

Sakura Air Conditioner User-friendly, Earth-friendly



Two Stage Steam Absorption Chiller

Two Stage Steam Absorption Chiller

FEATURES

STANDARD FEATURES

WIDE PERFORMANCE RANGE

Sakura steam chiller achieves an extremely high performance range from a low of 3 to a high of 9kg/cm²G of steam pressure.

RELIABLE AND SIMPLE OPERATION

Sakura steam chiller gives reliable and trouble-free operation due to its precise-design and construction and does not require highly skilled, specially trained personnel for operation.

EFFECTIVE STRUCTURE - DESIGN

It gives significant headspace savings due to the First Generator being placed beside the main shell by compact parallel flow design.

SUBSTANTIAL ENERGY SAVINGS

Sakura highly efficient steam chiller requires a remarkably low steam input of 4.5kg per ton-hour equates to a COP of 1.17

HIGH EFFICIENT SPRAY HEAD DESIGN

Stainless steel spray heads of Evaporator and Absorber provide extremely uniform, soft, low pressure mist. This extends the Evaporator and Absorber tube life by substantially reducing erosion and also improves cycle operating efficiency.

LOW MAINTENANCE COST

High quality pumps which motor pump assemblies are hermetically sealed, self-lubricating and precision fabricated from the highest quality materials provide low maintenance cost significantly reduced.

“U”- TUBE DESIGN FOR HIGH RELIABILITY AND EFFICIENCY

The machine's reliability and efficiency are significantly enhanced by the use of “U”-shaped 90/10 cupro-nickel tubes in the First stage Generator. This advanced feature reduces thermal stress,prolongs tube life and increases machine efficiency.

HIGHLY EFFECTIVE INHIBITORS

The patented inhibitors used in the unit's lithium bromide solution are non-toxic lithium nitrates. These inhibitors were specially formulated for use in the Sakura steam chiller to reduce corrosion and extend tube life in the First Stage Generator. In addition, they are safe and environmentally acceptable.

OPTIONAL FEATURES

VARIABLE OUTLET CONDITIONS

Temperatures and flow rates for chilled water and condenser water can be varied from those listed in the specifications.

MODIFIED TUBE CONSTRUCTION

A variety of tube thicknesses and materials is available to meet special requirements, such as those for industrial processes.

PUMP ISOLATION VALVES SIMPLIFY MAINTENANCE

The exclusive suction and discharge isolation valves on Solution and Refrigerant Pumps make routine inspection and maintenance quick and simple, preventing vacuum loss, loss of solution and chance of contamination. The isolation valves also substantially reduce the time and effort required for pump service.

LEAD-LAG OPERATION

Controls for lead-lag operation are available for applications where two or more machines are installed in a building.

HIGH PRESSURE WATER CIRCUITS

For high-rise buildings where higher pressures are required, water circuits and headers can be supplied for 200 psig working pressure.

PUMP MOTOR POWER FACTOR CORRECTION

With this option, the power factor is increased by adding phase condensers to the power circuit. This is beneficial for applications where reactive power must be kept to a minimum.

EARTHQUAKE SWITCH

This optional switch will automatically stop the machine in the event of a tremor.

Two Stage Steam Absorption Chiller

HOW IT WORKS

Sakura Two Stage Absorption Chiller complete with Evaporator, Absorber, First-stage Generator Second-stage Generator, Condenser, Heat Exchanger.

Its remarkably efficient refrigerant cycle uses water as the refrigerant and lithium bromide as the absorbent in Parallel flow. The entire process occurs in hermetic vessels in an almost complete vacuum. Its cooling cycle is continuous but for the sake of clarity and simplicity, it is divided into seven steps.

① EVAPORATOR

Refrigerant liquid from the condenser passes through an Expansion Valve and flows down to the Evaporator. Where it is pumped up to the top of the Evaporator by the Refrigerant pump. Here the liquid is sprayed out as a fine mist over the Evaporator tubes. Due to the extreme vacuum (6mm Hg) in the Evaporator, some of the refrigerant liquid vaporizes, creating the refrigerant effect. (This vacuum is created by hygroscopic action-the strong affinity lithium bromide has for water-in the Absorber directly below.)

② ABSORBER

As refrigerant liquid / vapour descends to the Absorber from the Evaporator concentrated solution (63%) coming from the Heat Exchanger is sprayed out into the flow of descending refrigerant. The hygroscopic action between lithium bromide and water-and the related changes in concentration and temperature-result in the creation of an extreme vacuum in the Evaporator directly above. The dissolving of the lithium bromide in water gives off heat which is removed by condenser water entering from the Cooling Tower at 32°C and leaving for the Condenser at 35.94°C. The resultant dilute lithium bromide solution collects in the bottom of the Absorber, where it flows down to the Solution Pump.

③ SOLUTION PUMP/HEAT EXCHANGERS

A dilute solution (57.5%) of lithium bromide and water descends from the Absorber to the Solution Pump. This flow of dilute solution is split into two streams and pumped through heat exchangers to the First Stage Generator and to the Second Stage Generator.

④ FIRST STAGE GENERATOR

An energy source heats dilute lithium bromide solution (57.5%) coming from the solution Pump / Heat Exchangers. This produces hot refrigerant vapour which is sent to the Second Stage Generator leaving a concentrated solution (64%) that is returned to the Heat Exchangers.

⑥ SECOND STAGE GENERATOR

The energy source for the production of refrigerant vapour in the Second Stage Generator is the hot refrigerant vapour produced by the First Stage Generator. This additional refrigerant vapour is produced when dilute solution from the Heat exchanger is heated by refrigerant Vapour from the First Stage Generator. The additional concentrated solution that results is returned to the Heat Exchanger. The refrigerant vapor from the First Stage Generator condenses into liquid giving up its heat and continues to the Condenser.

⑦ CONDENSER

Refrigerant from two sources - (1) liquid resulting from the condensing of vapor produced in the First stage Generator, and (2) vapor produced by the Second Stage Generator-enters the Condenser. The refrigerant vapor is condensed into liquid and the refrigerant liquid is cooled. The refrigerant liquids are combined and cooled by cooling water. The liquid then flows down to the Evaporator.

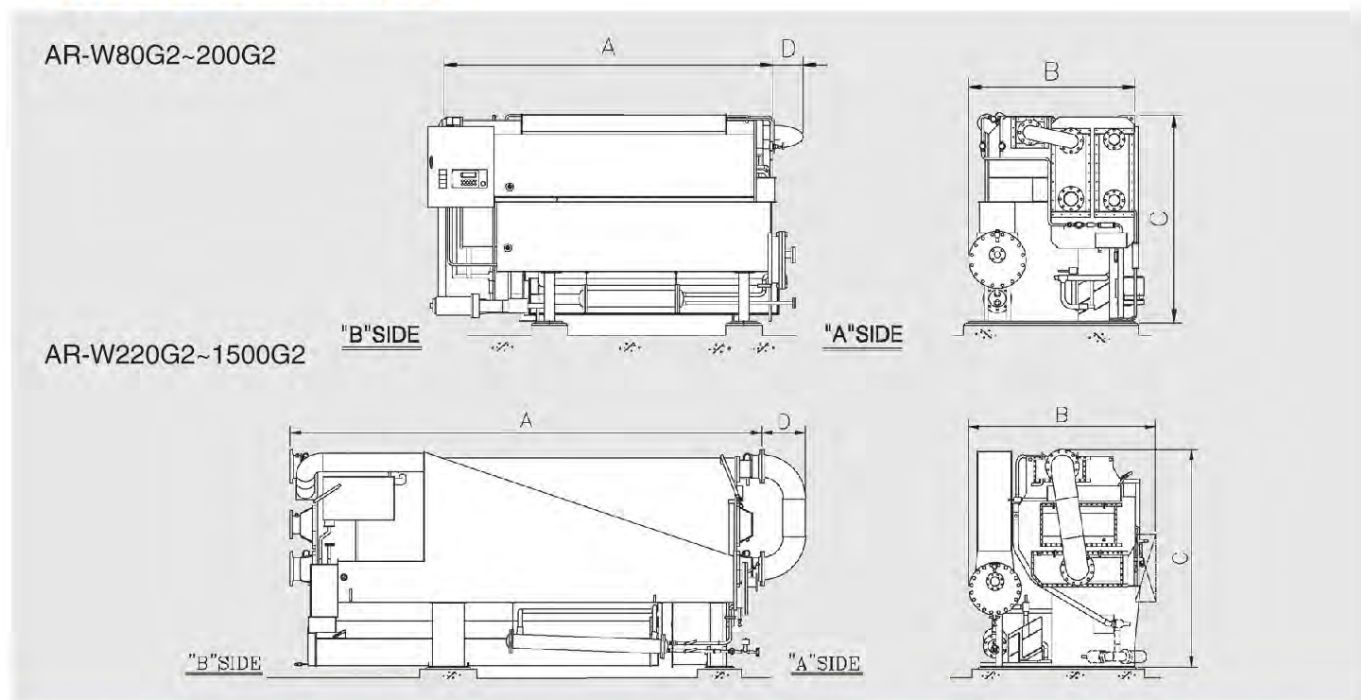
⑤ DRAIN COOLER

The high-pressure steam condensed in the 1st stage generator is cooled below 90°C here using the solution supplied to the 1st stage generator or 2nd stage generator, and also the heat efficiency is enhanced by heating the supplied solution

