ROOFTOP PACKAGE CATALOGUE

Model Number Classification

RT H ##

- ##: Nominal Cooling capacity
- H: Heat pump, C: Cooling Only
- P: Package

Index

Rooftop Package Quick Selection

Model Number			RTH 25	RTH 36	RTH 56	RTH 67	RTH 90	RTH 120	RTH 160	RTH 205	RTH 225	RTH 285	RTH 310	RTH 330
Total Cooling Capacity		kW	24.49	33.02	52.04	64.26	85.52	118	157	198.8	224.3	285.2	307.6	329.2
Sensible Cooling Capacity		kW	22.11	29.62	46.3	53.11	68.58	97.42	123.8	158.3	186.2	222.2	245.2	276.4
Air Flow		l/s	1,650	2,430	3,420	3,700	4,667	6,800	8,400	10,824	13,387	14,932	16,800	19,950
ESP		Pa	192.5	295.3	270	300	350	320	300	300	300	300	400	400
Dimensions	Length	mm	1300	1480	1990	1990	2050	2320	6165	6540	6800	8620	9320	10972
	Width	mm	1450	1590	1670	1670	2100	2200	2200	2200	2200	2200	2200	2200
	Height	mm	1330	1650	1900	1900	1915	2340	2350	2350	2350	2350	2350	2350
Weight		kg	550	750	1000	1200	1700	2500	2208	3745	3996	3222	5190	5910

ECO AIRE

OPERATING, INSTALLATION & MAINTENANCE MANUAL

INDEX

1. DESCRIPTION OF EQUIPMENT

In general Eco Aire air cooled heat pump or cooling only air conditioners contain the following:

1.1. An indoor centrifugal fan and motor assembly bolted onto the supply air face, both direct drive models and belt drive fan and motor assemblies are bolted onto the indoor section base.

Units up to and including 18Kw are supplied with three speed single phase indoor fan motors while above 18Kw all indoor fan motors are three phase.

1.2. An outdoor axial fan/motor and bracket assembly. All fans are direct driven by weather proofed motors.

1.3. A refrigerant system consisting of the following standard features:

1.3.1. Compressor.

1.3.2. An indoor and an outdoor air/ refrigerant rippled aluminium finned, copper tube heat exchanger with seamless copper tubes mechanically expanded onto the aluminium fins.

1.3.3. Suction Accumulator.

1.3.4. Reversing valve (Heat pump model only).

1.3.5. Expansion device (capillary or TX valve).

1.3.6. Schrader access valves (high pressure/low pressure).

1.3.7. Dual Pressure control (high pressure/low pressure).

1.3.8. Low ambient control (Only on units > 20kW)

1.4. An insulated evaporator cabinet with separate compressor/condenser compartment.

All split systems and packaged systems up to 18Kw have a separate insulated compressor compartment for ease of commissioning.

1.5. An electrical panel with 240 volt control wiring. 24volt wiring is available as an option.

1.6. Insulated condensate trays for indoor coils.

2. UNIT OPERATION_- REVERSE CYCLE MODELS

2.1. The supply air fan can be operated with or without the refrigerant circuit running in order to ventilate the conditioned space; however, it must be ensured that at no time does the refrigerant circuit operate without the supply air fan in operation.

Where fans are supplied with direct driven motor, fan speeds may be adjusted at a terminal block on the electrical panel.

For belt driven units a fixed speed pulley is supplied on the motor for air flow adjustments, pulleys need to be changed. (Note: Electrical supply must be isolated and wiring diagrams followed when changing motor speeds.)

2.2. Two points are important when checking that the supply air fan is operating to the desired performance.

2.2.1. Rated airflow for the unit should not be exceeded or decreased by more than 15%. If this happens the unit may not operate correctly and component failure may occur. It should be noted that changes in airflow from the rated conditions will effect the units' performance. For an approximate capacity effect consult the technical brochure for the unit concerned.

2.2.2. Direct driven motors are sized to handle a particular static pressure at the rated airflow. Should this be exceeded or be significantly less, then the fan will not perform and the motor may even be in danger of overloading especially at low static pressures.

2.3. When the thermostat calls for cooling the supply fan should be operational (see above). The signal passes through the high and low pressure cut-outs to the compressor contactor. This starts the compressor and simultaneously brings the outdoor fan/s on. The compressor pumps refrigerant via the reversing valve, which will be de-energized, to the outdoor air/refrigerant heat exchanger. This will be acting as a condenser for the high temperature/high pressure refrigerant thus causing a rise in the air temperature passing through the coil.

The units are generally capable of operation (at reduced capacities) in outdoor ambient temperatures of up to 40°. This will be dependent on the exact installation.

The condensed liquid refrigerant then leaves the outdoor coil, enters the expansion device (whether capillary or TX valve) and drops in pressure to become a low pressure/low temperature liquid entering the air/refrigerant indoor heat exchanger. This coil then acts as an evaporator of the refrigerant, absorbing heat from the air passing over the coil and therefore reducing the air temperature and humidity.

The refrigerant then passes back to the compressor again via the reversing valve as a low pressure gas slightly superheated. When the thermostat is satisfied the signal will drop and the compressor contactor will de-energize, stopping the compressor and outdoor fan/s.

2.4. When the thermostat calls for heating as with 2.3 the supply fan should be operational. The signal for unit operation again passes through the high and low pressure cut-outs to the compressor contactor. However, in this case the thermostat should also send a signal to the reversing valve, which will energize the valve and cause a change in the direction of flow of the refrigerant. The compressor will start and simultaneously bring the outdoor fans on. The compressor will now pump hot refrigerant gas via the reversing valve, which is now energized to the indoor air/refrigerant heat exchanger.

This exchanger will cause the gas to be condensed raising the temperature of the air as it passes over the coil. Refrigerant liquid will leave the coil and enter the expansion device where it will experience a change in pressure and become a low pressure, low temperature liquid.

