity  | kW                         | 336                                     | 425    | 495    | 556    | 645    | 725    | 791    | 503                            | 568    | 644    | 733    |        |
|                           | kcal/h                     | 288960                                  | 365500 | 425700 | 478160 | 554700 | 623500 | 680260 | 432580                         | 488480 | 553840 | 630380 |        |
| Cooling power input       | kW                         | 101.7                                   | 136.0  | 150.3  | 169.7  | 195.0  | 220.6  | 250.0  | 158.3                          | 181.5  | 204.9  | 229.6  |        |
| Cooling rated current     | A                          | 178                                     | 228    | 259    | 289    | 334    | 373    | 425    | 277                            | 314    | 355    | 393    |        |
| EER                       | kW/kW                      | 3.30                                    | 3.13   | 3.29   | 3.28   | 3.31   | 3.29   | 3.17   | 3.18                           | 3.13   | 3.14   | 3.19   |        |
| IPLV                      | kW/kW                      | 4.90                                    | 4.65   | 4.88   | 4.87   | 4.91   | 4.88   | 4.69   | 4.72                           | 4.65   | 4.66   | 4.74   |        |
| Nominal cooling capacity* | kW                         | 307                                     | 378    | 444    | 498    | 579    | 650    | 701    | 426                            | 480    | 551    | 665    |        |
|                           | kcal/h                     | 264020                                  | 325080 | 381840 | 428280 | 497940 | 559000 | 602860 | 366360                         | 412880 | 473860 | 571900 |        |
| Cooling power input*      | kW                         | 126.6                                   | 166.0  | 183.6  | 205.0  | 228.9  | 259.1  | 294.8  | 190.6                          | 218.9  | 241.7  | 285.5  |        |
| Cooling rated current*    | A                          | 216                                     | 275    | 310    | 344    | 386    | 432    | 494    | 326                            | 371    | 412    | 481    |        |
| Maximum operating current | A                          | 290                                     | 379    | 431    | 483    | 526    | 526    | 660    | 496                            | 558    | 610    | 610    |        |
| Power supply              |                            | 380V 3N~50Hz                            |        |        |        |        |        |        |                                |        |        |        |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Refrigerant circuit number | 1                                       |        |        |        |        |        | 2      |                                |        |        |        |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Energy regulation range    | 25%-100% stepless regulation            |        |        |        |        |        |        | 12.5%-100% stepless regulation |        |        |        |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |        |                                |        |        |        |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 147000 | 147000 | 196000 | 196000 | 245000 | 245000 | 294000                         | 196000 | 196000 | 294000 | 294000 |
|                           | Quantity                   | Set                                     | 6      | 6      | 8      | 8      | 10     | 10     | 12                             | 8      | 8      | 12     | 12     |
|                           | Fan motor                  | kW                                      | 13.8   | 13.8   | 18.4   | 18.4   | 23.0   | 23.0   | 27.6                           | 18.4   | 18.4   | 27.6   | 27.6   |
|                           | Current                    | A                                       | 31.8   | 31.8   | 42.4   | 42.4   | 53.0   | 53.0   | 63.6                           | 42.4   | 42.4   | 63.6   | 63.6   |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |        |                                |        |        |        |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 58     | 73     | 85     | 96     | 111    | 125    | 136                            | 87     | 98     | 111    | 126    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 150    | 150    | 150    | 150    | 150    | 150                            | 150    | 150    | 150    | 150    |
|                           | Water pressure drop        | kPa                                     | 62     | 68     | 71     | 68     | 67     | 71     | 72                             | 62     | 66     | 68     | 71     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |        |        |        |                                |        |        |        |        |
| Dimensions                | Length                     | mm                                      | 4100   | 4100   | 5290   | 5290   | 6490   | 6490   | 7680                           | 5290   | 5290   | 7680   | 7680   |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |        |                                |        |        |        |        |
|                           | High                       | mm                                      | 2460   |        |        |        |        |        |                                |        |        |        |        |
| Weight of unit            | Transportation             | kg                                      | 3860   | 4350   | 4800   | 4900   | 5730   | 5850   | 6400                           | 5820   | 5960   | 7720   | 7852   |
|                           | Operation                  | kg                                      | 3910   | 4410   | 4870   | 4980   | 5820   | 5950   | 6510                           | 5890   | 6040   | 7830   | 7972   |

### ★Notes:

1. Nominal cooling condition: chilled water outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
- 2.\*: The parameters in condition of: chilled water outlet temperature is 7°C, ambient dry bulb temperature is 46°C.
3. Allowable voltage fluctuation range is 360V~400V.
4. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T3 Condition.(380V 3N~50Hz)

|                           |                            |                                |        |        |        |         |         |         |         |         |        |
|---------------------------|----------------------------|--------------------------------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| Model TASFV-AAC1T3        |                            | 240.2                          | 260.2  | 280.2  | 310.2  | 340.2   | 360.2   | 375.2   | 410.2   | 445.2   |        |
| Nominal cooling capacity  | kW                         | 850                            | 894    | 989    | 1112   | 1184    | 1291    | 1316    | 1450    | 1564    |        |
|                           | kcal/h                     | 731000                         | 768840 | 850540 | 956320 | 1018240 | 1110260 | 1131760 | 1247000 | 1345040 |        |
| Cooling power input       | kW                         | 272.0                          | 274.6  | 300.5  | 342.9  | 356.3   | 389.2   | 400.4   | 438.9   | 495.2   |        |
| Cooling rated current     | A                          | 457                            | 478    | 517    | 583    | 617     | 667     | 684     | 743     | 835     |        |
| EER                       | kW/kW                      | 3.13                           | 3.26   | 3.29   | 3.24   | 3.32    | 3.32    | 3.29    | 3.30    | 3.16    |        |
| IPLV                      | kW/kW                      | 4.65                           | 4.84   | 4.88   | 4.81   | 4.93    | 4.93    | 4.88    | 4.90    | 4.69    |        |
| Nominal cooling capacity* | kW                         | 755                            | 760    | 887    | 996    | 1017    | 1159    | 1131    | 1300    | 1372    |        |
|                           | kcal/h                     | 649300                         | 653600 | 762820 | 856560 | 874620  | 996740  | 972660  | 1118000 | 1179920 |        |
| Cooling power input*      | kW                         | 332.1                          | 328.5  | 367.1  | 414.2  | 425.1   | 471.2   | 476.3   | 531.8   | 596.5   |        |
| Cooling rated current*    | A                          | 550                            | 561    | 620    | 694    | 721     | 793     | 800     | 886     | 992     |        |
| Maximum operating current | A                          | 758                            | 863    | 863    | 967    | 1052    | 1052    | 1052    | 1052    | 1298    |        |
| Power supply              |                            | 380V 3N~50Hz                   |        |        |        |         |         |         |         |         |        |
| Refrigerant               | Type                       | R134a                          |        |        |        |         |         |         |         |         |        |
|                           | Refrigerant circuit number | 2                              |        |        |        |         |         |         |         |         |        |
| Compressor                | Type                       | Semi-hermetic screw compressor |        |        |        |         |         |         |         |         |        |
|                           | Energy regulation range    | 12.5%-100% stepless regulation |        |        |        |         |         |         |         |         |        |
|                           | Startup Type               | Variable-frequency startup     |        |        |        |         |         |         |         |         |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h              | 294000 | 392000 | 392000 | 392000  | 490000  | 490000  | 490000  | 490000  | 450000 |
|                           | Quantity                   | Set                            | 12     | 16     | 16     | 16      | 20      | 20      | 20      | 20      | 20     |
|                           | Fan motor                  | kW                             | 27.6   | 36.8   | 36.8   | 36.8    | 46.0    | 46.0    | 46.0    | 46.0    | 46.0   |
|                           | Current                    | A                              | 63.6   | 84.8   | 84.8   | 84.8    | 106.0   | 106.0   | 106.0   | 106.0   | 106.0  |
| Water side heat exchanger | Type                       |                                |        |        |        |         |         |         |         |         |        |
|                           | Water flow                 | m <sup>3</sup> /h              | 146    | 154    | 170    | 191     | 204     | 222     | 226     | 249     | 269    |
|                           | Water pipe diameter        | DN(mm)                         | 200    | 200    | 200    | 200     | 200     | 200     | 200     | 200     | 200    |
|                           | Water pressure drop        | kPa                            | 71     | 68     | 71     | 69      | 69      | 68      | 71      | 72      | 72     |
|                           | Design Pressure            | MPa                            | 1.0    |        |        |         |         |         |         |         |        |
| Dimensions                | Length                     | mm                             | 7680   | 9570   | 9570   | 9570    | 11970   | 11970   | 11970   | 11970   | 11970  |
|                           | Width                      | mm                             | 2250   |        |        |         |         |         |         |         |        |
|                           | High                       | mm                             | 2460   | 2520   |        |         |         |         |         |         |        |
| Weight of unit            | Transportation             | kg                             | 8700   | 9480   | 9600   | 9800    | 11310   | 11460   | 11520   | 11700   | 12250  |
|                           | Operation                  | kg                             | 8830   | 9620   | 9750   | 9960    | 11480   | 11640   | 11710   | 11900   | 12460  |