Two Stage Steam Absorption Chiller

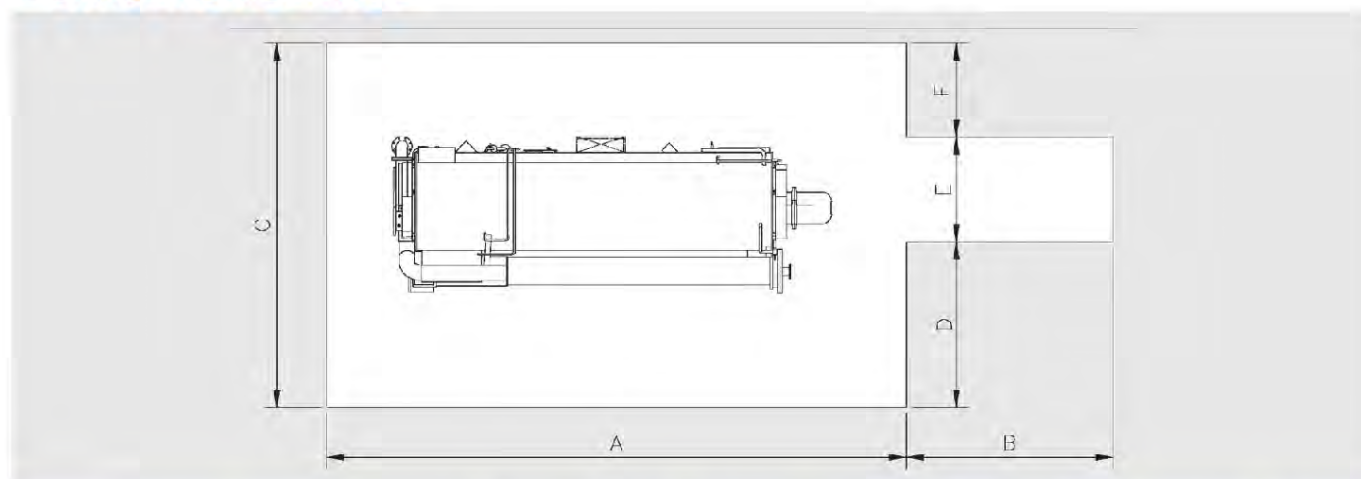
DIMENSIONS

OVERALL DIMENSIONS



| MODEL (AR-W) | 80~100G2 | 115~125G2 | 140~170G2 | 200G2 | 220~270G2 | 320G2 | 360~400G2 | 450~500G2 | 550~600G2 | 700G2 | 800G2 | 900~1000G2 | 1250~1500G2 |
|--------------|----------|-----------|-----------|-------|-----------|-------|-----------|-----------|-----------|-------|-------|------------|-------------|
| A | 2,455 | 3,411 | | | 3,750 | 4,080 | 4,600 | 5,600 | 6,600 | 6,600 | 6,600 | 7,800 | 8,800 |
| B | 1,760 | 1,900 | | | 2,193 | | | 2,222 | 2,253 | 2,571 | 2,571 | 3,207 | 3,192 |
| C | 2,046 | 2,065 | | | 2,534 | | 2,514 | 2,580 | 2,655 | 2,866 | 2,889 | 3,300 | 3,335 |
| D | 0 | 271 | 271 | 309 | 250 | 330 | 322 | 525 | 636 | 475 | 544 | 721 | 710 |

SPACE FOR SERVICE



| MODEL (AR-W) | 80~100G2 | 115~150G2 | 170, 200G2 | 220~320G2 | 360, 400G2 | 450, 500G2 | 550, 600G2 | 700G2 | 800G2 | 900, 1000G2 | 1250~1500G2 |
|--------------|----------|-----------|------------|-----------|------------|------------|------------|-------|-------|-------------|-------------|
| A | 4,450 | 5,700 | 5,700 | 6,250 | 6,900 | 8,200 | 9,400 | 9,100 | 9,200 | 12,600 | 13,600 |
| B | 1,000 | 2,000 | 2,000 | 2,200 | 3,100 | 4,100 | 5,100 | 5,100 | 5,100 | 5,100 | 6,100 |
| C | 3,700 | 3,900 | 3,900 | 4,400 | 4,300 | 4,300 | 4,400 | 4,700 | 4,700 | 5,200 | 5,200 |
| D | 1,200 | 1,300 | 1,300 | 1,400 | 1,400 | 1,400 | 1,400 | 800 | 800 | 1,000 | 1,000 |
| E | 1,600 | 1,700 | 1,700 | 1,900 | 1,900 | 1,900 | 2,000 | 2,600 | 2,600 | 3,300 | 3,300 |
| F | 900 | 900 | 900 | 900 | 900 | 900 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

Two Stage Steam Absorption Chiller

SPECIFICATIONS

W-TYPE(STEAM PRESS. 8kg/cm² G) 80 RT~1,500RT

| MODEL | | AR-W80G2 | AR-W90G2 | AR-W100G2 | AR-W115G2 | AR-W125G2 | AR-W140G2 | AR-W150G2 | AR-W170G2 | AR-W200G2 | AR-W220G2 | AR-W250G2 | AR-W270G2 | | | |
|----------------------|-----------------------|----------|---------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|--|--|
| ITEM | UNIT | | | | | | | | | | | | | | | |
| COOLING CAPACITY | | USRT | 80 | 90 | 100 | 115 | 125 | 140 | 150 | 170 | 200 | 220 | 250 | 270 | | |
| CHILLED WATER SYSTEM | TEMPERATURE | ℃ | INLET : 12.0℃, OUTLET : 7.0℃ | | | | | | | | | | | | | |
| | FLOW RATE | m³/h | 48.4 | 54.4 | 60.5 | 69.6 | 75.6 | 84.7 | 90.8 | 102.8 | 121 | 133.1 | 151.2 | 163.3 | | |
| | PRESSURE DROP | mAq | 4.4 | 4.0 | 5.7 | 4.4 | 5.2 | 5.4 | 6.1 | 7.9 | 10.9 | 5.5 | 7.1 | 3.6 | | |
| | CONNECTION SIZE | A | 80 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 125 | 125 | 125 | 125 | | |
| COOLING WATER SYSTEM | TEMPERATURE | ℃ | INLET : 32.0℃, OUTLET : 37.4℃ | | | | | | | | | | | | | |
| | FLOW RATE | m³/h | 83.2 | 93.6 | 104.0 | 119.6 | 130.0 | 145.6 | 156.0 | 176.8 | 208.0 | 228.8 | 260.0 | 280.8 | | |
| | PRESSURE DROP | mAq | 8.1 | 7.2 | 9.0 | 6.8 | 8.0 | 5.7 | 6.7 | 4.0 | 5.5 | 9.0 | 11.8 | 8.0 | | |
| | CONNECTION SIZE | A | 100 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 150 | 150 | 150 | 150 | | |
| S T E A M | STEAM PRESSURE | kg/cm²G | 8 | | | | | | | | | | | | | |
| | CONSUMPTION RATE | kg/h | 360 | 405 | 450 | 518 | 563 | 630 | 675 | 765 | 900 | 990 | 1,125 | 1,215 | | |
| | STEAM CONNECTION SIZE | A | 40 | | | | | 50 | | | | | 65 | | | |
| | DRAIN CONNECTION SIZE | A | 15 | | | | | | | | | 20 | | | | |
| E L E C T R I C A L | POWER SOURCE | V | 3 ϕ , 380V, 50/60Hz | | | | | | | | | | | | | |
| | CAPACITY | KVA | 6.5 | | | | 10 | | | | 11 | | | | | |
| | SOLUTION PUMP | KW | 1.1 + 0.4 | | | | 3.7 | | | | 4.5 | | | | | |
| | REFRIGERANT PUMP | KW | 0.4 | | | | | | | | | 0.8 | | | | |
| | VACUUM PUMP | KW | 0.4 | | | | | | | | | | | | | |
| CAPACITY CONTROL | | — | FULLY AUTOMATIC, PROPORTIONAL CONTROL | | | | | | | | | | | | | |
| OPERATING WEIGHT | | Ton | 4.7 | 4.7 | 4.7 | 7.5 | 7.5 | 8.2 | 8.2 | 9.0 | 9.0 | 11.0 | 11.2 | 11.5 | | |
| RIGGING WEIGHT | | Ton | 4.5 | 4.5 | 4.5 | 7.1 | 7.1 | 7.8 | 7.8 | 8.6 | 8.6 | 10.2 | 10.4 | 10.7 | | |
| EXTERNAL DIMENSION | LENGTH (L) | mm | 2,455 | 2,455 | 2,455 | 3,705 | 3,705 | 3,682 | 3,682 | 3,682 | 3,720 | 4,000 | 4,000 | 4,000 | | |
| | WIDTH (W) | mm | 1,760 | 1,760 | 1,760 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 2,193 | 2,193 | 2,193 | | |
| | HEIGHT (H) | mm | 2,046 | 2,046 | 2,046 | 2,065 | 2,065 | 2,065 | 2,065 | 2,065 | 2,065 | 2,534 | 2,534 | 2,534 | | |
| MACHINE COLOR | | | MUNSELL 4.5BG 4.5/3.0 | | | | | | | | | | | | | |

- (NOTE) (1) 1 USRT : 3,024kcal / h.
 (2) MAXIMUM PERMISSIBLE PRESSURE OF WATER CIRCUITS : 8kg/cm²G
 (3) FOULING FACTORS OF CHILLED WATER, COOLING WATER : 0.0001m²h²/kcal
 (4) 3 Phase, 380V, 60Hz IS STANDARD, OTHER VOLTAGES ARE AVAILABLE ON REQUEST.