On entering the outdoor air/refrigerant exchanger the liquid will be evaporated causing a fall in air temperature passing over the coil. Should the temperature in the outdoor exchanger fall below -5℃ a temperature sensor will automatically put the unit into de-ice mode to remove the ice build up on the coil. This process is explained fully under operation of safety controls.

The units are generally capable of operation at outdoor ambient down to -2℃ but not higher than 15℃. However, the lower the outdoor ambient the longer the period on which the unit operates in de-ice mode. (Note: It is important when wiring reverse cycle split systems with capillary expansion and direct driven evaporator fan motors, that the indoor fan motor neutral is wired to EF on the terminal block, otherwise the unit will not operate properly in de-ice mode.)

After passing through the outdoor exchanger the refrigerant then flows via the reversing valve to the compressor as a low pressure gas slightly superheated. When the thermostat is satisfied the signal to both compressor contactor and reversing valve will drop and the compressor, outdoor fans and reversing valve will de-energise.

2.5. When supplied with a cooling only model the operation of the unit is as with b) except there is no reversing valve in the refrigerant system.

2.6. For 20 kW units and above, the air conditioner could be supplied with two separate refrigeration systems. Where the unit is single stage hear/cool the operation will be similar to 2.3 and 2.4 except that when the thermostat calls for cooling the signal is sent to both compressor contactors via high and low pressure cut-outs. However, there is also a timer on the starting of one system to delay its start for 180 seconds. This is to ensure that high starting currents are reduced.

Note: The timer is activated mechanically by the pulling in of the contactor on the lead compressor. This means that should the lead system be held out b activation of a safety device, system two will not start.

On a two stage heat/cool air conditioner the systems require separate signals from the thermostat to energize the contactors for the compressors. Again there is a 180 second delay in starting of system two by means of a mechanical timer.

(Note: Either de-ice sensor will activate the de-ice mode of operation).

3. OPERATION OF SAFETY CONTROLS

The following safety controls are supplied as standard with each unit. Their functions are described below.

3.1. High pressure cut-out on refrigeration system. (Auto reset – only > 10kW).

3.2. Low pressure cut-out on refrigeration system. (Auto reset – only > 10kW).

3.3. Outdoor fan motor overload. (Auto reset).

3.4. Supply air fan motor overload. (Auto reset).

3.5. Compressor overload. (Auto reset).

3.6. De-ice control. (Auto reset).

a. A high pressure cut-out control is connected into the control wiring circuit between the thermostat and the compressor contactor coil to ensure that the unit will not run if the discharge pressure of the compressor exceeds a safe operating condition.

   This control is manual reset when the pressure drops to an acceptable level. In this case the control must be reset before the unit will operate. The option of an automatically reset control is available on request. The high pressure control is set to cut-out at 2800 kPa.

b. A low pressure cut-out control is connected into the control wiring circuit between the thermostat and the compressor contactor coil to ensure that the unit will not run if the suction pressure of the compressor falls below an acceptable operating condition. Again this control is automatically reset when the pressure rises to a safe operating level and manual reset is available on request.

c. The low pressure control is set to cut-out at 100 kPa and cut back in at 300kpa.

d. The outdoor fan motors all come with overloads imbedded into the electrical windings to guard against the motor overheating and burning out. The overload will automatically reset when the temperature drops to an acceptable level.

   Note: These overloads will not protect against repeated overheating of the motor due to incorrect application of the fan or unit.

e. The supply air fans all come with thermal overloads. On all direct driven fans these overloads are imbedded into the electrical windings to guard against the motor overheating and burning out. The overload will automatically reset when the temperature drops to an acceptable level.

   Note: These overloads will not protect against repeated overheating of the motor due to incorrect application of the fan. All belt driven fans are supplied with three phase motors with which we supply an external current sensing overload wired directly into the fan contactor which can be set to automatically or manually reset.

   Units are supplied with the overload set to automatic reset.

f. All compressors are supplied with an internal thermal and current sensing overload

imbedded in the electrical windings to guard the compressor against overheating or burning out. The overload will automatically reset after about 1 hour when the temperature drops to an acceptable level. Note: The overload will not protect against failure for an unlimited period if system or application of the unit should be at fault. An external manual current sensing overload is available as an option.

g. When the unit is operating in the heating mode (Heat Pump) as a matter of course, especially at low outdoor temperatures, ice will form on the outdoor heat exchanger. The lower the ambient the more likely is the ice formation and the quicker is its formation.

This ice formation if left unchecked can cause a range of problems. Firstly, the unit performance will drop as ice forms on the outdoor coil. Secondly, if the ice build up becomes extensive there is a possibility of burning out the outdoor air fan motors. Thirdly, with ice build up there is a drop in the ability of the heat exchanger to remove heat. This means that the refrigerant which should be evaporating is now unable to completely evaporate so that liquid refrigerant will start returning to the compressor. As compressors are designed to pump gas only, the above situation if left unchecked would cause compressor failure.

It is for these reasons that we supply de-ice operation on all reverse cycle units to remove the ice from the outdoor coil.

A temperature sensor is placed inside the fins of the outdoor heat exchanger on each refrigerant system. This sensor is set to cut-out at -5℃ and cut back in at +10℃. Should the temperature in the coil fall below -5℃ the sensor will cut out and start the de-ice operation until the coil temperature reaches +10℃.

De-ice operation falls into two categories:

1) De-ice operation for capillary expansion systems:

   Eco Aire have a unique not gas defrost system for al capillary expansion systems. When the de-ice sensor cuts out at -5℃ power to the condenser and evaporator fans is broken, however, the compressor keeps running. In doing so the hot gas passing through the indoor exchanger is no longer condensed and arrives at the expansion device in an uncondensed form.

   As such the pressure drop through the expansion device is greatly reduced so that the refrigerant enters the outdoor exchanger as a gas at a higher temperature than with normal operation.

   This will de-ice the coil. When the cut in temperature of the sensor is reached the supply air fan and outdoor air fans will automatically restart. The process normally takes about 5 to 8 minutes.

   The advantage of this type of system is that no cold air is blown into the conditioned space on the de-ice mode.