### ★Notes:

1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. \*: The parameters in condition of: chilled water outlet temperature is 7°C, ambient dry bulb temperature is 46°C.
3. Allowable voltage fluctuation range is 360V~400V.
4. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T3 Condition.(380V 3N~60Hz)

|                           |                            |                                         |        |        |        |        |        |        |        |                               |        |        |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|-------------------------------|--------|--------|--------|
| Model TASFV-ABC1T3        |                            | 100.1                                   | 120.1  | 145.1  | 165.1  | 190.1  | 215.1  | 245.1  | 265.1  | 150.2                         | 165.2  | 200.2  |        |
| Nominal cooling capacity  | kW                         | 355                                     | 430    | 513    | 579    | 667    | 755    | 867    | 940    | 528                           | 589    | 709    |        |
|                           | kcal/h                     | 305300                                  | 369800 | 441180 | 497940 | 573620 | 649300 | 745620 | 808400 | 54080                         | 506540 | 609740 |        |
| Cooling power input       | kW                         | 109.7                                   | 136.9  | 161.1  | 182.3  | 207.7  | 236.8  | 262.5  | 298.7  | 168.3                         | 188.0  | 217.3  |        |
| Cooling rated current     | A                          | 183                                     | 223    | 261    | 299    | 340    | 387    | 427    | 487    | 281                           | 313    | 363    |        |
| EER                       | kW/kW                      | 3.23                                    | 3.14   | 3.18   | 3.18   | 3.21   | 3.19   | 3.30   | 3.15   | 3.14                          | 3.13   | 3.26   |        |
| IPLV                      | kW/kW                      | 4.79                                    | 4.66   | 4.72   | 4.72   | 4.76   | 4.74   | 4.90   | 4.68   | 4.66                          | 4.65   | 4.84   |        |
| Nominal cooling capacity* | kW                         | 320                                     | 385    | 453    | 510    | 591    | 665    | 767    | 824    | 443                           | 491    | 642    |        |
|                           | kcal/h                     | 275200                                  | 331100 | 389580 | 438600 | 508260 | 571900 | 659620 | 708640 | 380980                        | 422260 | 552120 |        |
| Cooling power input*      | kW                         | 137.0                                   | 171.6  | 197.0  | 223.6  | 251.4  | 287.8  | 319.6  | 355.8  | 204.5                         | 228.8  | 273.7  |        |
| Cooling rated current*    | A                          | 224                                     | 277    | 316    | 361    | 407    | 463    | 514    | 574    | 335                           | 375    | 446    |        |
| Maximum operating current | A                          | 284                                     | 355    | 452    | 482    | 551    | 613    | 622    | 776    | 482                           | 550    | 568    |        |
| Power supply              |                            | 380V 3N~60Hz                            |        |        |        |        |        |        |        |                               |        |        |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |        |        |                               |        |        |        |
|                           | Refrigerant circuit number | 1                                       |        |        |        |        |        |        |        | 2                             |        |        |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |        |        |                               |        |        |        |
|                           | Energy regulation range    | 25-100% stepless regulation             |        |        |        |        |        |        |        | 12.5-100% stepless regulation |        |        |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |        |        |                               |        |        |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 147000 | 147000 | 196000 | 196000 | 245000 | 245000 | 294000 | 343000                        | 196000 | 196000 | 294000 |
|                           | Quantity                   | Set                                     | 6      | 6      | 8      | 8      | 10     | 10     | 12     | 14                            | 8      | 8      | 12     |
|                           | Fan motor                  | kW                                      | 13.2   | 13.2   | 17.6   | 17.6   | 22.0   | 22.0   | 26.4   | 30.8                          | 17.6   | 17.6   | 26.4   |
|                           | Current                    | A                                       | 25.8   | 25.8   | 34.4   | 34.4   | 43.0   | 43.0   | 51.6   | 60.2                          | 34.4   | 34.4   | 51.6   |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |        |        |                               |        |        |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 61.1   | 74.0   | 88.2   | 99.6   | 114.7  | 129.9  | 149.1  | 161.7                         | 90.8   | 101.3  | 121.9  |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 150    | 150    | 150    | 150    | 150    | 200    | 200                           | 150    | 150    | 150    |
|                           | Water pressure drop        | kPa                                     | 68     | 69     | 75     | 73     | 71     | 76     | 74     | 72                            | 68     | 71     | 67     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |        |        |        |        |                               |        |        |        |
| Dimensions                | Length                     | mm                                      | 4100   | 4100   | 5290   | 5290   | 6490   | 6490   | 7680   | 8880                          | 5290   | 5290   | 7680   |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |        |        |                               |        |        |        |
|                           | High                       | mm                                      | 2460   |        |        |        |        |        |        |                               |        |        |        |
| Weight of unit            | Transportation             | kg                                      | 3830   | 4320   | 4770   | 4870   | 5720   | 5810   | 6340   | 7220                          | 5640   | 5740   | 7660   |
|                           | Operation                  | kg                                      | 3880   | 4370   | 4830   | 4930   | 5810   | 5900   | 6440   | 7340                          | 5720   | 5820   | 7760   |

### ★Notes:

- Nominal cooling condition: chilled water outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
- \*:The parameters in condition of:chilled water outlet temperature is 7°C, ambient dry bulb temperature is 46°C.
- Allowable voltage fluctuation range is 360V~400V.
- The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