HOW TO SELECT THE RIGHT MACHINE FOR YOUR APPLICATION

To determine the appropriate model for your specific application, follow the examples, which explain how to use the Steam Chiller Selection Graph and the Specifications Table.

EXAMPLE A

Your steam inlet pressure is 7kg/cm²G and your facility requires 550 tons of air conditioning. Which model should you select, and what will be the steam consumption?

- Enter the horizontal axis of the Selection Graph at the 7kg/cm²G pressure line and follow the line up until it intersects the curve.
- From this point move to the left vertical axis and read the percentage of Cooling capacity available for that steam inlet pressure (in this case, 96%). This means that the steam chiller produces 96% of its rated (8kg/cm²G) Cooling capacity with 7kg/cm²G of steam pressure. Then, divide 550 RT by 0.96 to determine the model required to produce 550 RT of Cooling- in this case 573 RT capacity.
- Referring to the COOLING CAPACITY line in the Specifications Table, find the machine size which can produce the Cooling required. In this example it is Model AR-W600G2 (rated 600 RT @ 8kg/cm²G), which produces up to 576 RT at 7kg/cm²G

- Steam consumption will be 550 RT × 4.5kg per RT -hour = 2,475kg/hours @ 7kg/cm²G

EXAMPLE B

Your facility produces 4,450kg of steam per hour at 5.5kg/cm²G pressure. How many tons of Cooling can you obtain from the machine, and which model should you select?

- Since the machine requires 4.5kg per RT -hour, divide the 4,450kg of steam per hour by 4.5. The resulting figure, 988 represents approximate Cooling tonnage available.
- Having determined available capacity, the next step is to identify the model required. The Selection Graph shows that a machine operating at 5.5kg/cm²G delivers approximately 85% of rated (8kg/cm²G) capacity. Dividing 988 by 0.85 gives a chiller capacity of 1,160 RT.
- Read across the COOLING CAPACITY line in the Specifications Table to find the standard size machine closest to the 1,160 RT requirement. The model that meets this criterion is Model AR-W1250G2, which is rated 1,250 tons @ 8kg/cm²G but will produce up to 1,062 (1,250 × 0.85) RT at 5.5kg/cm²G. However since output is limited by the available steam, only 988 RT of Cooling will be produced.

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| ITEM | | MODEL | | AR-W320G2 | AR-W360G2 | AR-W400G2 | AR-W450G2 | AR-W500G2 | AR-W550G2 | AR-W600G2 | AR-W700G2 | AR-W800G2 | AR-W900G2 | AR-W1000G2 | AR-W1250G2 | AR-W1500G2 |
|----------------------|-----------------------|---------|---------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| | | UNIT | | | | | | | | | | | | | | |
| COOLING CAPACITY | | USRT | 320 | 360 | 400 | 450 | 500 | 550 | 600 | 700 | 800 | 900 | 1000 | 1250 | 1500 | |
| CHILLED WATER SYSTEM | TEMPERATURE | ℃ | INLET : 12.0℃, OUTLET : 7.0℃ | | | | | | | | | | | | | |
| | FLOW RATE | m³/h | 193.5 | 217.7 | 241.9 | 272.2 | 302.4 | 332.7 | 362.9 | 423.4 | 483.8 | 544.3 | 604.8 | 756.0 | 907.2 | |
| | PRESSURE DROP | mAq | 5.0 | 7.6 | 9.4 | 4.3 | 5.3 | 7.5 | 8.9 | 7.4 | 7.6 | 7.9 | 8.3 | 11.9 | 17.2 | |
| | CONNECTION SIZE | A | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 250 | 250 | 250 | 300 | 300 | 350 | |
| COOLING WATER SYSTEM | TEMPERATURE | ℃ | INLET : 32.0℃, OUTLET : 37.4℃ | | | | | | | | | | | | | |
| | FLOW RATE | m³/h | 332.8 | 374.4 | 416.0 | 468.0 | 520.0 | 572.0 | 624 | 728 | 832 | 936 | 1,040 | 1,300 | 1,560 | |
| | PRESSURE DROP | mAq | 10.2 | 12.3 | 15.2 | 8.4 | 10.4 | 11.5 | 13.7 | 8.0 | 8.5 | 13 | 5.3 | 13.1 | 14.8 | |
| | CONNECTION SIZE | A | 200 | 200 | 200 | 250 | 250 | 300 | 300 | 300 | 350 | 350 | 350 | 400 | 400 | |
| STEAM | STEAM PRESSURE | kg/cm²G | 8 | | | | | | | | | | | | | |
| | CONSUMPTION RATE | kg/h | 1,440 | 1,620 | 1,800 | 2,025 | 2,250 | 2,475 | 2,700 | 3,150 | 3,600 | 4,050 | 4,500 | 5,625 | 6,750 | |
| | STEAM CONNECTION SIZE | A | 65 | 80 | | 100 | | | 125 | | | 150 | | | | |
| | DRAIN CONNECTION SIZE | A | 20 | | | | | | 25 | | | 32 | | 40 | | |
| ELECTRICAL | POWER SOURCE | V | 3 φ , 380V, 50/60Hz | | | | | | | | | | | | | |
| | CAPACITY | KVA | 11 | | | 19 | | | | 23 | | 35 | | 40 | 45 | |
| | SOLUTION PUMP | KW | 4.5 | | | 5.5 | | | | 7.5 | 11.4 | 14.9 | | 16.7 | | |
| | REFRIGERANT PUMP | KW | 0.8 | | | 1.5 | | | | | | | | | | |
| | VACUUM PUMP | KW | 0.4 | | | | | | | | | | | | | |
| CAPACITY CONTROL | | — | FULLY AUTOMATIC, PROPORTIONAL CONTROL | | | | | | | | | | | | | |
| OPERATING WEIGHT | | Ton | 11.8 | 12.5 | 12.9 | 14.5 | 15.0 | 18.0 | 18.5 | 23.5 | 30.0 | 34.0 | 37.0 | 45.0 | 50.0 | |
| RIGGING WEIGHT | | Ton | 11.0 | 11.6 | 12.0 | 13.5 | 14.0 | 16.5 | 17.0 | 22.0 | 28.0 | 32.5 | 34.5 | 42.0 | 45.0 | |
| EXTERNAL DIMENSION | LENGTH (L) | mm | 4,080 | 4,922 | 4,922 | 6,125 | 6,125 | 7,236 | 7,236 | 7,075 | 7,144 | 8,521 | 8,521 | 9,510 | 9,510 | |
| | WIDTH (W) | mm | 2,193 | 2,193 | 2,193 | 2,222 | 2,222 | 2,253 | 2,253 | 2,571 | 2,571 | 3,207 | 3,207 | 3,192 | 3,192 | |
| | HEIGHT (H) | mm | 2,534 | 2,514 | 2,514 | 2,580 | 2,580 | 2,655 | 2,655 | 2,866 | 2,889 | 3,300 | 3,300 | 3,335 | 3,335 | |
| MACHINE COLOR | | | MUNSELL 4.5BG 4.5/3.0 | | | | | | | | | | | | | |

STEAM CHILLER SELECTION GRAPH

Chilled Water
Temperatures ;