   It is important to note that the head pressure in the system will rise on the de-ice mode,

so that if the high pressure cut-out is set too low, nuisance tripping may occur.

Also as mentioned previously it is important to ensure that the indoor fan motor neutral is wired to EF on the terminal strip for all direct driven indoor fans.

2) De-ice operation for TX valve systems:

The operation of this system is different to the above due to the modulation effect of the TX valve. Because of this the supply air fan must be running when the unit is on de-ice mode. Also the reversing valve is de-energized so that we return to the cooling mode. As such hot gas is passed into the outdoor heat exchanger to de-ice the coils and then comes through the TX valve to the indoor coil. It may initially experience a pressure drop so that the indoor coil will evaporate the liquid refrigerant and decrease the air temperature passing over the coil. This will occur until the sensor in the outdoor coil cuts back in at +10℃ when the ice has melted. The process normally takes about 5 to 8 minutes.

4. GENERAL MAINTENANCE

If the unit is operating normally the only maintenance necessary is that described below. Operators and installers should refrain from unnecessary interference with the machine and particularly from excessive adjustment of the thermostat.

Filters

Filters are not supplied with the unit as standard; however they should be included in any installation. Filter cleaning should be carried out when the state of the filter indicates this is necessary (approximately 1-2 months). Failure to maintain reasonably clean filters will cause safety controls to cut-out and could cause component damage.

Outdoor Heat Exchanger

Periodic checks of the outdoor heat exchanger may be necessary to ensure that dust or foreign matter build up on the coils is kept to a minimum.

Condensate

The condensate tray should be periodically checked to ensure that blockage of the drainage line has not occurred and condensate is draining properly from trays.

Belts

Where supply air fans are powered via belts, the belt will need to be redesigned after a running in period of a number of hours. Or will also need subsequent checks of tension at regular intervals (1-2 months).

When tensioning belts it is important that the pulleys be aligned and the belts not over tensioned.

5. INSTALLATION GUIDELINES

The guidelines listed below are intended for the installation of air cooled air conditioning units used on commercial applications. The installation should be carried out by suitable trade personnel only. Compliance to the local codes and regulations which govern the installation of the equipment is the responsibility of the installer.

Location

Before installation, the electrical power should be checked to determine if adequate power is available with correct voltage to the site.

The position of the equipment, after a survey of the building and the duct layout, should meet the following criteria.

Fan coil unit (Indoor)

a) Provide the proper drainage of condensate. The drain is not to be higher than the evaporator base and is to have at least a 50mm ‘p’ trap or similar trap. Where units are not supplied with a safety tray, an independent safety tray is to be provided by the installer.

b) The fan coil unit (evaporator) should be slung or mounted on anti-vibration devices which are capable of carrying the weight of the unit.

c) Sufficient clearance for the top and sides of the units for servicing of the motor, coils, belts etc.

d) Distance to the condensing (outdoor) unit both horizontal as well as vertical is to be kept to a minimum and use the minimum number of bends.

Condensing Unit (Outdoor)

a) Unrestricted circulation of condenser air. Both air on and off must have free passage.

b) It is placed in a position to the requirements of local councils, building codes, covenants etc.

c) A position of maximum share from the afternoon sun i.e. Northern or Western aspect from the building.

d) Provide the proper drainage of the condensate if necessary.

e) The weight carrying capacity of the location.

f) The position of the unit will not cause distress to occupants of the building or occupant of neighbouring buildings, i.e. do not place units near bedroom windows.

Package Units

The units can be mounted on roof tops, plant rooms or ground level but all of the above criteria should be met except for length of pipe runs. Where the fan coil section is subjected to direct sunlight, duct work should be heavily insulated so as to avoid large heat gains. Although the unit is supplied with the correct gas charge, for the rated air quantity, a final gas balance is necessary after the required air balance is completed. It is important to do this as the unit may be over or under charge, which will result in poor unit performance and early compressor failure. For package plant room equipment the outdoor coil rated air flow must be achieved for proper unit performance. Refer to technical brochures.

Refrigeration Pipes

Refrigeration grade copper tubing is the only tubing to be used. Fittings used for bends, elbow, P trap 'Y' piece etc., must be of the wrought copper type and clean from dust, burrs, oil etc. It is recommended that the tube be cut with a tube cutter and the ID be made the correct size with an expanding device after cutting. All joints in the piping must be clean and free from dust, burrs, oils, etc.

All joints must be silver soldered with at least 10% silver content. Under no circumstances must joints be made with other solders or cleaned with acid. Whilst brazing joints the smaller tube must be heated first and heating time kept to a minimum. It is also advisable to pass an inert gas, such as nitrogen, under low pressure through the pipe system, this will keep oxidation of the internal pipe to a minimum. Under no circumstance is there to be any kinks, dents or sharp bends in the pipe work. For optimum performance and to stop water damage to ceiling area, both refrigerant lines should be separately insulated. The pipe work should be adequately supported and direct contact of the pipe work with the building be avoided, to minimize vibrations that may occur.

Long Pipe Runs

Refer to performance brochures on unit range for correct pipe sizing.

For pipe runs in excess of 10 metres the following oil quantities should be added for each

additional 3 metres of run.

19.1 O.D. Suction Line 90 ml per 3 metres.

22.2 O.D. Suction Line 120 ml per 3 metres.

28.6 O.D. Suction Line 140 ml per 3 metres.

35.0 O.D. Suction Line 160 ml per 3 metres.

For pipe runs in excess of 10 metres of vertical lifts in excess of 3-1/2 metres above the evaporator, performance of the compressor is reduced due to suction pressure drop, i.e. for a pressure drop corresponding to 1℃, compressor capacity is reduced by 4%, for a pressure drop corresponding to 2℃, compressor capacity is reduced by 8%. If in doubt as to the reduction in compressor capacity, contact the manufacturer or nearest agent.