## T3 Condition.(380V 3N~60Hz)

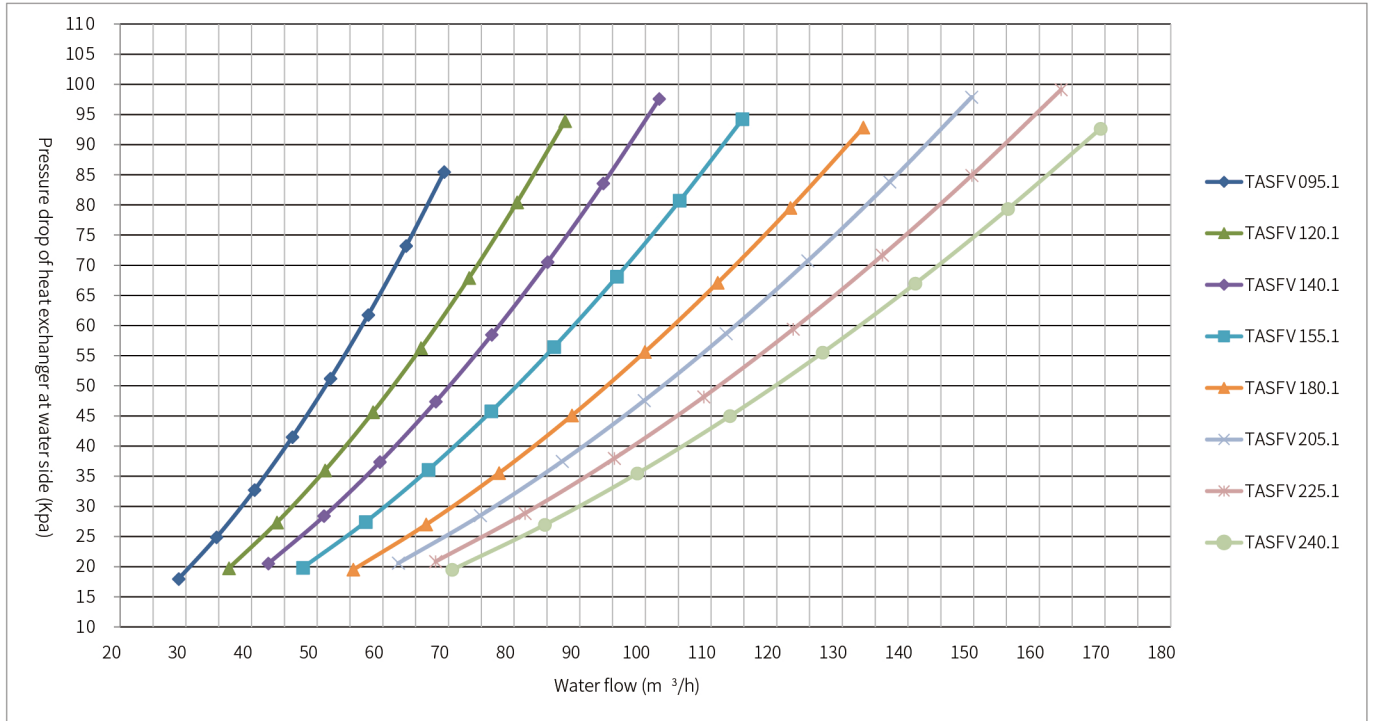
| Model TASFV-ABC1T3        |                            | 225.2                                   | 240.2  | 260.2  | 290.2  | 300.2  | 330.2  | 345.2   | 380.2   | 395.2   | 430.2   | 445.2   | 485.2   |        |
|---------------------------|----------------------------|-----------------------------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|--------|
| Nominal cooling capacity  | kW                         | 795                                     | 860    | 922    | 1026   | 1052   | 1159   | 1210    | 1335    | 1393    | 1511    | 1566    | 1715    |        |
|                           | kcal/h                     | 683700                                  | 739600 | 792920 | 882360 | 904720 | 996740 | 1040600 | 1148100 | 1197980 | 1299460 | 1346760 | 1474900 |        |
| Cooling power input       | kW                         | 246.7                                   | 273.8  | 288.0  | 322.2  | 335.9  | 364.6  | 377.2   | 411.1   | 432.8   | 468.6   | 480.2   | 522.3   |        |
| Cooling rated current     | A                          | 409                                     | 447    | 470    | 522    | 555    | 598    | 622     | 673     | 712     | 765     | 783     | 847     |        |
| EER                       | kW/kW                      | 3.22                                    | 3.14   | 3.20   | 3.18   | 3.13   | 3.18   | 3.21    | 3.25    | 3.22    | 3.22    | 3.26    | 3.28    |        |
| IPLV                      | kW/kW                      | 4.78                                    | 4.66   | 4.75   | 4.72   | 4.65   | 4.72   | 4.76    | 4.82    | 4.78    | 4.78    | 4.84    | 4.87    |        |
| Nominal cooling capacity* | kW                         | 716                                     | 772    | 776    | 904    | 887    | 1020   | 1022    | 1182    | 1189    | 1330    | 1339    | 1513    |        |
|                           | kcal/h                     | 615760                                  | 663920 | 667360 | 777440 | 762820 | 877200 | 878920  | 1016520 | 1022540 | 1143800 | 1151540 | 1301180 |        |
| Cooling power input       | kW                         | 308.7                                   | 342.6  | 346.4  | 395.0  | 404.2  | 447.3  | 446.0   | 497.6   | 520.0   | 569.5   | 574.2   | 633.1   |        |
| Cooling rated current *   | A                          | 502                                     | 553    | 559    | 633    | 657    | 723    | 726     | 805     | 843     | 917     | 925     | 1016    |        |
| Maximum operating current | A                          | 606                                     | 710    | 905    | 905    | 965    | 965    | 1102    | 1102    | 1226    | 1226    | 1226    | 1226    |        |
| Power supply              |                            | 380V 3N~50Hz                            |        |        |        |        |        |         |         |         |         |         |         |        |
| Refrigerant               | Type                       | R134a                                   |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Refrigerant circuit number | 2                                       |        |        |        |        |        |         |         |         |         |         |         |        |
| Compressor                | Type                       | Semi-hermetic screw compressor          |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Energy regulation range    | 12.5-100% stepless regulation           |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Startup Type               | Variable-frequency startup              |        |        |        |        |        |         |         |         |         |         |         |        |
| Fan                       | Air flow                   | m <sup>3</sup> /h                       | 294000 | 294000 | 392000 | 392000 | 392000 | 392000  | 490000  | 490000  | 490000  | 490000  | 450000  | 450000 |
|                           | Quantity                   | Set                                     | 12     | 12     | 16     | 16     | 16     | 16      | 20      | 20      | 20      | 20      | 20      | 20     |
|                           | Fan motor                  | kW                                      | 26.4   | 26.4   | 35.2   | 35.2   | 35.2   | 35.2    | 44      | 44      | 44      | 44      | 44      | 44     |
|                           | Current                    | A                                       | 51.6   | 51.6   | 68.8   | 68.8   | 68.8   | 68.8    | 86      | 86      | 86      | 86      | 86      | 86     |
| Water side heat exchanger | Type                       | Highly Efficient Flooded Shell-and-Tube |        |        |        |        |        |         |         |         |         |         |         |        |
|                           | Water flow                 | m <sup>3</sup> /h                       | 137    | 148    | 159    | 177    | 181    | 199     | 208     | 230     | 240     | 260     | 269     | 295    |
|                           | Water pipe diameter        | DN(mm)                                  | 150    | 200    | 200    | 200    | 200    | 200     | 200     | 200     | 200     | 200     | 200     | 200    |
|                           | Water pressure drop        | kPa                                     | 70     | 73     | 71     | 67     | 70     | 66      | 72      | 72      | 71      | 71      | 72      | 72     |
|                           | Design Pressure            | MPa                                     | 1.0    |        |        |        |        |         |         |         |         |         |         |        |
| Dimensions                | Length                     | mm                                      | 7680   | 7680   | 9570   | 9570   | 9570   | 9570    | 11970   | 11970   | 11970   | 11970   | 11970   | 11970  |
|                           | Width                      | mm                                      | 2250   |        |        |        |        |         |         |         |         |         |         |        |
|                           | High                       | mm                                      | 2460   |        |        | 2520   |        |         |         |         |         |         |         |        |
| Weight of unit            | Transportation             | kg                                      | 8570   | 8640   | 9380   | 9540   | 9660   | 9740    | 11250   | 11440   | 11480   | 11680   | 12030   | 12440  |
|                           | Operation                  | kg                                      | 8680   | 8760   | 9490   | 9660   | 9790   | 9880    | 11400   | 11600   | 11650   | 11860   | 12220   | 12640  |

### ★Notes:

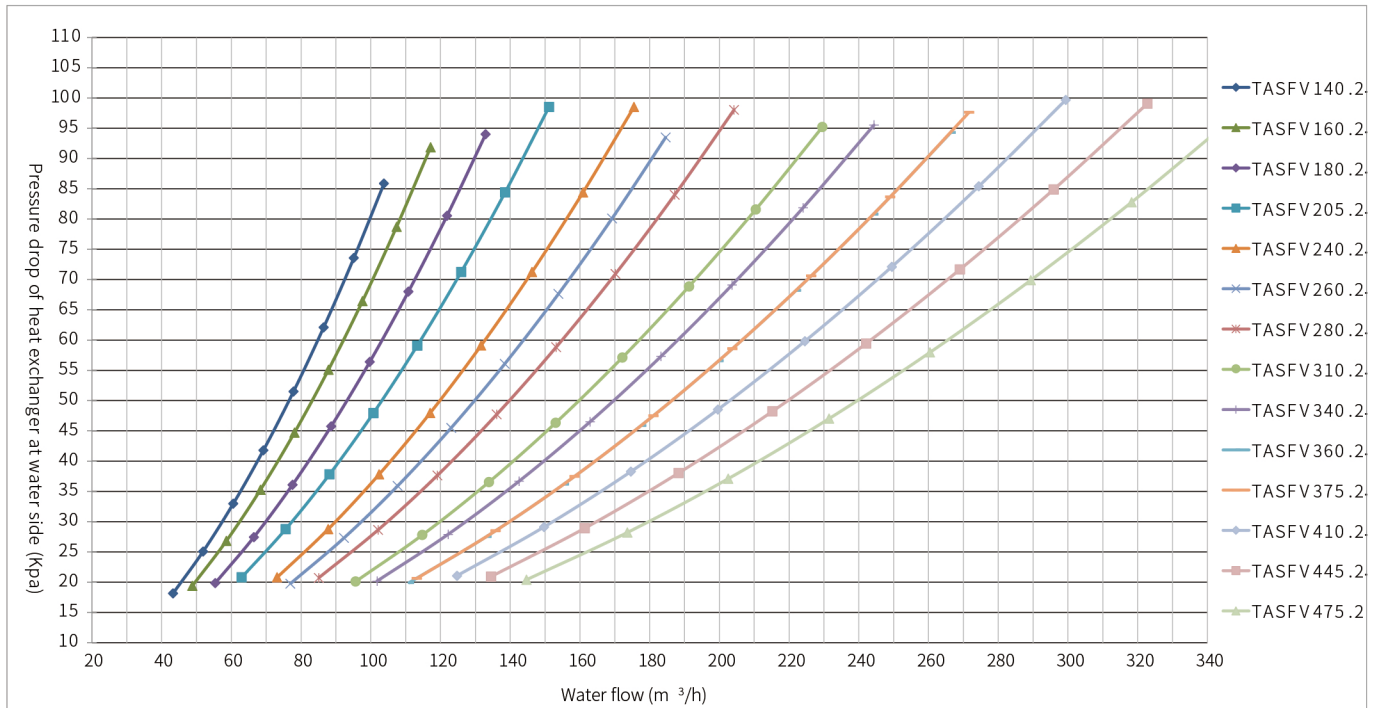
1. Nominal cooling condition: chilled water inlet/outlet temperature is 12°C/7°C, ambient dry bulb temperature is 35°C.
2. \*: The parameters in condition of: chilled water outlet temperature is 7°C, ambient dry bulb temperature is 46°C.
3. Allowable voltage fluctuation range is 360V~400V.
4. The above parameters may change because of product improvement. Therefore, it shall be subject to the parameters on the product nameplate and the actual product.