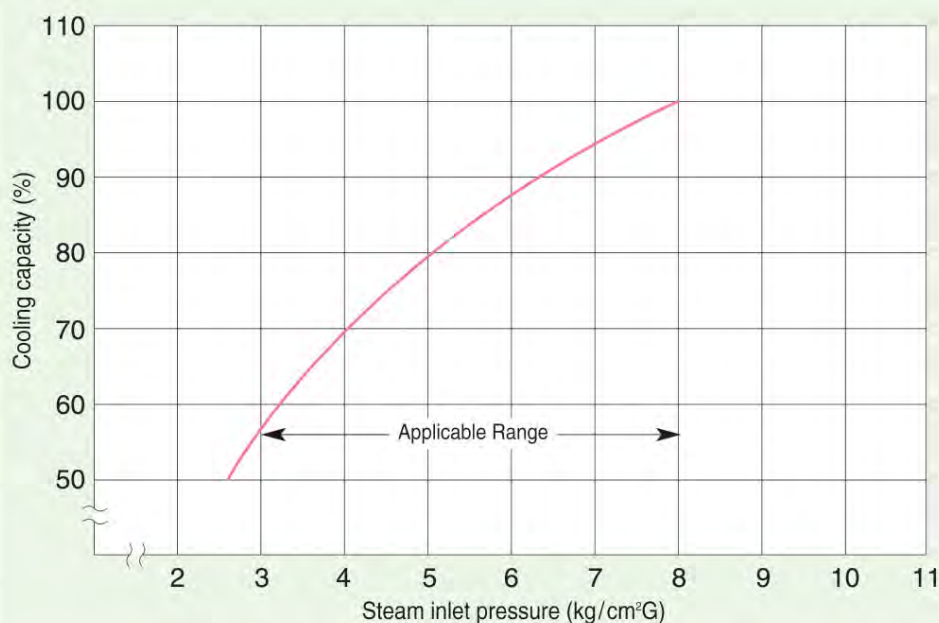
Entering 12°C
Leaving 7°C

Cooling Water
Temperatures ;

Entering 32°C
Leaving 37.4°C

Steam
Consumption
(Constant) ;

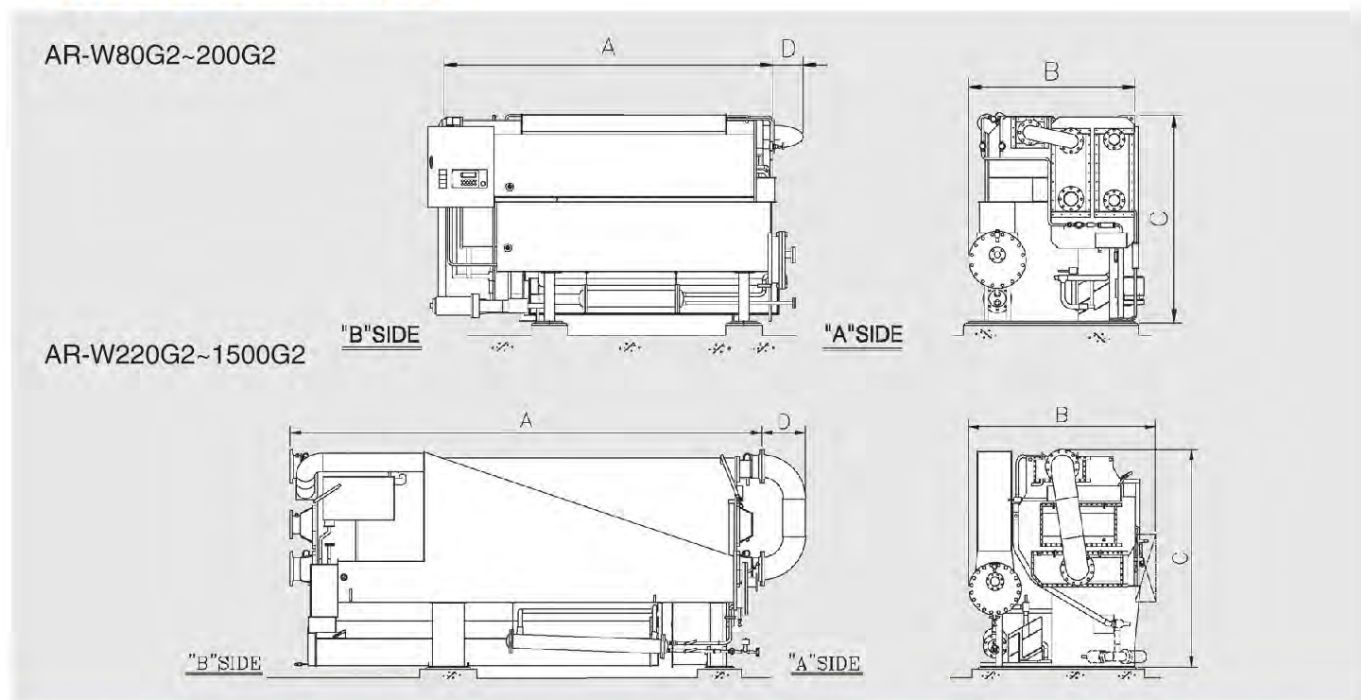
4.5kg per RT -hour



Two Stage Steam Absorption Chiller

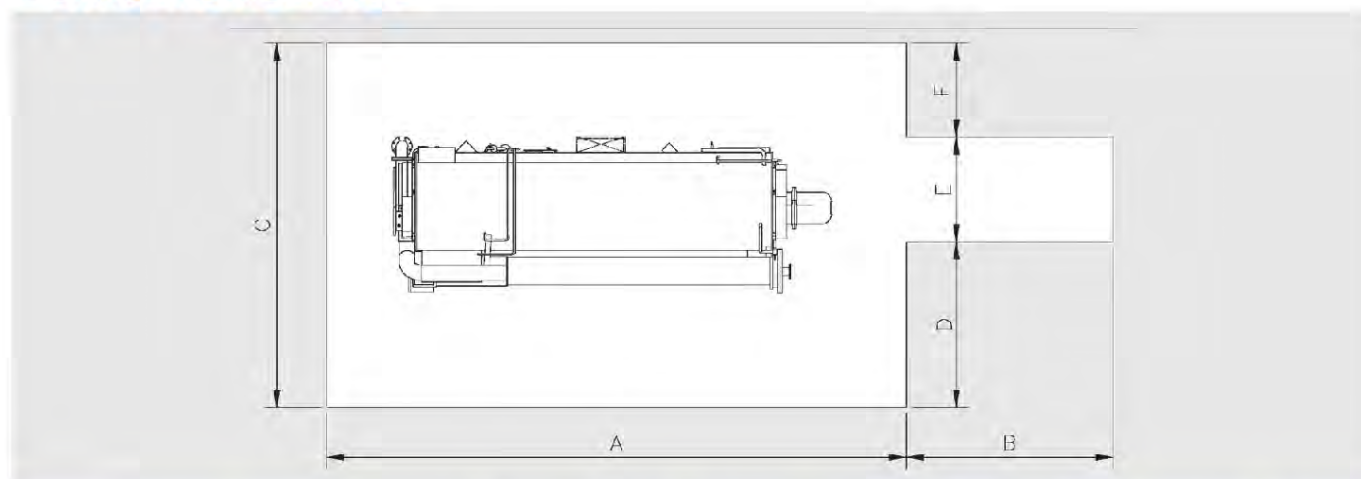
DIMENSIONS

OVERALL DIMENSIONS



| MODEL (AR-W) | 80~100G2 | 115~125G2 | 140~170G2 | 200G2 | 220~270G2 | 320G2 | 360~400G2 | 450~500G2 | 550~600G2 | 700G2 | 800G2 | 900~1000G2 | 1250~1500G2 |
|--------------|----------|-----------|-----------|-------|-----------|-------|-----------|-----------|-----------|-------|-------|------------|-------------|
| A | 2,455 | 3,411 | | | 3,750 | 4,080 | 4,600 | 5,600 | 6,600 | 6,600 | 6,600 | 7,800 | 8,800 |
| B | 1,760 | 1,900 | | | 2,193 | | | 2,222 | 2,253 | 2,571 | 2,571 | 3,207 | 3,192 |
| C | 2,046 | 2,065 | | | 2,534 | | 2,514 | 2,580 | 2,655 | 2,866 | 2,889 | 3,300 | 3,335 |
| D | 0 | 271 | 271 | 309 | 250 | 330 | 322 | 525 | 636 | 475 | 544 | 721 | 710 |