Vertical Lifts

When compressors are in excess of 1.5 metres above the evaporator the next size down in suction line should be used and it should be 'P' or 'U' trapped at the condenser and evaporator. Twin circuit suction line rises may be used where large reduction in suction pressure may be experienced. For Vertical rises in excess of 1.5 metres from the compressor to a remote condenser coil the discharge line should be 'P' or 'U' trapped at the compressor and condensing coil.

Additional traps are required every 6 metres for the above to ensure proper oil return.

Charging Of Systems

After completion of pipe work, pressure test the installation and check that there is no leaks. The system must be then evacuated to 30 inch^2 or 100 microns for long enough (min 12 hours) to ensure that there is no moisture in the system. All systems that have been opened to the atmosphere must be evacuated and under no circumstances be purged or liquid refrigerant be introduced into the system.

If the charge is to exceed 2.5 kg per compressor cylinder a means must be incorporated to avoid excess liquid returning to the compressor.

A crankcase heater should be fitted where ambient temperatures will be below -10℃ on start up. They are normally not required where refrigerant charge is below 2.5 kg per compressor cylinder or where compressor is in a warmer environment than the evaporator.

Gas charges listed are nominal and will change as the length of pipe run and air quantities change. The correct charge will give 6-8℃ superheat on the suction line before it enters the compressor at the design condition of 35℃ DB ambient, with air on to the evaporator at 27℃

DB and 19℃ WB and rated airflow.

Balancing of gas charge on Reverse cycle may cause problems when low air quantities are used, if in doubt contact the manufacturer or nearest agent.

Electrical

All wiring by the installer should comply with local wiring rules. This may require the installer to make alteration to the internal wiring of the unit If this should occur the manufacturer or agent should be contacted to make sure that the unit will operate as the manufacturer intended, or the warranty will be void. To make the correct connection a 240V 50Hz supply must be available in the case of single phase units and a 415V 50Hz supply must be available in the case of three phase units.

During the transportation of the units electrical connections may become loose, therefore it is the responsibility of the installer/electrician to make sure that all electrical connections are secure or warranty will be void. For split systems the evaporator fan motor must be connected as per the wiring diagram. The thermostat and switching part of the diagram is supplied for guide lines only and is not intended to bind the installer to that method of wiring.

However, the field or installation wiring must be done in such a manner so as to let the unit perform in a manner in which the manufacturer intended it to operate. It is also the responsibility of the installer/electrician to ensure that when an external overload device is fitted, that it be calibrated or set to the maximum amp draw on the rating plate of the motor it is controlling.

If an external motor-thermal electric overload is not fitted, then the motor is protected by an internal thermal overload. The air conditioning system should be protected by HRC motor start fuses or a suitable circuit breaker capable of handling the motor starting current.

Fan Blowers, Belts & Pulleys

The manufacturer will supply belt driven blowers to deliver rated air quantities at listed static pressures. It is the responsibility of the installer to insure, at his own cost, that the necessary pulley/belt and/or motor change or adjustments are made to meet the required air quantities. Where blowers are required to work outside there normal operating range the manufacturer or nearest agent should be contacted.

It is the responsibility of the installer to make sure that the belt and pulleys are aligned and correct belt tension applied, as movement of the drive may occur due to incorrect transport.

Do not over tension belts as this will cause bearing failure.

If a direct drive blower is not performing because of excessive static pressure, lack of static pressure or incorrect air quantity due to poor duct design, it will be the responsibility of the installer to rectify the fault at his own cost.

COMMISSIONING CHECK LIST

Electrical

a) All electrical connections are secure.
b) Fuse or circuit breaker is of the correct rating.
c) All wires are terminated.
d) Correct power supply is connected to the unit.
e) Unit is drawing correct amps.

Condenser Unit

a) Free airflow to and from the unit.
b) Condenser fan is discharging air.

Indoor Unit

a) The unit is inclined to the drain outlet. (12m fall is best).
b) Condensate lines are fitted.
c) Condensate lines do not rise above the floor lever of the unit.
d) Condensate lines are properly trapped.
e) Duct work is securely fixed to the unit.
f) The unit is slung or mounted on suitable anti-vibration devices.
g) The unit is delivering correct air quantity.

Refrigerant Lines

a) No leaks.
b) Both lines are properly insulated.
c) Properly supported.
d) Free of kinks or dents.

Duct work

a) Free from leaks.
b) Securely fixed at all joints.

c) Filters are clean and in place.

d) Outlets are open.

e) Dampers are open.

Thermostat – Switches

a) Unit operates in the modes, indicated by the switches.

b) Thermostat cycles the unit on or off.

c) Timer when fitted is working.

d) Compressor can not run without supply air fan running.

SERVICING OF UNITS

Before removing any panels for service, make sure the power supply to the unit is isolated. Entry into units can be made through door, side or top panels. For specific entry refer to the service drawing for the unit model number or contact the manufacturer or agent.

If a service analysis is to be successful the following questions should be answered if the unit is running but does not perform satisfactory.

a) Is the capacity of the unit correct for the area to be conditioned?

b) Is there excessive heat gain or loss into the conditioned area (e.g. is the ceiling space insulated with suitable insulation, are there doors or hallways open to the conditioned area, are there large unshielded windows in the conditioned area).

c) Is there excessive heat gain or loss in the duct work due to poor installation or insulation?

d) Does the room thermostat function correctly?

e) Does the switch function correctly?

f) Do the occupants know how to operate the system?

g) Is the return air filter clean?

h) If fitted, are the dampers working correctly?

If the answers to the above questions are yes, the following information should be recorded and the manufacturer or agent contacted.

a) Unit model number and serial number.

b) Time of day when testing was started.

c) Suction pressure.

d) Discharge pressure.

e) Temperature of suction line to compressor.

f) If the system is in cooling or heating mode.

g) Supply voltage.

h) Amp draw on compressor, evaporator fan motor, condenser fan motors.

i) Supply air quantity and external system resistance.

j) Outdoor coil airflow.

k) Temperature of air onto outdoor coil.

l) Temperature of air onto indoor coil both W.B. and D.B.

m) Temperature of air off indoor coil W.B. and D.B.

n) Time of day when test was completed.