# Water Pressure Drop Curve

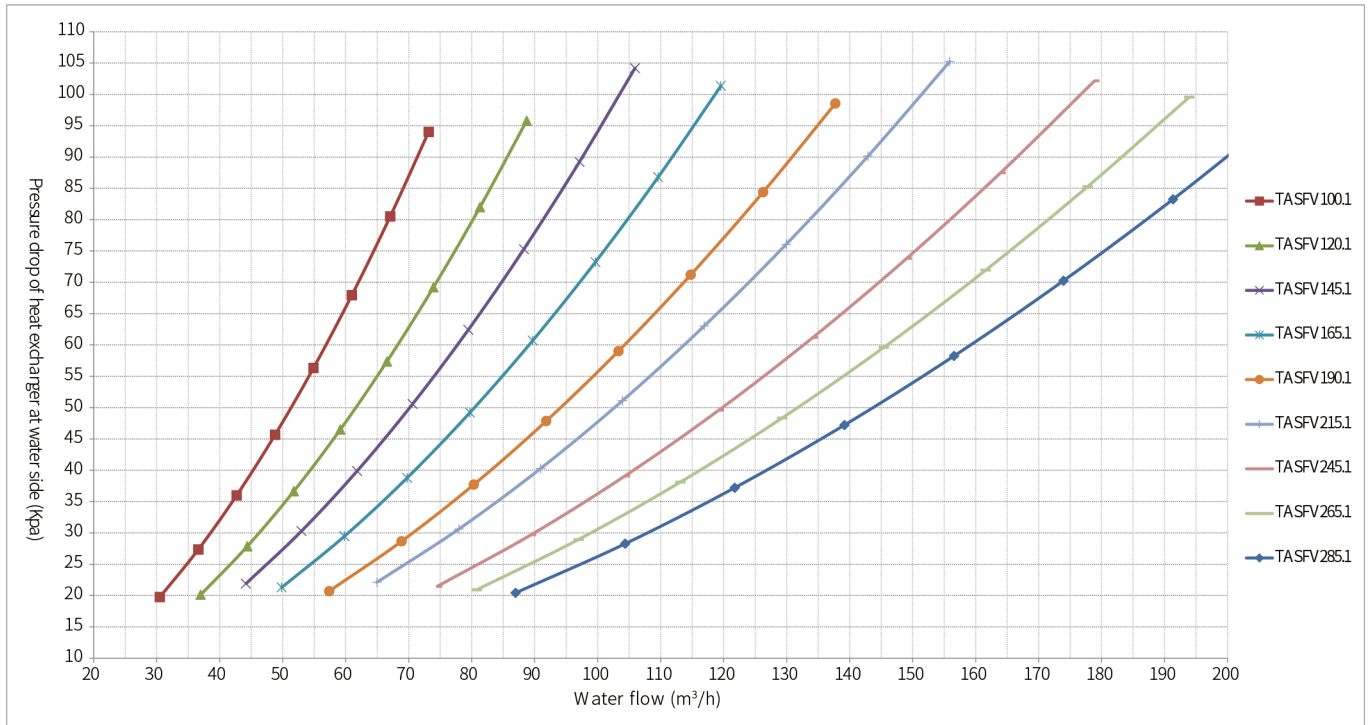
## Water Pressure Drop Curve-Single Compressor(50Hz)



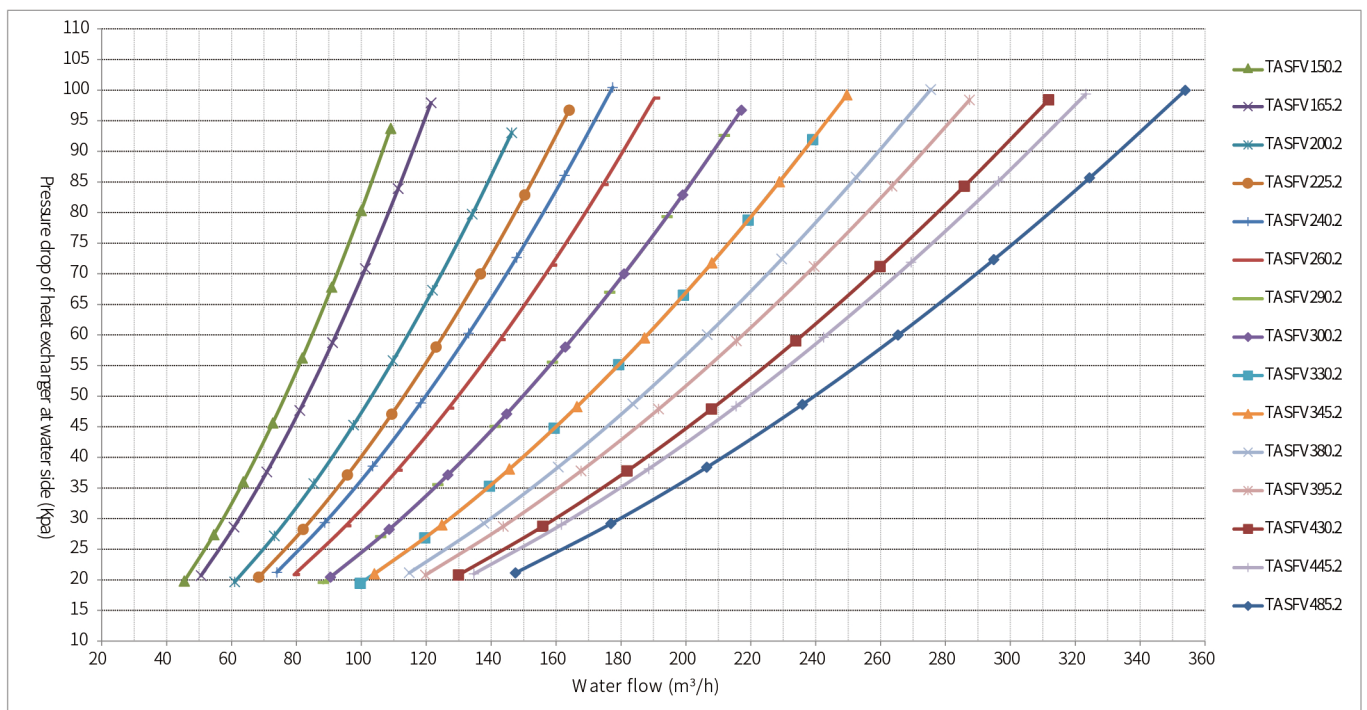
## Water Pressure Drop Curve-Dual Compressors(50Hz)