SPACE FOR SERVICE

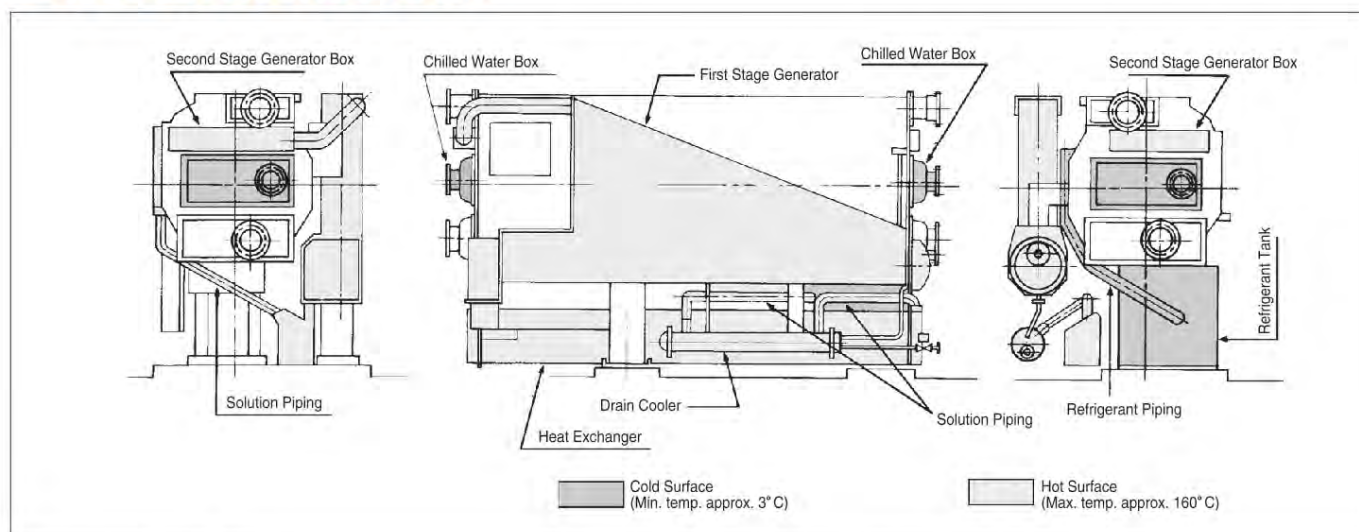


| MODEL (AR-W) | 80~100G2 | 115~150G2 | 170, 200G2 | 220~320G2 | 360, 400G2 | 450, 500G2 | 550, 600G2 | 700G2 | 800G2 | 900, 1000G2 | 1250~1500G2 |
|--------------|----------|-----------|------------|-----------|------------|------------|------------|-------|-------|-------------|-------------|
| A | 4,450 | 5,700 | 5,700 | 6,250 | 6,900 | 8,200 | 9,400 | 9,100 | 9,200 | 12,600 | 13,600 |
| B | 1,000 | 2,000 | 2,000 | 2,200 | 3,100 | 4,100 | 5,100 | 5,100 | 5,100 | 5,100 | 6,100 |
| C | 3,700 | 3,900 | 3,900 | 4,400 | 4,300 | 4,300 | 4,400 | 4,700 | 4,700 | 5,200 | 5,200 |
| D | 1,200 | 1,300 | 1,300 | 1,400 | 1,400 | 1,400 | 1,400 | 800 | 800 | 1,000 | 1,000 |
| E | 1,600 | 1,700 | 1,700 | 1,900 | 1,900 | 1,900 | 2,000 | 2,600 | 2,600 | 3,300 | 3,300 |
| F | 900 | 900 | 900 | 900 | 900 | 900 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

Two Stage Steam Absorption Chiller

INSULATION WORK

■ INSULATION PROCEDURE



1. Insulation Material

Hot surface: Fiberglass or equivalent

Cold surface: Fiberglass polyethylene foam or equivalent

2. Insulation Thickness

Hot surface: Approx 50mm for first stage generator
and approx. 25mm for others

Cold surface: Approx. 25mm

3. Remarks

(1) Do not embed the moving parts (valve handles) in insulation, valve handles must be free from insulation.

(2) Do not embed the sight glass in insulation

(3) Do not embed the thermometer and thermowell in insulation.

(4) Do not embed the refrigerant pump motor in insulation.

(5) When the water box is opened to clean the tubes, do not embed the clamping bolts of the water box.

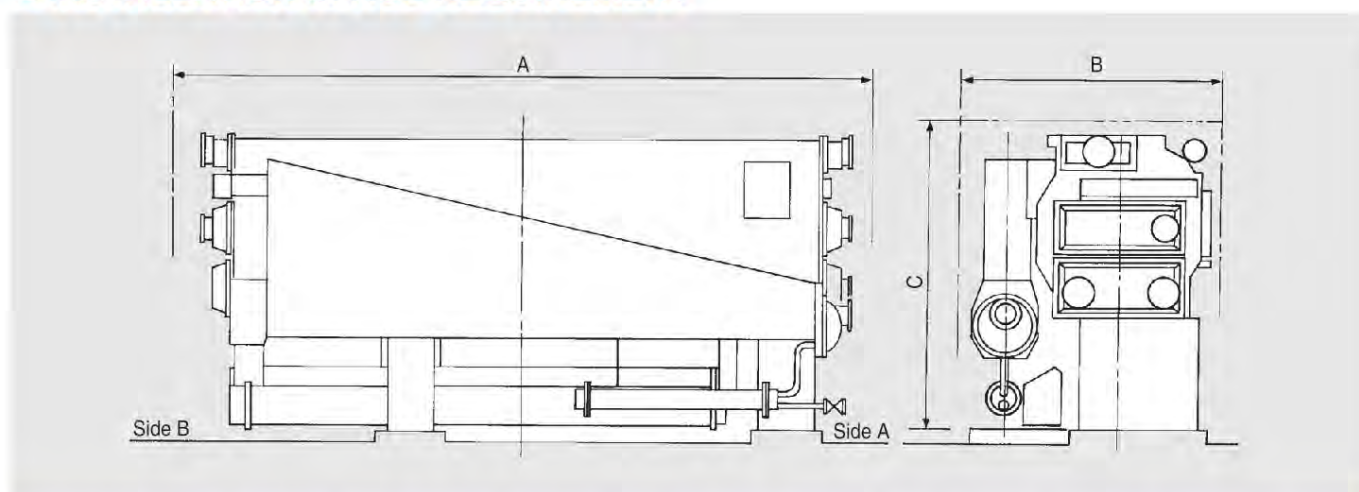
(6) Use fiber glass or polyethylene foam for cold insulation.
Use fiber glass for hot insulation. (Do not use polyethylene foam for hot insulation.)

(7) Use a bonding agent, iron wires or bands to mount the insulation material. Do not use tapping (welding) and riveting.

(8) Insulation work will be done by others.

| Model AR-W | 80~100G2 | 115~200G2 | 220~320G2 | 360, 400G2 | 450, 500G2 | 550, 600G2 | 700G2 | 800G2 | 900, 1000G2 | 1250~1500G2 |
|-------------------------------|----------|-----------|-----------|------------|------------|------------|-------|-------|-------------|-------------|
| Hot surface(m ²) | 12 | 20 | 25 | 27 | 27 | 31 | 35 | 37 | 50 | 63 |
| Cold surface(m ²) | 7.5 | 7.5 | 8 | 8 | 8 | 12 | 12 | 12 | 27 | 30 |

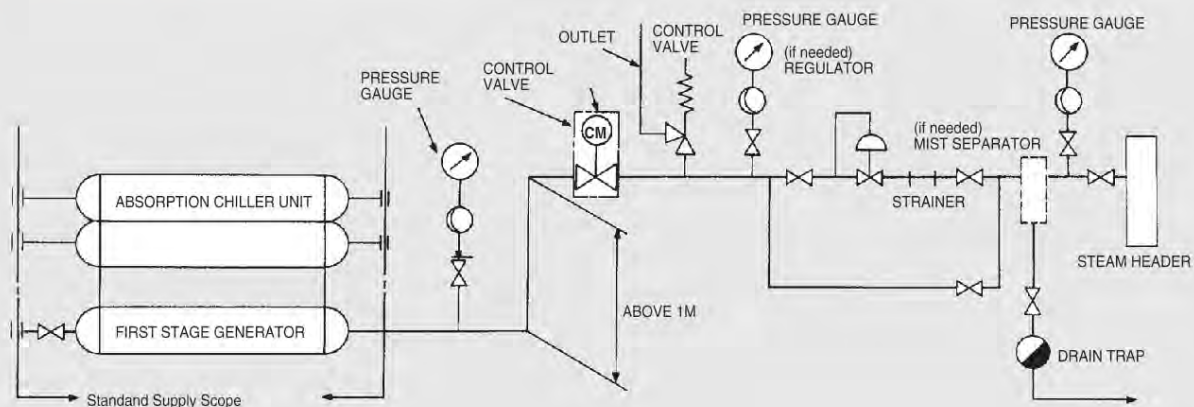
■ INSTALLATION SPACE REQUIREMENT



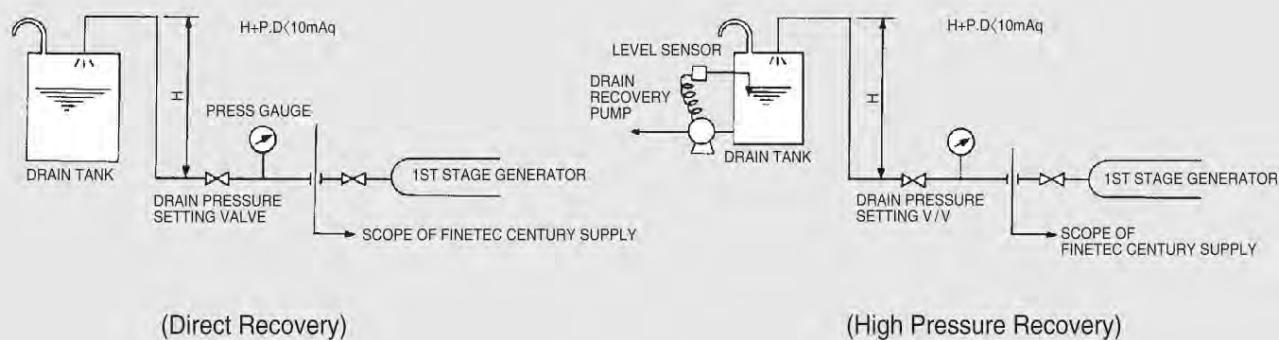
| Model AR-W | | 80~100G2 | 115G2 | 125G2 | 140G2 | 150G2 | 170G2 | 200G2 | 220G2 | 250G2 | 270G2 | 320G2 | 360G2 | 400G2 | 450G2 | 500G2 | 550G2 | 600G2 | 700G2 | 800G2 | 900G2 | 1000G2 | 1250G2 | 1500G2 |
|------------|-----|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| A | mm | 3,455 | 4,695 | | | | | | 5,250 | | | | | 5,900 | | 7,100 | | 8,240 | | 7,060 | 8,140 | 9,500 | | 9,500 |
| B | mm | 2,380 | 2,480 | | | | | | 2,930 | | | | | 2,800 | | 2,820 | | 2,880 | | 2,580 | 2,580 | 3,800 | | 3,800 |
| C | mm | 2,315 | 2,355 | | | | | | 2,860 | | | | | 2,860 | | 2,880 | | 2,960 | | 3,190 | 3,190 | 3,650 | | 3,500 |
| weight | ton | 4.5 | 7.1 | 7.1 | 7.8 | 7.8 | 8.6 | 8.6 | 10.2 | 10.4 | 10.7 | 11.0 | 11.6 | 12.0 | 13.5 | 14.0 | 16.5 | 17.0 | 22.0 | 28.0 | 32.5 | 34.5 | 42.0 | 45.0 |