The manufacturer or agent when given the above information may require further information from the service personal; this however will be more of a specific nature based on the above information, e.g.

a) Does the reversing valve shunt?

b) Does the suction pressure drop and to what extent when the evaporator motor is isolated on the cooling cycle?

c) Does the head pressure rise when the condenser fan motors are isolated in cooling mode?

d) Is the rated supply air passing over the evaporator coil?

e) Estimated quantity of gas in the system.

COMPRESSOR BURN OUTS

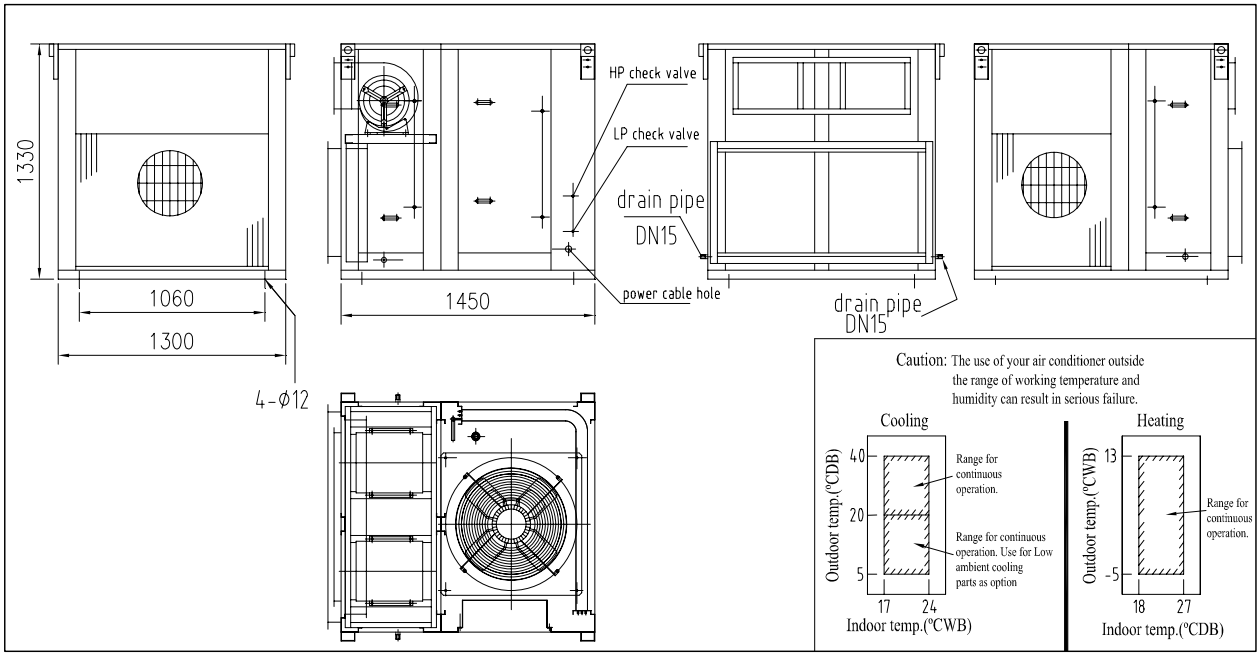
If a fusion of a hermetic compressor motor has occurred, it is essential that the capillary or TX valve be removed, cleaned and returned to the manufacturer for testing. All pipe work and coils must be flushed with R11 or other suitable cleaning agent. It is very important that no foreign matter is present in the pipe system as this will lead to premature compressor failure and warranty will be void. It is advisable to fit a suitable filter/dryer to the compressor suction line after a burnout to prevent foreign matter returning to the compressor which was not dislodged during the flushing operation.

Under no circumstances is a filter/dryer to be used as a substitute for not removing the capillary/TX valve and having it cleaned and tested, for not flushing the pipe system and coils, and for not evacuating the system.

Rooftop Package

Information Sheet

RTH 25



MODEL			RTH 25
Total Cooling Capacity		kW	24.49
Sensible Cooling Capacity		kW	22.11
Heating Capacity		kW	25.3
Running Amps Cooling		A	16
Running Amps Heating		A	14.5
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	15.67/14.73
Electric Heating		kW	12
Ambient		ºC	35
Altitude		masl	0
FLA		A	20.6
Sound Power Levels		dB(A)	70
Evap. Fan Data	Type Fan / Drive		KDF2.5IIWS/Direct Drive
	Air Flow	l/s	1,650
	ESP	Pa	192.5
Evap. Fan Motor	Motor Output	kW	2 x 0.55
	Running Current	A	2 x 1.6
Evap. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Filter	Quantity / Arrangement		2
	Type		Panel Air Filter
	Size	mm	600 x 600 x 50
Cond. Fan Data	Motor Output	kW	0.75
	Running Current	A	1.6
Cond. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Compressor	Type		JT236D
	Power Supply	V/Ph/Hz	380/3/50
	Running Current (cool/heat)	A	11.21 / 9.51
	Locked Rotor Amps	A	78.5
Stages			100/0
Refrigerant			R22
Dimensions	Length	mm	1300
	Width	mm	1450
	Height	mm	1330
Weight		kg	550