## Water Pressure Drop Curve-Single Compressor(60Hz)

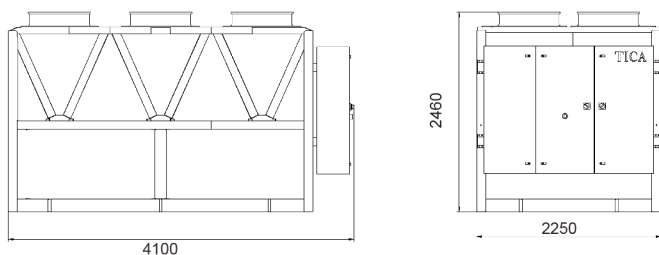


## Water Pressure Drop Curve-Dual Compressors(60Hz)



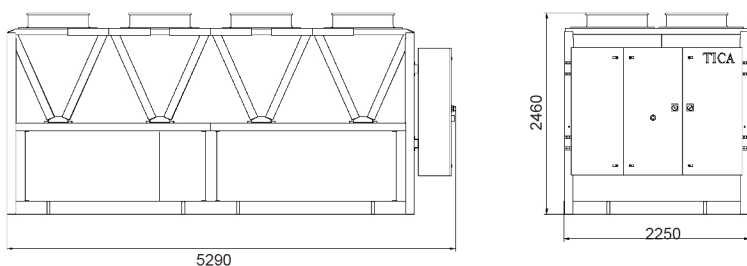
# TASF Dimensions Data

095.1/100.1/120.1

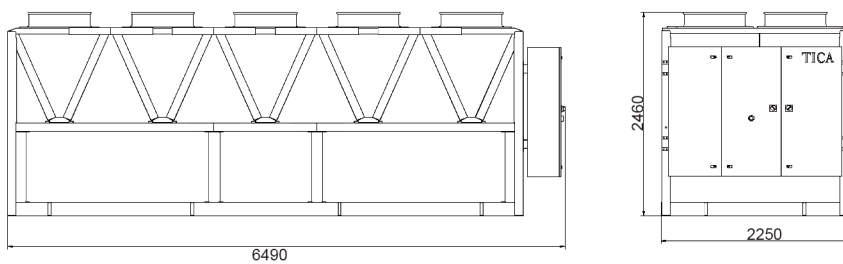


140.1/145.1/155.1/165.1

140.2/150.2/160.2/165.2

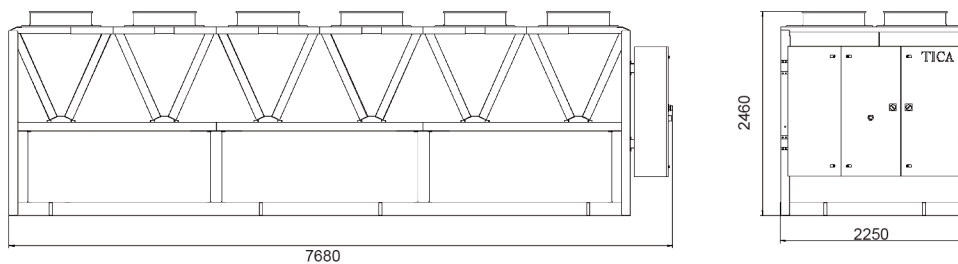


180.1/190.1/205.1/215.1

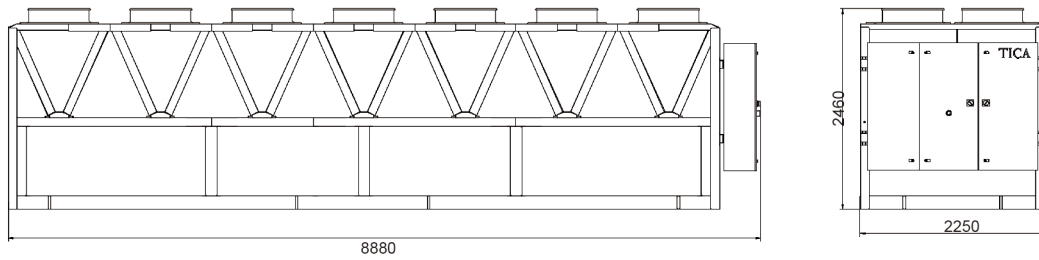


225.1/240.1/245.1

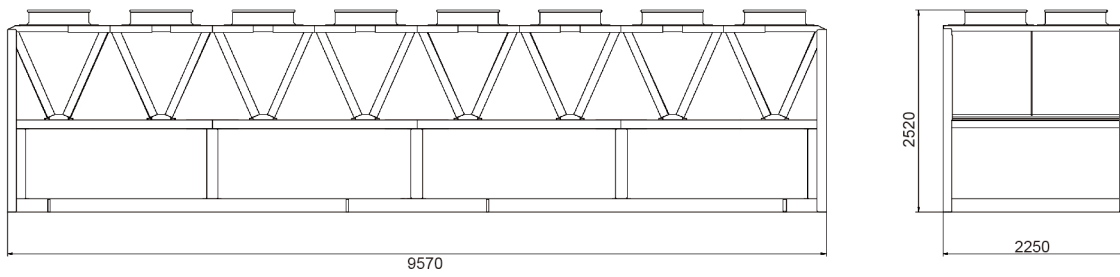
180.2/200.2/205.2/225.2/240.2



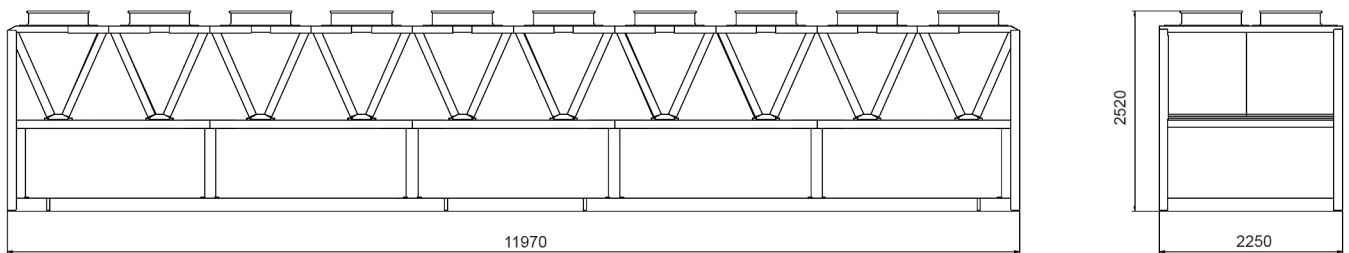
265.1/285.1



260.2/280.2/290.2/300.2/310.2/330.2



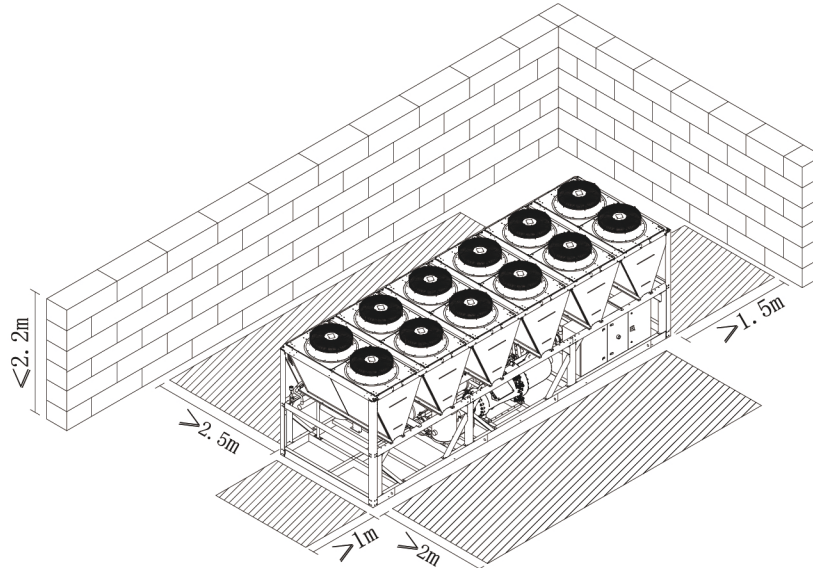
340.2/345.2/360.2/375.2/380.2/395.2/410.2/430.2/445.2/475.2/485.2



# Unit Installation Diagrams

## Diagram for Installation Space of Unit

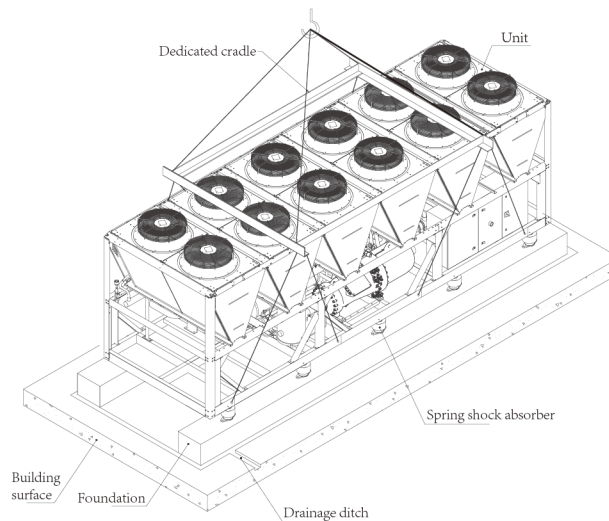
Layout requirements for corners or depressions



### ★ Notes

1. The unit must be installed in a place with good ventilation and heat transmission. To prevent inverse flow of condenser air, it is recommended to reserve side spacing as shown above; under such conditions, there should not be any obstacles above the unit.
2. In case of any structure above the unit, a space height of at least 3 meters shall be reserved between the structure and the unit so as to ensure free airflow for the unit;
3. Since the re-circulating hot air seriously affects the energy efficiency ratio of the unit or even causes the condensing pressure to be too high or the fan motor to fail, please make sure to meet the requirement for installation space mentioned above.

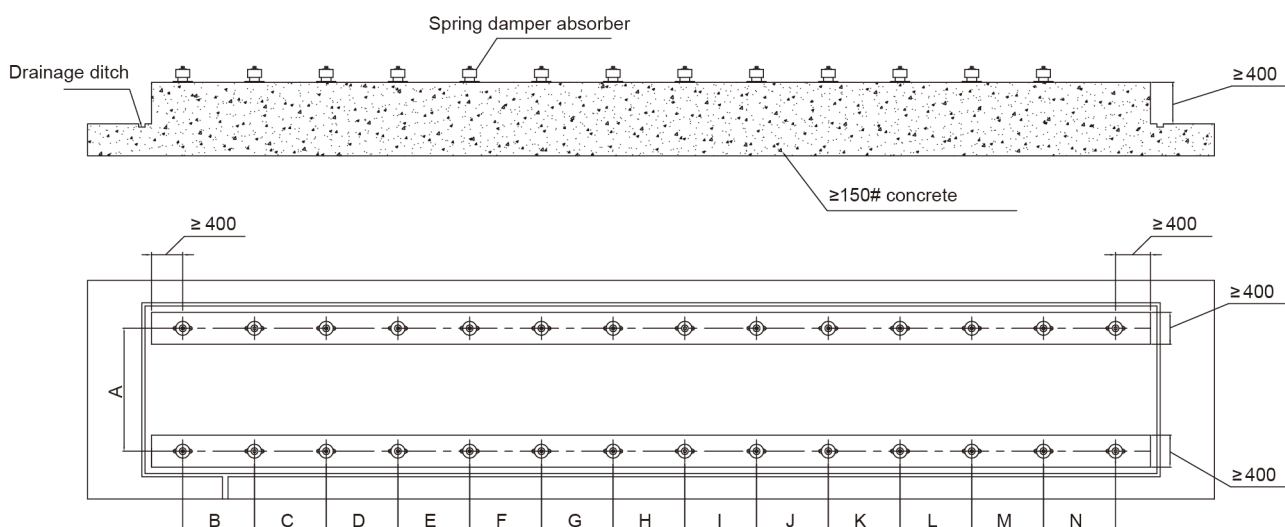
## Diagram for Lifting and Placement of Unit



### ★ Notes

1. Lift the unit according to the diagram. Make sure to use special lifting equipment such as cradle to protect the unit;
2. In case of any scratches occurring during the lifting process, it is recommended to treat the damaged parts.