Two Stage Steam Absorption Chiller

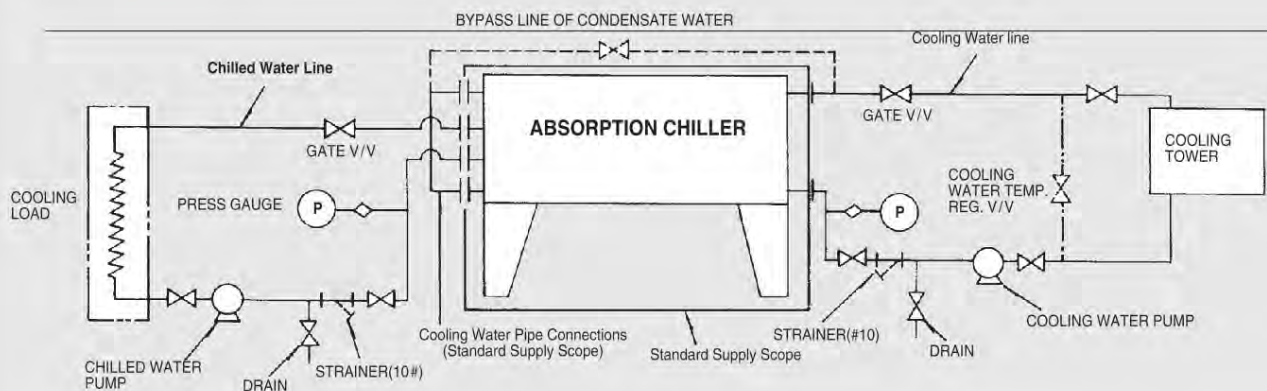
■ STEAM PIPING



■ STEAM PIPING



■ WATER PIPING



Two Stage Steam Absorption Chiller

Please provide following data for selections or quotations.

STEAM ABSORPTION CHILLER

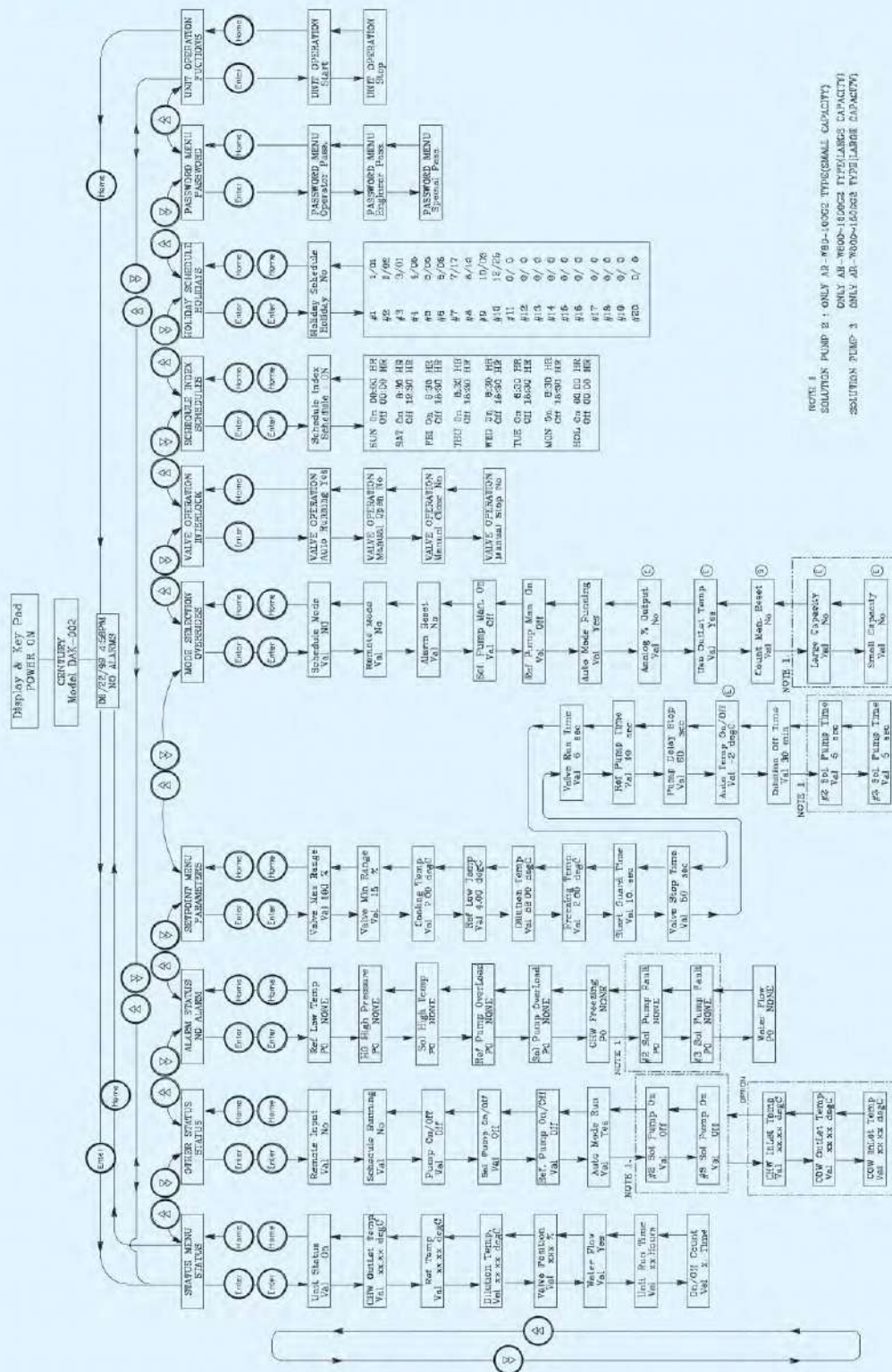
MODEL :

| Cooling capacity : | USRT | Quantity : | Unit |
|--------------------------------|---|-------------------|------------|
| Chilled water | Entering temp. | | °C |
| | Leaving temp. | | °C |
| | Flow rate | | m³/h |
| | Fouling factor | | m²h°C/kcal |
| Cooling water | Entering temp. | | °C |
| | Leaving temp. | | °C |
| | Flow rate | | m³/h |
| | Fouling factor | | m²h°C/kcal |
| Max. pressure of water circuit | Chilled water | | kg/cm²G |
| | Cooling water | | kg/cm²G |
| Saturated steam | Pressure | | kg/cm²G |
| | Flow rate | | kg/h |
| Electrical power | | Phase, V, Hz, | |
| Installation location | | Indoor or Outdoor | |
| Purpose | Air conditioning or Industrial process etc. | | |
| ※ Special features | | | |