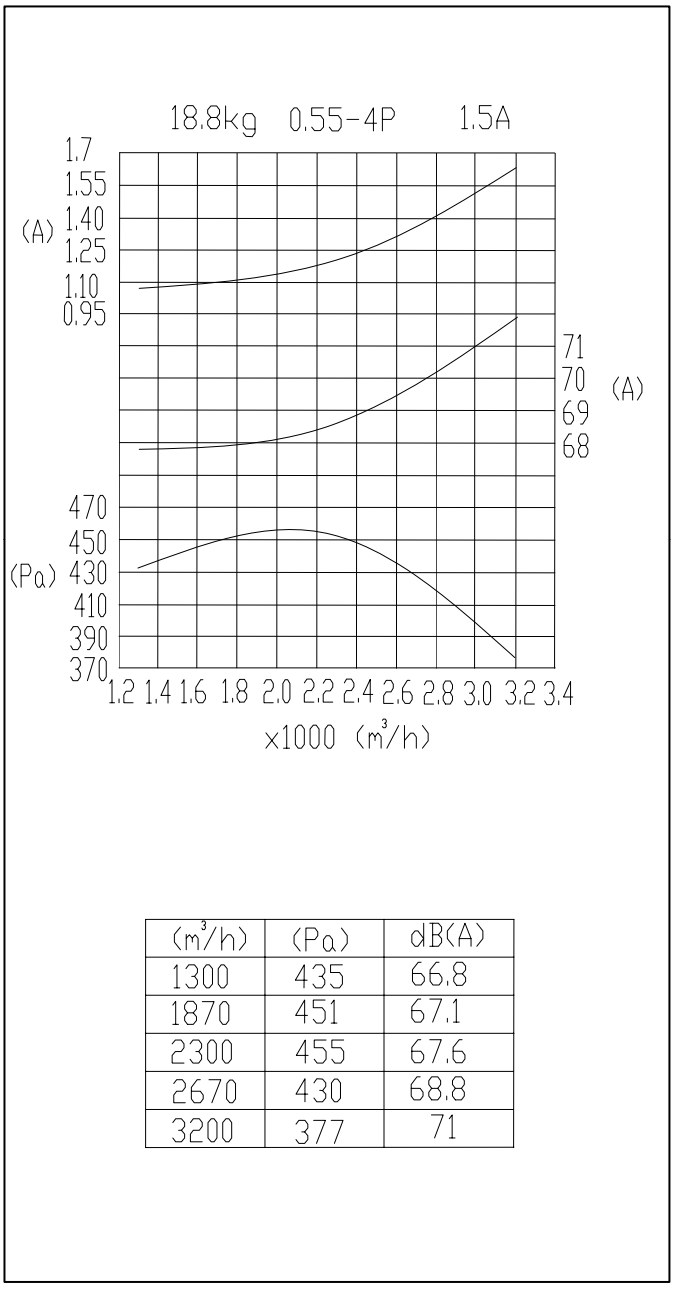
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

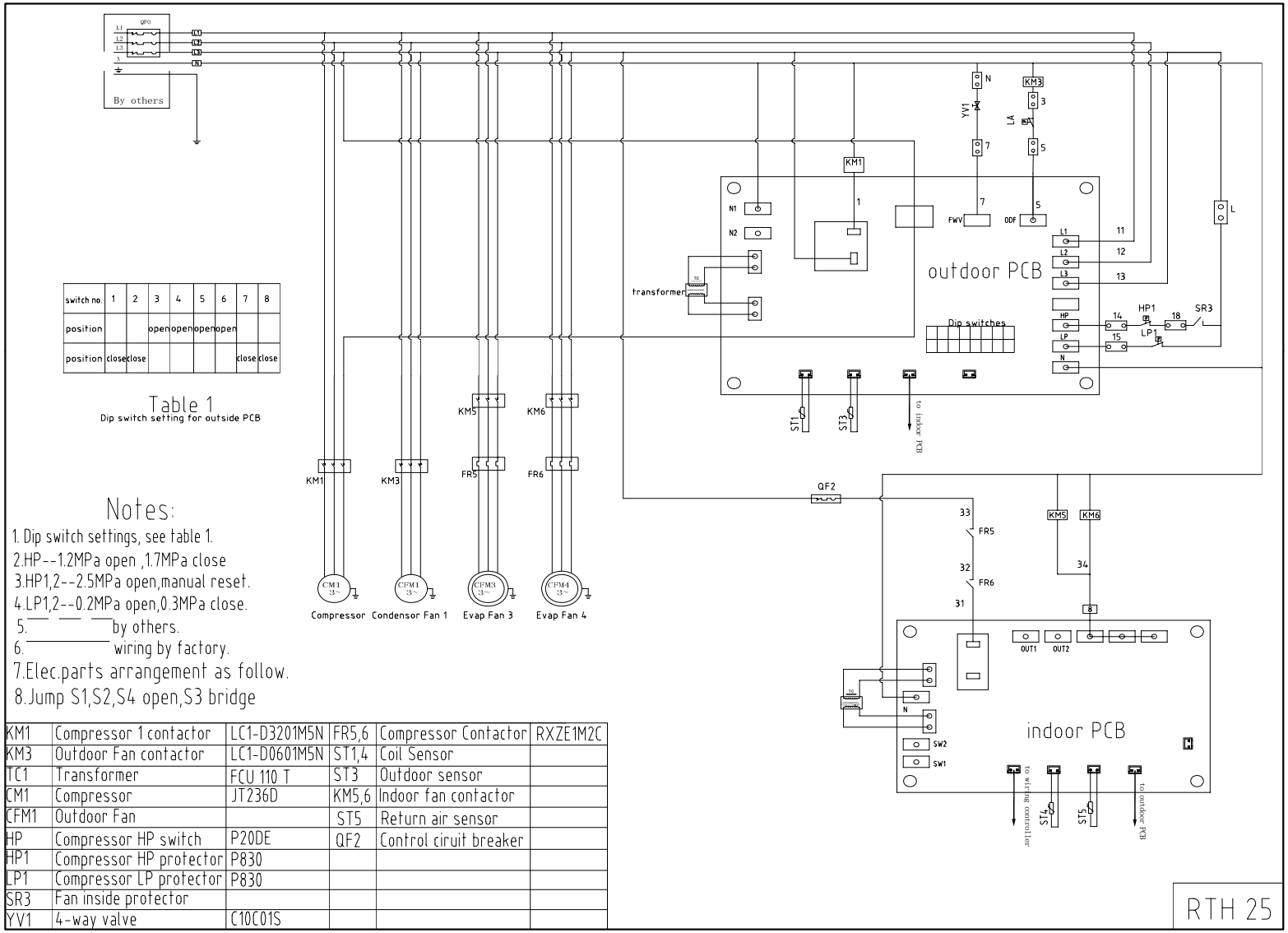
HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDF2.5 II WS