# Foundation Diagrams



| Model                                                | Code (mm) |      |      |      |      |   |   |   |   |   |   |   |   |   | Spring damper absorber |          |
|------------------------------------------------------|-----------|------|------|------|------|---|---|---|---|---|---|---|---|---|------------------------|----------|
|                                                      | A         | B    | C    | D    | E    | F | G | H | I | J | K | L | M | N | Model                  | Quantity |
| TASFV095.1<br>TASFV100.1                             | 2170      | 1392 | 1392 | -    | -    | - | - | - | - | - | - | - | - | - | MHD-850                | 6        |
| TASFV120.1                                           | 2170      | 1392 | 1392 | -    | -    | - | - | - | - | - | - | - | - | - | MHD-1050               | 6        |
| TASFV140.1<br>TASFV145.1                             | 2170      | 1390 | 1390 | 1390 | -    | - | - | - | - | - | - | - | - | - | MHD-810                | 8        |
| TASFV155.1<br>TASFV165.1                             | 2170      | 1390 | 1390 | 1390 | -    | - | - | - | - | - | - | - | - | - | MHD-850                | 8        |
| TASFV180.1<br>TASFV190.1<br>TASFV205.1<br>TASFV215.1 | 2170      | 1340 | 1340 | 1340 | 1340 | - | - | - | - | - | - | - | - | - | MHD-810                | 10       |

## ★ Notes

1. Foundation levelness  $\leq 0.1\%$ ;
2. The bearing capacity of foundation  $\geq 1.5$  times of the operating weight of unit;
3. Drainage ditches must be provided around the foundation to prevent accumulation of water;
4. Shock absorbers must be installed between the unit and the foundation (the shock absorber itself has anti-slip and anti-roll functions and does not need to be fixed on the foundation).

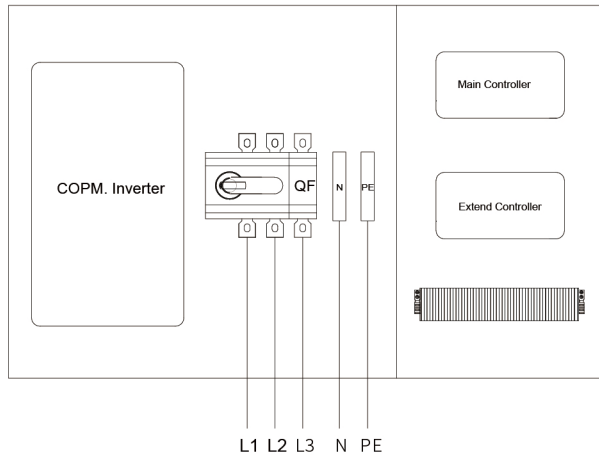
| Model                                                                                                        | Code (mm) |      |      |      |      |      |      |      |      |      |   |   |   |   | Spring damper absorber |          |
|--------------------------------------------------------------------------------------------------------------|-----------|------|------|------|------|------|------|------|------|------|---|---|---|---|------------------------|----------|
|                                                                                                              | A         | B    | C    | D    | E    | F    | G    | H    | I    | J    | K | L | M | N | Model                  | Quantity |
| TASFV225.1<br>TASFV240.1<br>TASFV245.1                                                                       | 2170      | 1588 | 1588 | 1588 | 1588 | -    | -    | -    | -    | -    | - | - | - | - | MHD-920                | 10       |
| TASFV265.1<br>TASFV285.1                                                                                     | 2170      | 1300 | 1300 | 1300 | 1300 | 1300 | 1300 | -    | -    | -    | - | - | - | - | MHD-730                | 14       |
| TASFV140.2<br>TASFV150.2<br>TASFV160.2<br>TASFV165.2                                                         | 2184      | 1390 | 1390 | 1390 | -    | -    | -    | -    | -    | -    | - | - | - | - | MHD-1050               | 8        |
| TASFV180.2<br>TASFV200.2<br>TASFV205.2                                                                       | 2184      | 1588 | 1588 | 1588 | 1588 | -    | -    | -    | -    | -    | - | - | - | - | MHD-1050               | 10       |
| TASFV225.2<br>TASFV240.2                                                                                     | 2184      | 1588 | 1588 | 1588 | 1588 | -    | -    | -    | -    | -    | - | - | - | - | MHD-1200               | 10       |
| TASFV260.2<br>TASFV280.2<br>TASFV290.2                                                                       | 2184      | 1255 | 1255 | 1255 | 1255 | 1255 | 1255 | 1255 | -    | -    | - | - | - | - | MHD-810                | 16       |
| TASFV300.2<br>TASFV310.2<br>TASFV330.2                                                                       | 2184      | 1255 | 1255 | 1255 | 1255 | 1255 | 1255 | 1255 | -    | -    | - | - | - | - | MHD-850                | 16       |
| TASFV340.2<br>TASFV345.2<br>TASFV360.2<br>TASFV375.2<br>TASFV380.2<br>TASFV395.2<br>TASFV410.2<br>TASFV430.2 | 2184      | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | - | - | - | - | MHD-810                | 20       |
| TASFV445.2<br>TASFV475.2<br>TASFV485.2                                                                       | 2184      | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | - | - | - | - | MHD-850                | 20       |

★ Notes

1. Foundation levelness  $\leq 0.1\%$ ;
2. The bearing capacity of foundation  $\geq 1.5$  times of the operating weight of unit;
3. Drainage ditches must be provided around the foundation to prevent accumulation of water;
4. Shock absorbers must be installed between the unit and the foundation (the shock absorber itself has anti-slip and anti-roll functions and does not need to be fixed on the foundation).

# On-Site Wiring Diagram

## Single compressor



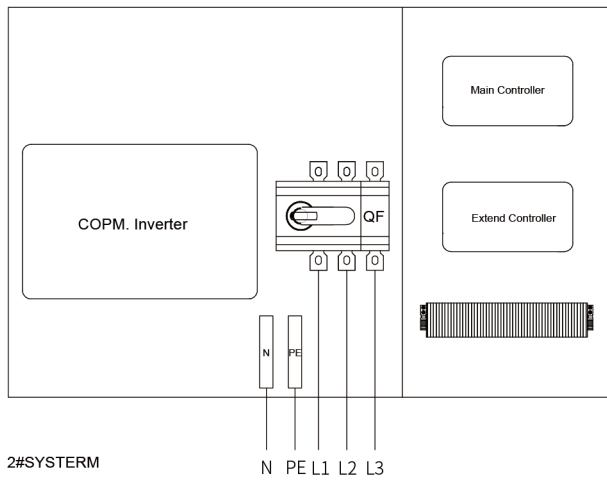
**Input**  
1-40,1-41:Remote start & stop

**Output**  
200,201:Run  
204,205:Pump  
502,503:Alarm  
7,1-105:Evaporator Electric valve

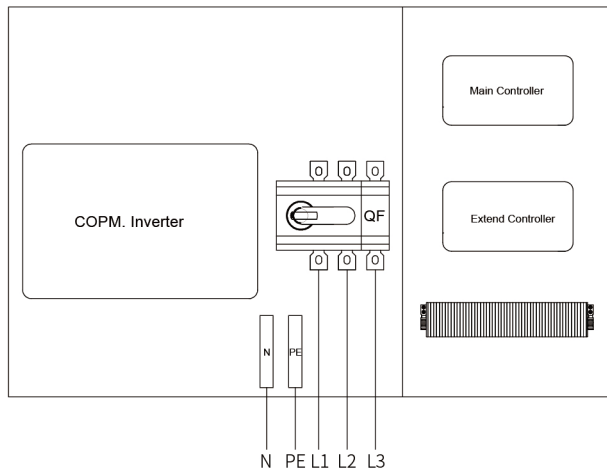
**Communication**  
1-A4+,1-B4-:Remote communication

## Dual compressors

1#SYSTEM



2#SYSTEM



**Input**  
1-40,1-41:Remote start & stop

**Output**  
200,201:Run  
204,205:Pump  
502,503:Alarm  
7,1-105:Evaporator Electric valve

**Communication**  
1-A4+,1-B4-:Remote communication

# Installation and Debugging

The unit installation and maintenance must be carried out by professionals who have received professional training, get familiar with the local standards and rules, and have practical operation experience and qualifications of refrigeration equipment. The first operation of the unit must be carried out by the professional service department; otherwise, the quality of the unit is hardly guaranteed.

## Handling of Unit

The entire unit is transported, and the refrigerant required for normal operation has been charged in the unit. Handle the unit carefully, avoiding damages to it due to reckless operation or refrigerant leakage.

## Acceptance Upon Delivery at Site

After arrival of the equipment, carefully check whether all the items are complete against the packing list, and whether the parts are damaged during transportation; if any parts are damaged, notify the forwarder and put forward a written compensation request. Our company will not bear the liability for compensation for any damages that arise after the acceptance of the goods.