Two Stage Steam Absorption Chiller

■ DISPLAY MENU

- AR-W(80~1500) G2

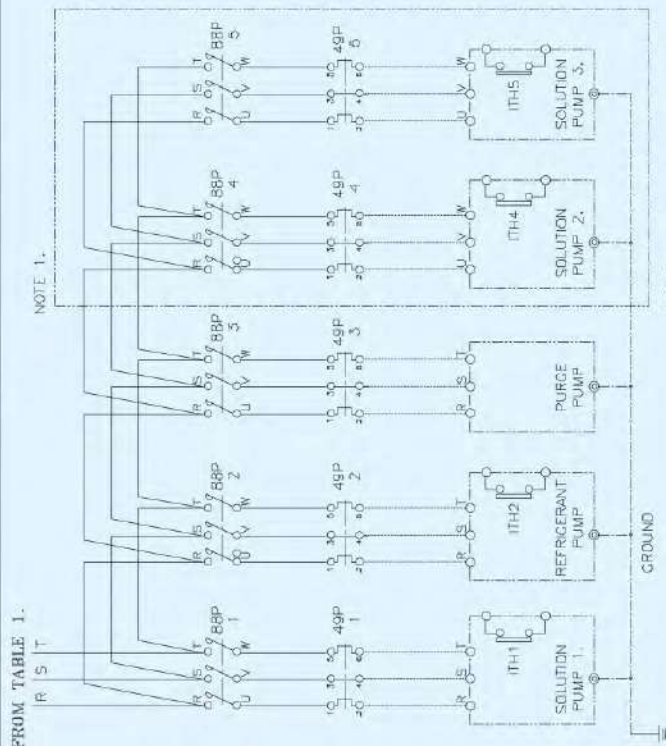
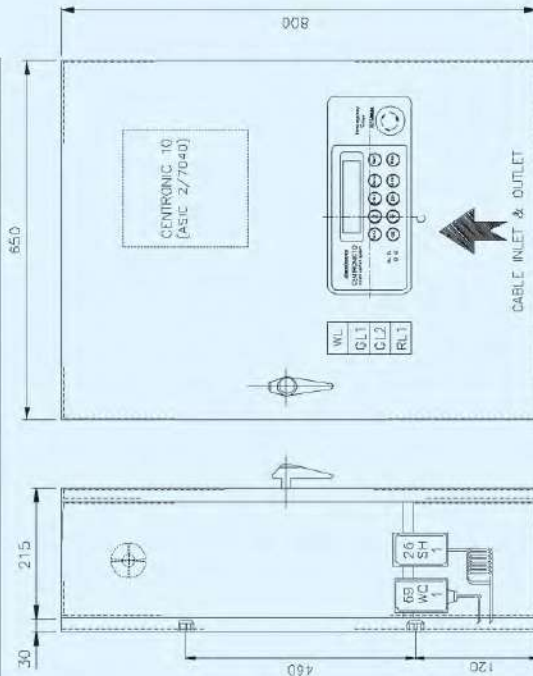
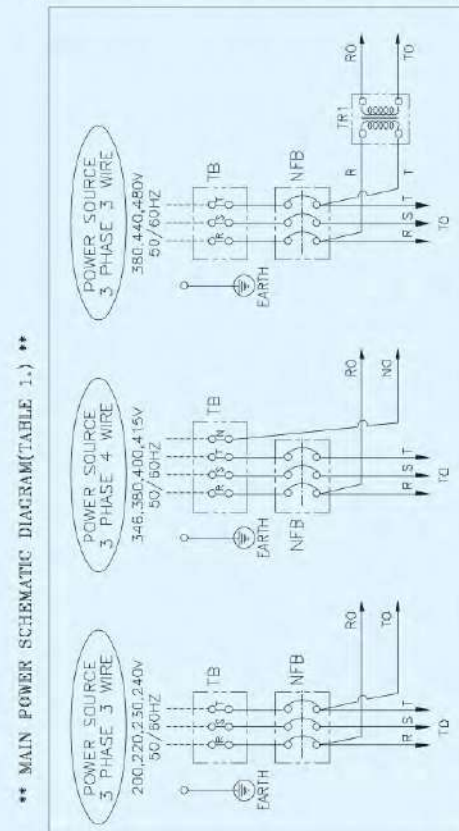
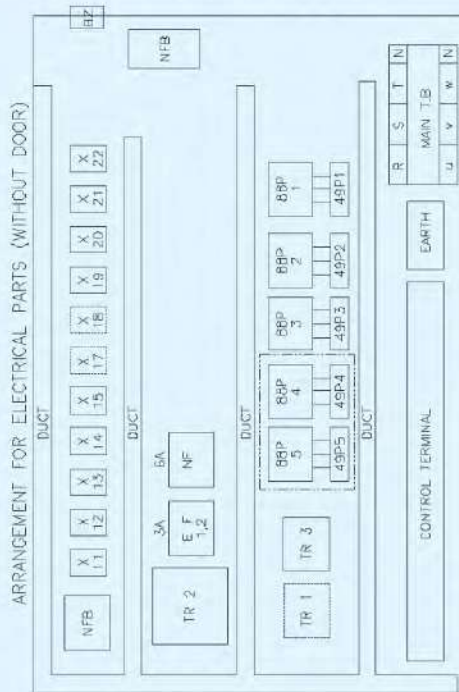


NOTE: 1
SOLUTION PUMP 2: ONLY AR-W80-100G2 TYPE(SMALL CAPACITY)
ONLY AR-W800-160G2 TYPE(LARGE CAPACITY)
SOLUTION PUMP 3: ONLY AR-W800-160G2 TYPE(LARGE CAPACITY)