(m³/h)	(Pa)	dB(A)
1300	435	66.8
1870	451	67.1
2300	455	67.6
2670	430	68.8
3200	377	71



switch no.	1	2	3	4	5	6	7	8
position			open	open	open	open		
position	close	close					close	close

Table 1
Dip switch setting for outside PCB

Notes:

1. Dip switch settings, see table 1.
2. HP--1.2MPa open ,1.7MPa close
3. HP1,2--2.5MPa open,manual reset.
4. LP1,2--0.2MPa open,0.3MPa close.
5. ——— by others.
6. ——— wiring by factory.
7. Elec.parts arrangement as follow.
8. Jump S1,S2,S4 open,S3 bridge

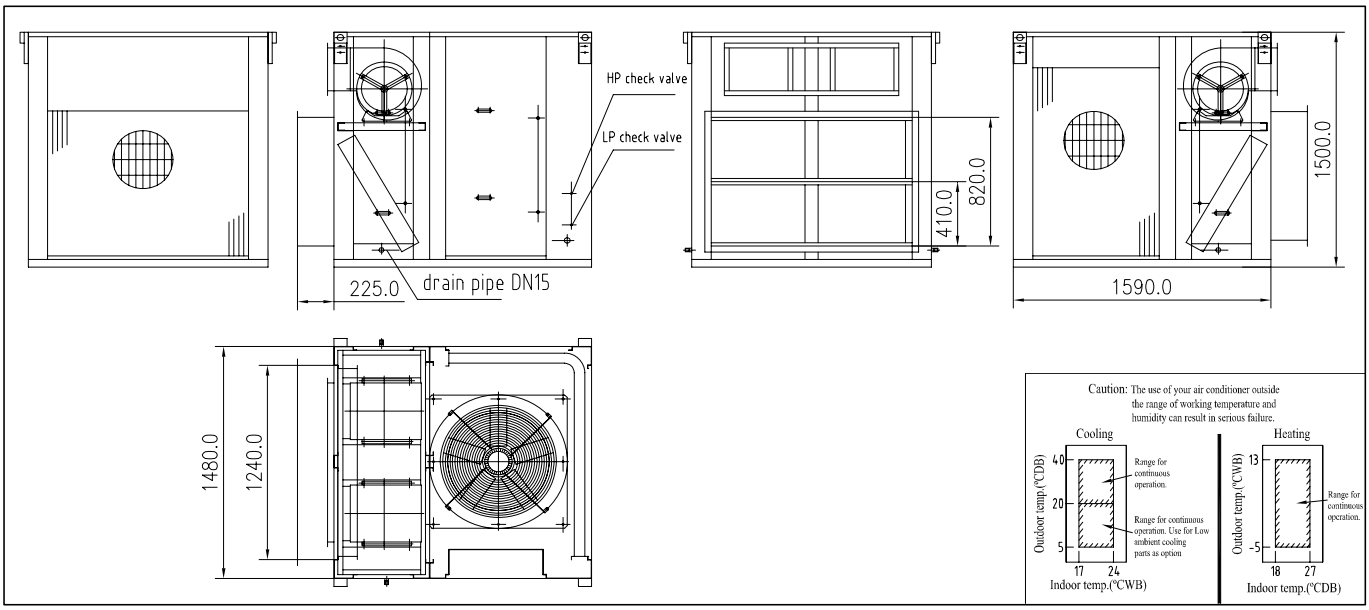
KM1	Compressor 1 contactor	LC1-D3201M5N	FR5,6	Compressor Contactor	RXZE1M2C
KM3	Outdoor Fan contactor	LC1-D0601M5N	ST1,4	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3	Outdoor sensor	
CM1	Compressor	JT236D	KM5,6	Indoor fan contactor	
CFM1	Outdoor Fan		ST5	Return air sensor	
HP	Compressor HP switch	P20DE	QF2	Control ciruit breaker	
HP1	Compressor HP protector	P830			
LP1	Compressor LP protector	P830			
SR3	Fan inside protector				
YV1	4-way valve	C10C01S			

RTH 25

Rooftop Package

Information Sheet

RTH 36



MODEL			RTH 36
Total Cooling Capacity		kW	33.02
Sensible Cooling Capacity		kW	29.62
Heating Capacity		kW	35.03
Running Amps Cooling		A	24
Running Amps Heating		A	22
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	16.7 / 15.12
Electric Heating		kW	15
Ambient		ºC	35
Altitude		masl	0
FLA		A	30.5
Sound Power Levels		dB(A)	70
Evap. Fan Data	Type Fan / Drive		KDF2.8IIWS/Direct Drive
	Air Flow	l/s	2,430
	ESP	Pa	295.3
Evap. Fan Motor	Motor Output	kW	2 x 0.55
	Running Current	A	2 x 2.8
Evap. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Filter	Quantity / Arrangement		4
	Type		Panel Air Filter
	Size	mm	400 x 600 x 50
Cond. Fan Data	Motor Output	kW	1.03
	Running Current	A	2.7
Cond. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Compressor	Type		JT 335 D
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	15.7 / 13.82
	Locked Rotor Amps	A	110
Stages			100 / 0
Refrigerant			R22
Dimensions	Length	mm	1480
	Width	mm	1590
	Height	mm	1650
Weight		kg	750