## Lifting of Unit

Be sure to use a cable twisted rope or chain with a sufficient bearing capacity to fasten the steel pole passing through the lifting hole on the unit base to lift the unit, and operate according to the requirements of the lifting diagram; make sure that the panel of the fins and other parts of the unit are not damaged, and note to use special lifting equipment such as spreader bar and cradle to protect the unit during lifting; do not tilt the unit by more than 30°.

## Foundation Requirements

The unit should be placed on a horizontal plane foundation, bottom floor or building roof that can bear the operating weight of the entire equipment. Please refer to the unit nameplate for the operating weight. Spring damper absorbers must be provided if the unit is to be installed on a building roof so as to avoid vibration and noise transmission. If the unit location is too high which makes it inconvenient for the maintenance personnel to conduct maintenance, it should set up appropriate scaffolds around the unit and the scaffolds must bear the weight of maintenance personnel and equipment. (You may refer to some of the requirements on the Foundation Drawing of Unit above).

## Environmental Requirements

It is better to install the unit in a relatively spacious area where sufficient air can flow by the fin coil. There should be enough spacing around the unit to allow air to flow into the fin coil and such space can also be used as maintenance passages. (You may refer to some of the requirements on the Diagram for Installation Space of Unit above). It is proper to use the unit in a region with an ambient temperature above -15°C. In areas with snowfalls in winter where the unit also needs to operate in winter, the installation height must be increased and it is recommended to install a snow cover for the unit if there may be snow accumulation at the installation site so as to ensure normal air flow by the fin coil.

## Water Pipe Installation

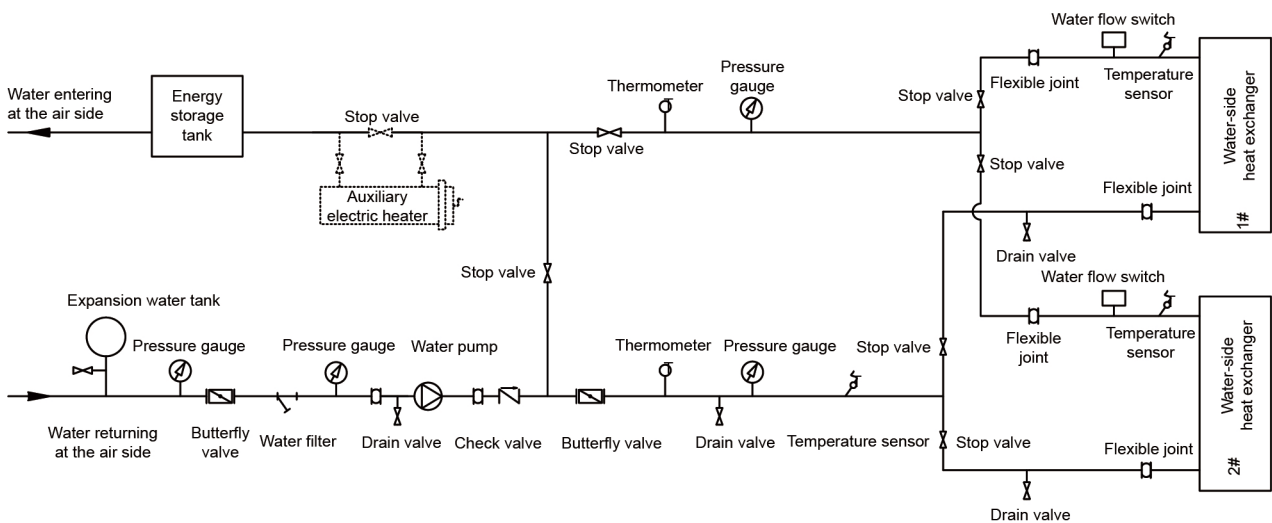
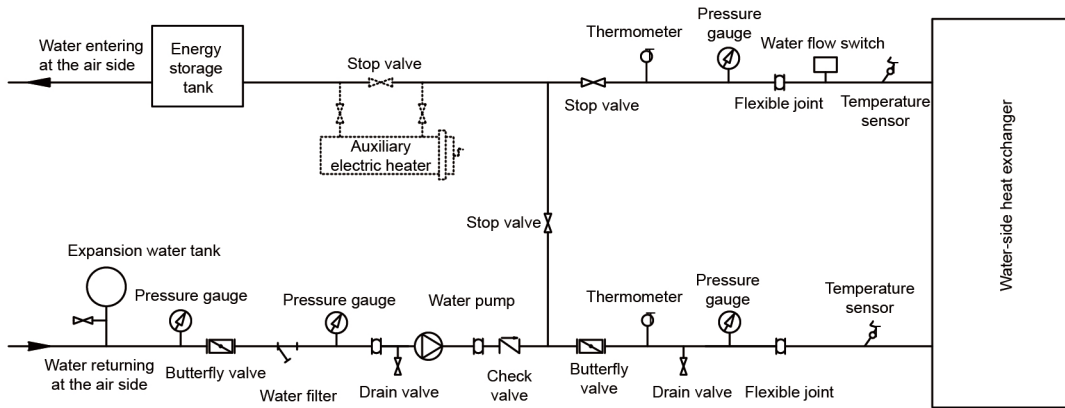
Check valves must be installed at the unit inlet and outlet to facilitate routine maintenance of the water system. It is suggested to install a thermometer and a pressure meter at the water inlet/outlet of the heat exchanger of the unit in order for ease of regular inspection and repair; A water filter should be installed at the water inlet of the pump to avoid impurities entering the pump and the heat exchanger; It should check the water tightness of the pipeline before the pipe is wrapped with thermal insulation materials and before the water enters the unit; All pipelines connecting to the unit should be installed with a vibration damping device; A flow control device meeting the requirements must be installed; The blow-off pipe installed for the air conditioning engineering system must keep away from the inlet and outlet water pipelines of the heat exchanger of the unit, otherwise it will affect the normal operation of the unit.

## Water Quality Requirements

The compositions of water in various regions are relatively complicated. If water different from the common water quality is used, the water should be tested before entering the heat exchanger of the unit. If the water quality does not meet the requirements of air conditioning water, water treatment is required. For water treatment, see the Code for Design of Industrial Recirculating Cooling Water Treatment or other relevant standards. See the following table for reference indexes.

| Item                             | Unit | Allowable values required by air conditioning water |
|----------------------------------|------|-----------------------------------------------------|
| Suspended substance              | mg/L | < 10                                                |
| pH value (25°C)                  | mg/L | 6.5 - 8.0                                           |
| Conductivity (25°C)              | μS/L | < 800                                               |
| Methyl orange alkalinity         | mg/L | < 150                                               |
| Acid consumption (PH = 4.8)      | mg/L | < 100                                               |
| Total hardness CaCO <sub>3</sub> | mg/L | < 200                                               |
| Fe <sup>2+</sup>                 | mg/L | < 1.0                                               |
| Cl <sup>-</sup>                  | mg/L | < 200                                               |
| SO <sub>4</sub> <sup>2-</sup>    | mg/L | < 200                                               |
| SiO <sub>2</sub>                 | mg/L | < 50                                                |
| NH <sub>4</sub> <sup>+</sup>     | mg/L | < 1.0                                               |
| S <sup>2-</sup>                  | mg/L | Cannot be detected                                  |
| Free chlorine                    | mg/L | < 1.0                                               |
| Petroleum category               | mg/L | < 5                                                 |

# Water Pipe Connection Diagram



## ★ Notes

1. Water cycling system shall be designed as simple as possible and avoid the use of too many elbows. Straight pipes shall be arranged on the same plane where possible.
2. Pay attention to the locations of water inlet and outlet of the heat exchanger to prevent connection errors.
3. Install manual or automatic air release valve at the top points of water cycling system.
4. Expansion tank shall be anti-corrosive and rust proof and installed at the top points of entire pipeline system.
5. Install a thermometer and pressure meter at the water inlet and outlet.
6. For the dual-compressor unit, a temperature sensing blind pipe shall be reserved at the user's general water pipe in order to further install a temperature sensor.
7. Water drain valves should be installed at the bottom of elbows to make sure the water in the whole unit is emptied.
8. Install a stop valve at the pipeline connecting the heat exchanger of the unit to the user's water pipe.
9. Install a bypass valve between the water inlet pipe and the water outlet pipe of the heat exchanger of the unit in order for ease of maintenance and pipeline washing.
10. Install flexible joints to reduce vibration of pipelines.
11. Impurities in the water system will cause fouling and scaling on the heat exchanger, so a filter should be installed upstream the pump.
12. To boost cooling performance and save energy, pipelines shall be completely insulated.
13. To prevent frequent breakdowns of the unit caused by too small load, it is recommended to use energy storage tank.