Two Stage Steam Absorption Chiller

■ WIRING DIAGRAM

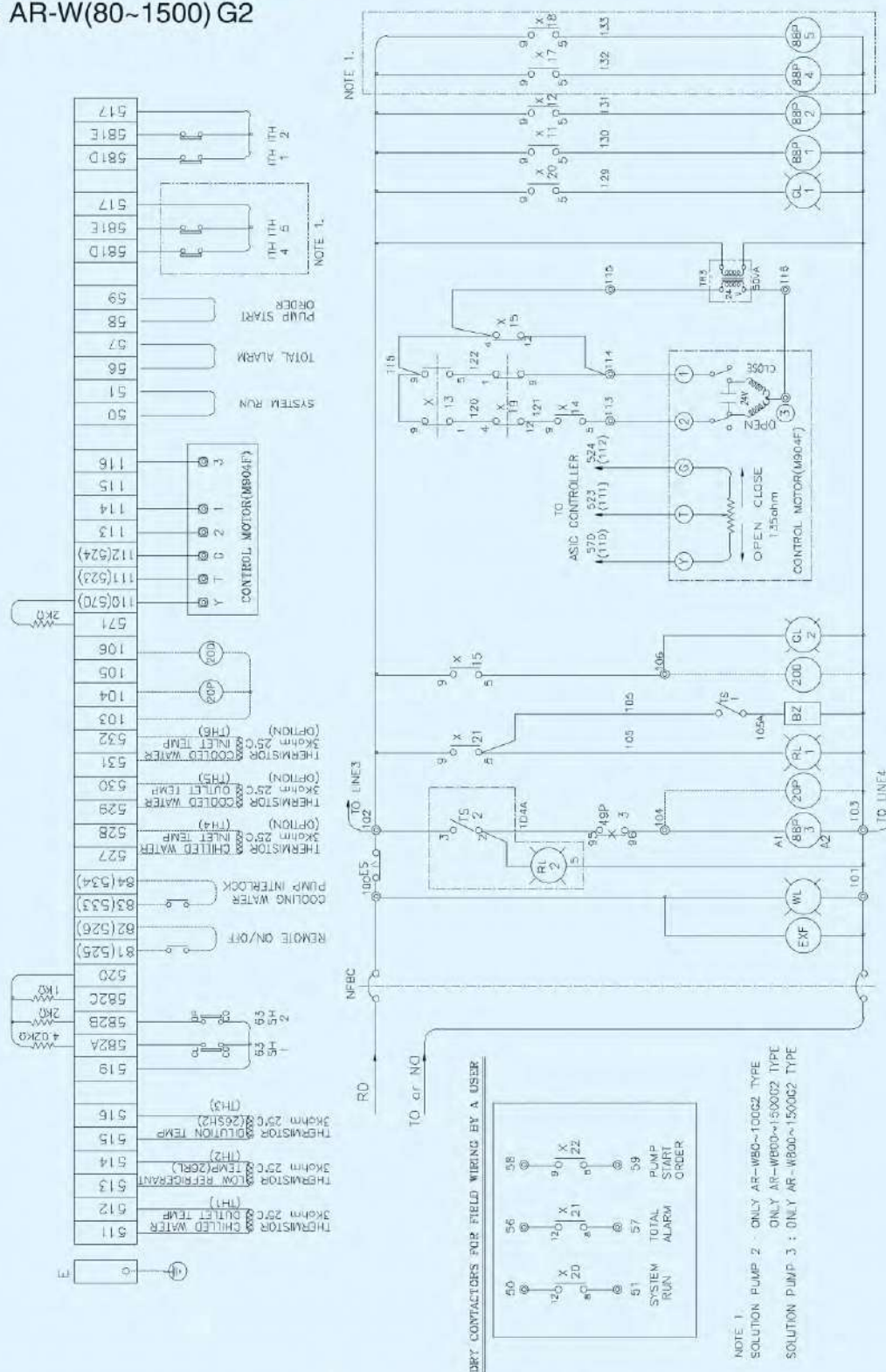
● AR-W(80~1500) G2



NOTE 1
SOLUTION PUMP 2 ONLY AR-W80~100G2 TYPE
ONLY AR-W800~1500G2 TYPE
SOLUTION PUMP 3 ONLY AR-W800~1500G2 TYPE

WIRING DIAGRAM

- AR-W(80~1500) G2

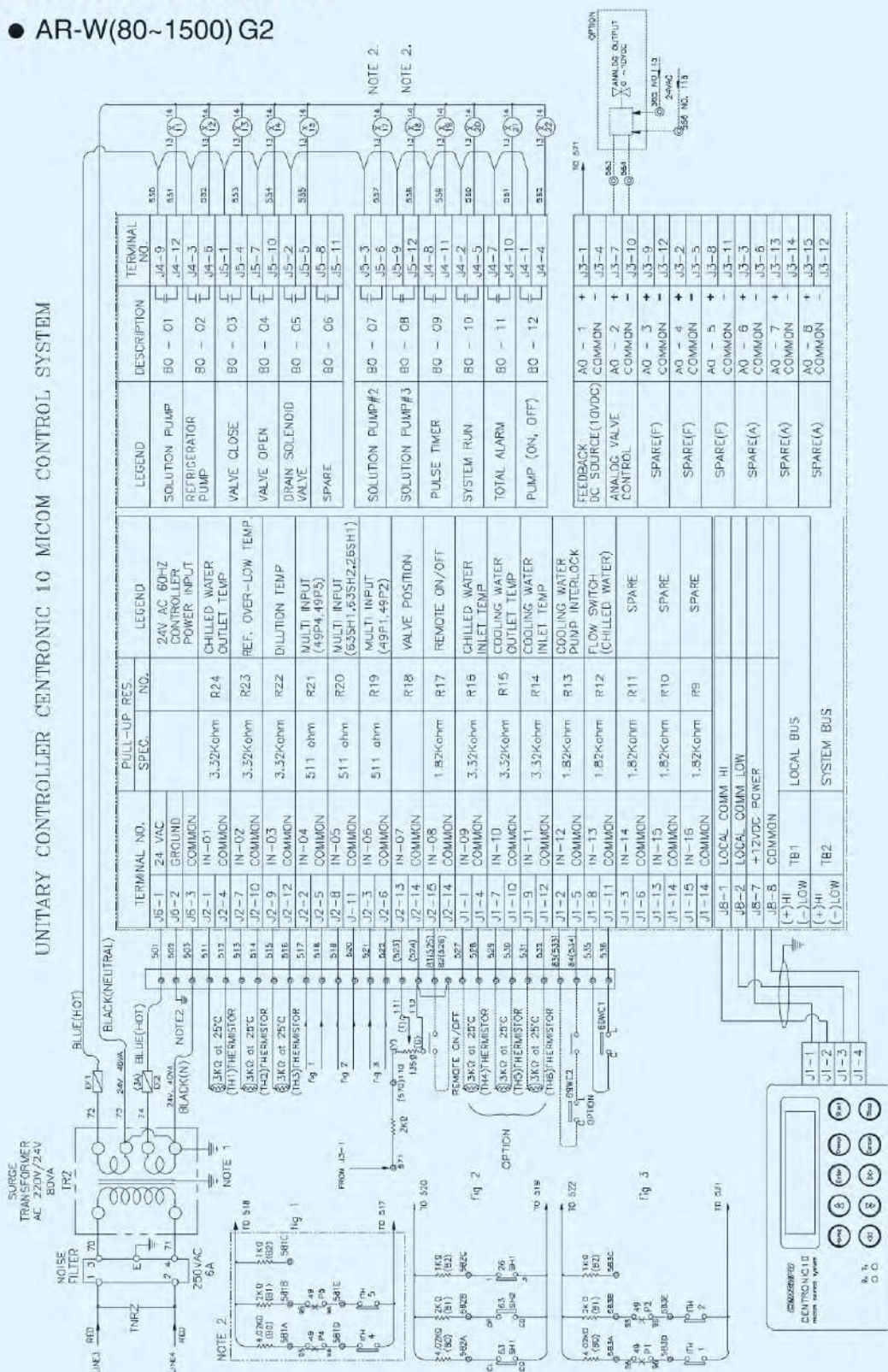


Two Stage Steam Absorption Chiller

■ WIRING DIAGRAM

● AR-W(80~1500) G2

UNITARY CONTROLLER CENTRONIC 10 MICOM CONTROL SYSTEM



NOTE
1. THE TRANSFORMER AND CONTROLLER MUST BE CONNECTED TO THE BUILDING ELECTRICAL GROUND.
2. SOLUTION PUMP 2 : ONLY AR-W80~100G2 TYPE
ONLY AR-W800~1500G2 TYPE
SOLUTION PUMP 3 : ONLY AR-W800~1500G2 TYPE

Two Stage Steam Absorption Chiller

WIRING DIAGRAM

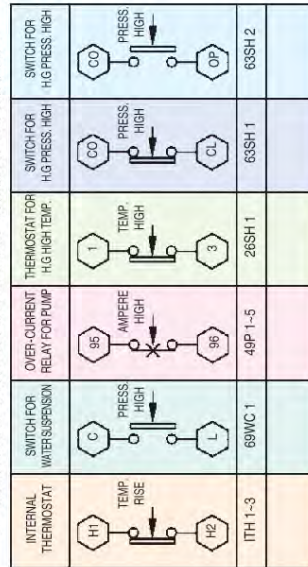
■ WIRING DIAGRAM

- AR-W(80~1500) G2

** LAMP DESCRIPTION

| | | |
|----|-------------|-----|
| L1 | POWER | WL |
| L2 | SYSTEM RUN | GL1 |
| L3 | COOL ON | GL2 |
| L4 | TOTAL ALARM | RL1 |
| L5 | PURGE PUMP | RL2 |

** CONTROL SWITCH INTERNAL WIRING DIAGRAM **



| NO. | DEVICE NO. | NAME OF INSTRUMENT | MODEL | MAKER | SPECIFICATION | QTY |
|-----|------------|--------------------------------------|----------------|--------------------|---|--------|
| 1 | TH1 | THERMISTOR(COOLING) | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | 1 |
| 2 | TH2 | THERMISTOR | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | 1 |
| 3 | TH3 | THERMISTOR | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | 1 |
| 4 | | CONTROL MOTOR | M 904F | YAMATAKE HONEYWELL | | 1 |
| 5 | | CONTROL VALVE | | YAMATAKE HONEYWELL | | 1 |
| 6 | | VALVE LINKAGE | | YAMATAKE HONEYWELL | | 1 |
| 7 | 26SH1 | HIGH SOLUTION TEMP. CUT OUT SWITCH | INS-C1150M1Q | SAGINOMIYA | ON : MANUAL OH : 165°C | 1 |
| 8 | 69WC1 | C.W. SUSPENSION CUT OUT SWITCH | YPS-C104Q | SAGINOMIYA | 0.2kg/Cm ² ~2kg/Cm ² RANGE OFF : 0.3kg/Cm ² ON : 0.42kg/Cm ² | 1 |
| 9 | 63SH1 | HIGH PRE. CUT OUT FOR HIGH TEMP. GEN | VM-150S-S | UEDA | OFF : ~40mmHg ON : ~720mmHg | 1 |
| 10 | 63SH2 | PUMP STARTING RELAY | VM-150S-S | UEDA | OFF : ~740mmHg ON : ~710mmHg | 1 |
| 11 | X11-X22 | AUXILIARY RELAY | MY-2N | OMRON | AC 24V 2SPDT | 11 |
| 12 | L1-L4 | PILOT LAMP | YSRL-34-T22 | YONGSUNG | AC 220V W:1, R:1, G:2 | 4 |
| 13 | TR1 | TRANSFORMER | ONLY 440VAC | SAMHO | 440, 380V/220V 300VA | 1 |
| 14 | TR2 | TRANSFORMER | | SAMHO | 220V/24V, 24V 80VA | 1 |
| 15 | TR3 | TRANSFORMER | | SAMHO | 220V/24V 50VA | 1 |
| 16 | TS1 | ON. OFF SWITCH | WOK-10A | WOOJIN | ON OFF 1a 1b, 1 POSITION | 1 |
| 17 | BZ | BUZZER | KH-402-2 | | AC 220V 4 30 | 1 |
| 18 | EF1,2 | FUSE (WITH FUSE HOLDER) | | | 220V, 3A | 2 |
| 19 | TB | TERMINAL BLOCK | | | REFER TO SPECIAL SPEC. | 3 |
| 20 | NFB | NO FUSE BREAKER | | | REFER TO SPECIAL SPEC. | 1 |
| 21 | 88P | MAGNETIC CONTACTOR | | | REFER TO SPECIAL SPEC. | |
| 22 | 49P | OVER CURRENT RELAY | | | REFER TO SPECIAL SPEC. | |
| 23 | TH4 | THERMISTOR | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | OPTION |
| 24 | TH5 | THERMISTOR | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | OPTION |
| 25 | TH6 | THERMISTOR | ST-W22 | PRECON | 25°C 3kΩ WITH WELL | OPTION |
| 26 | TS2 + RL2 | SWITCH WITH LAMP | WOK-10A | WOOJIN | 250V 5A NEON LAMP 220V | 1 |
| 27 | NFC | NO FUSE BREAKER | NFC-E32 | ANAM | 2P 460VAC 5A | 1 |
| 28 | EXF | EXHAUST FAN | 4715MS-22T-B50 | MINEBEA | 1φ 220V 50/60Hz | 1 |
| 29 | | | | | | |
| 30 | | | | | | |



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