# Selection of Water System Parts

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stop Valve                    | Determine the valve according to the water pipe diameter. Usually the pipe diameter of the selected valve is identical to that of the connecting pipe of the unit.                                                                                                                                                                                                                                                                                                                                                                               |
| Water Filter                  | It is used to filter the impurities from the water system. Usually select a filter with more than 60 meshes.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Check Valve                   | It is installed at the water pump outlet to prevent damage to the water pump when water flows back. The diameter of the valve pipe is identical to that of the connecting pipe of the unit.                                                                                                                                                                                                                                                                                                                                                      |
| Bypass Valve                  | It is installed between the inlet water pipe and outlet water pipe of the unit vessel. Open this valve when cleaning the pipeline.                                                                                                                                                                                                                                                                                                                                                                                                               |
| Thermometer                   | It is used to facilitate overhaul and maintenance of the unit and to observe the operating status of the unit. Usually the range of it is selected from 0°C to 100°C.                                                                                                                                                                                                                                                                                                                                                                            |
| Water Pump                    | The water capacity of water pump is selected according to the water flow parameters of the unit:<br>Water capacity of pump = $L \times 1.1$ ( $L$ — water flow of the unit); the pump lift is calculated according to the following formula:<br>Pump lift = [water resistance of the unit + most unfavorable pipe length $\times$ (2%- 5%) + water resistance at the end of the most unfavorable path] $\times$ 1.1.                                                                                                                             |
| Automatic Air Discharge Valve | It is used to discharge air from the water system and make the unit operate normally. It is installed at the highest point of the system.                                                                                                                                                                                                                                                                                                                                                                                                        |
| Expansion Water Tank          | It is mainly used to contain the excessive water, stabilize water pressure in the system, and supplements water to the system. Generally it is installed at the return water pipe, higher than the water pipe in the system, so that the unit can operate properly. Its capacity is calculated according to the following formula:<br>Expansion water tank volume $V=(0.03 \text{ to } 0.034) V_c$<br>$V_c$ —System water capacity                                                                                                               |
| Buffer Tank                   | It is used for energy regulation to reduce frequent start/stop times of the compressor when the air conditioning system load changes so as to increase the system operation efficiency and to prolong the service life of the unit. Its capacity is calculated according to the following formula:<br>Energy storage tank volume $V \text{ (m}^3\text{)} = (Q/27.9n) - V_s$<br>$Q$ — Cooling capacity (kW)<br>$n$ — Number of heads<br>$V_s$ — Water capacity in the pipeline of the chilled water system and in the heat exchanger $\text{m}^3$ |

## ★ Notes

The tested pressure value of the pipeline pressure test is greater than 1.25 times the operating pressure, but not less than 0.6 MPa. When the pressure is maintained for 5 minutes, the pressure drop is not greater than 0.02 MPa. The system is qualified when leakage is not detected.

The water pressure test cannot be performed when the air temperature is lower than 5°C. The pressure meter for the pressure test is qualified, with the precision not lower than grade 1.5, and the full scale value is 1.5 to 2 times the maximum tested pressure.

Water is added from the lower part of the system and air is discharged from the upper part. During the pressure test, add water slowly and evenly to reach the pressure, stop the pump, and check the system. Repair cannot be performed when there is pressure in the system.

After the pressure test is qualified, rinse the water pipeline repeatedly (do not pass the equipment) till impurities such as silt and iron filings are not contained in the drained water and water is clear.

# Routine Maintenance

TICA recommends the user record the routine operating data of air-conditioning equipment and regularly carry out maintenance.

1. Before using the unit for the first time, check the functioning of the air side equipment and other parts of the water system.
2. (Recommended) Use the following service schedule to maintain the unit:

|                    |                                                                                                                                                                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Daily inspection   | 1. Check whether the unit generates any alarm                                                                                                                                                                                             |
|                    | 2. Check whether the air discharge and air suction pressures and oil pressure are normal                                                                                                                                                  |
|                    | 3. Check whether the oil level is normal (check through the oil sight glass to ensure proper amount of oil)                                                                                                                               |
|                    | 4. Check for any abnormal compressor or fan noise                                                                                                                                                                                         |
|                    | 5. Check for odors inside the startup cabinet and control cabinet                                                                                                                                                                         |
|                    | 6. Check whether the temperature sensor and temperature probe are securely fixed                                                                                                                                                          |
|                    | 7. Check for any appearance damage of the unit and whether heat exchanger or discharge fan is blocked                                                                                                                                     |
|                    | 8. Check whether the water pump and valve function normally                                                                                                                                                                               |
|                    | 9. Check the appearance of water pipes for damages and leakage                                                                                                                                                                            |
| Monthly inspection | 1. Check the coil of compressor oil (the oil should be clear and clean; if the color turns dark brown or muddy, replace the oil; if the oil turns black, disassemble and inspect the compressor)                                          |
|                    | 2. Check the color of the test paper in the sight glass of liquid supply pipe (yellow indicates that the refrigerant has excessive water content)                                                                                         |
|                    | 3. Check for leakage in the refrigerant loop (whether there is any greasy dirt or sound of leak)                                                                                                                                          |
|                    | 4. Clean the startup cabinet and control cabinet                                                                                                                                                                                          |
|                    | 5. Check cleanness of the water line filter, and clean the filter when necessary                                                                                                                                                          |
|                    | 6. Check the water quality, and send the water sample for laboratory analysis if possible (water quality should comply with the standard Code for Design of Industrial Recirculating Cooling Water Treatment or other relevant standards) |

| Inspection Based on Service Life or Runtime |                                                                                              | 1 year     | 2 years    | 3 years    | 4 years    | 5 years    | Abnormalities                                                                                               |
|---------------------------------------------|----------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|-------------------------------------------------------------------------------------------------------------|
|                                             |                                                                                              | 1000 hours | 3000 hours | 5000 hours | 7000 hours | 9000 hours |                                                                                                             |
| Compressor                                  | Motor                                                                                        |            |            |            | ☆          |            | Insulation resistance during the inspection is abnormal.                                                    |
|                                             | Solenoid valve                                                                               | ☆          | ☆          | ☆          | ☆          | ☆          | Insulation resistance during the inspection is abnormal.                                                    |
|                                             | Oil heater                                                                                   | ☆          | ☆          | ☆          | ☆          | ☆          |                                                                                                             |
|                                             | Compressor oil filter                                                                        | ★          | ★          | ★          | ★          | ★          | Oil pressure alarm                                                                                          |
|                                             | Lubricant                                                                                    | ★          | ★          | ★          | ★          | ★          | Metamorphic and muddy                                                                                       |
| Heat exchanger                              | Fin heat exchanger                                                                           |            | ★          | ☆          | ★          | ☆          | Corrosion, filth blockage, and slight leakage                                                               |
|                                             | Shell-and-Tube Heat Exchanger                                                                |            | ★          | ☆          | ★          | ☆          | Temperature difference for heat exchange exceeds 3°C                                                        |
|                                             | Check the water inlet/outlet pressure difference (refer to the table of unit specifications) | ★          | ★          | ★          | ★          | ★          | Water pressure difference is too large or too small. Adjust the water flow until it meets the requirements. |
| Valves                                      | Solenoid valve                                                                               | ☆          | ☆          | ☆          | ☆          | ☆          | The valve cannot be opened or closed normally.                                                              |
|                                             | Electronic Expansion Valve                                                                   |            |            |            |            |            | Check whether the resistance and opening are normal.                                                        |
|                                             | Float valve                                                                                  | ☆          | ☆          | ☆          | ☆          | ☆          | The valve cannot ensure normal liquid supply.                                                               |
| Electric                                    | Fuse                                                                                         | ☆          | ☆          | ☆          | ☆          | ☆          | Disconnection                                                                                               |
|                                             | Contactors                                                                                   | ☆          | ☆          | ☆          | ☆          | ☆          | Serious contact electro-corrosion or noise during running                                                   |
|                                             | Sensor                                                                                       | ☆          | ☆          | ☆          | ☆          | ☆          | Measured value still varies from the actual value even after calibration.                                   |
|                                             | High pressure switch                                                                         | ☆          | ☆          | ☆          | ☆          | ☆          | Controller false alarm.                                                                                     |
|                                             | Fastening wiring terminal                                                                    | ★          | ★          | ★          | ★          | ★          | The contactor gets loose or can flexibly rotate when turning the connecting cable.                          |
|                                             | Checking power supply                                                                        | ★          | ★          | ★          | ★          | ★          | Rated voltage $\pm 10\%$ , phase-to-phase unbalance $< 2\%$ .                                               |
|                                             | Checking phase                                                                               | ★          | ★          | ★          | ★          | ★          | No phase loss or reverse phase                                                                              |

Notes: ① ★----Required maintenance or replacement items; ☆---- Determine the maintenance items according to actual conditions.

② Daily and monthly inspections should be performed and recorded by the user.

③ The replacement of consumable parts and materials is determined by the service life or operation duration of the unit. For units that operate all year around and those for the purpose of process, the operation duration should prevail; for units under normal operation and those for comfort, the service life should prevail.

After the initial 1000-hour operation of the unit, replace the lubricant, oil filter, and other filters in the refrigerant system.

After that, perform laboratory analysis on the refrigerant and oil every 2000 operating hours, to check whether the refrigerant or oil needs to be replaced.

Relevant sealing pad shall also be replaced when replacing the lubricant and filter.

④ Consumable parts and materials include refrigerant, refrigerant oil, oil filter, dry filter element, dry filter screen, filter screen of electric cabinet, battery, water side sealing pad, etc.

Fostering a better life  
Limiting the temperature increase to 1.5°C



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Note: Due to constant improvement and innovation of TICA product, the specifications and parameters contained in this document are subject to change without prior notice.