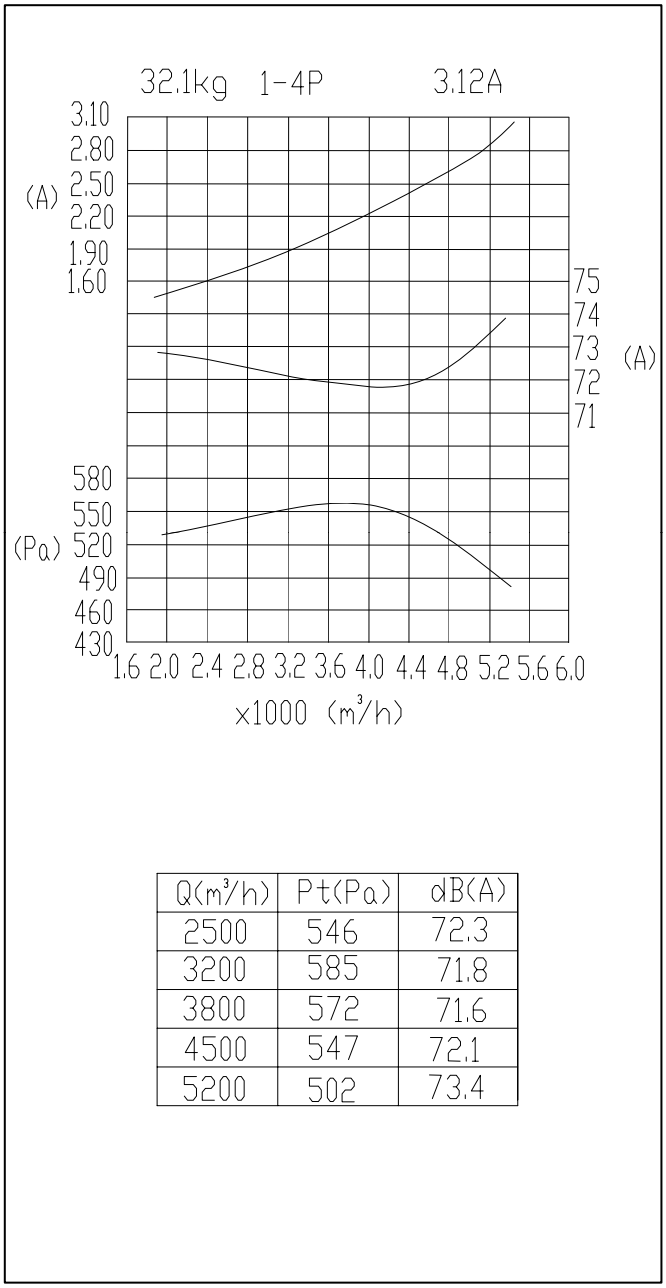
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

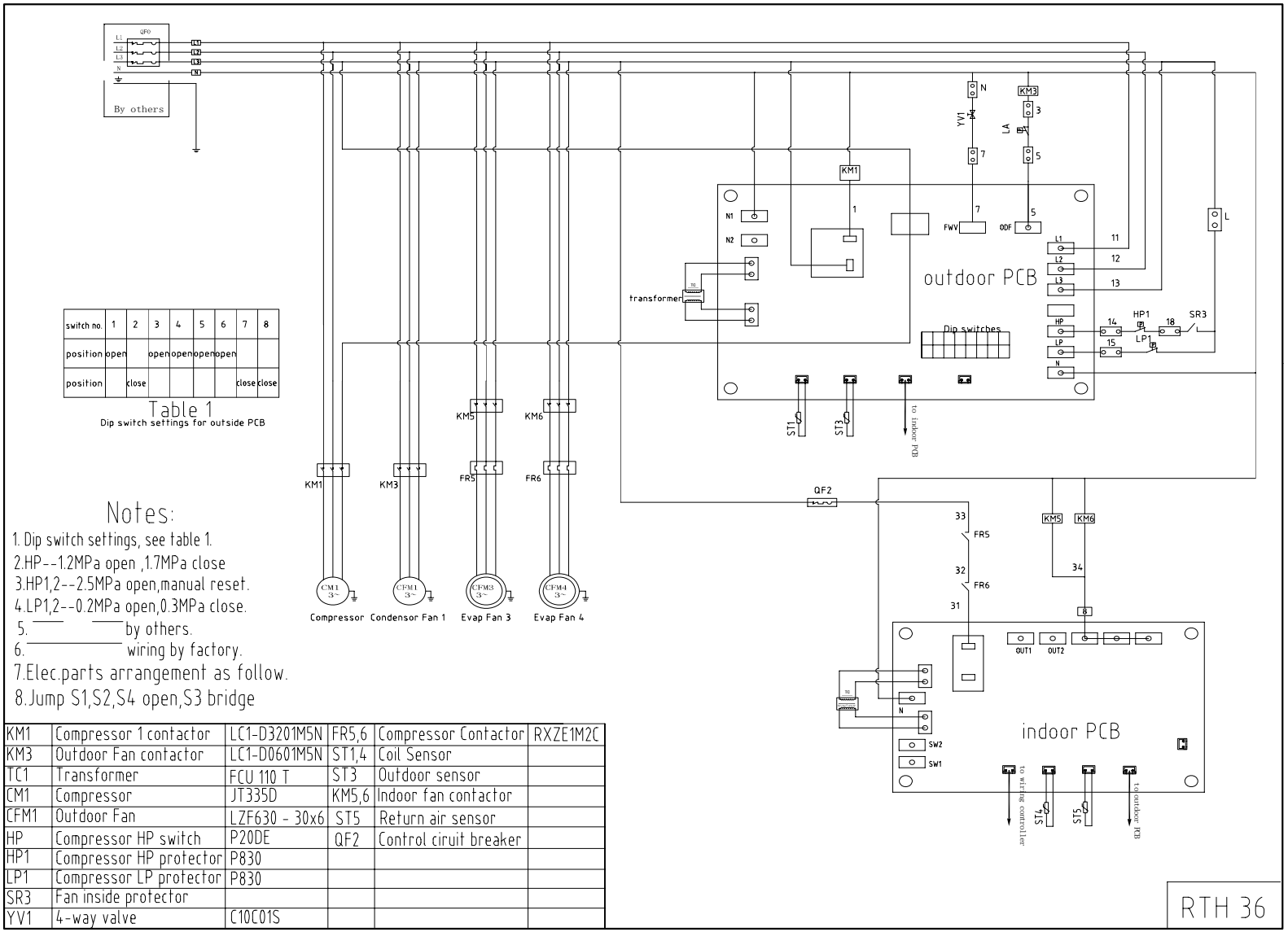
HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDF2.8 II WS



Q(m³/h)	Pt(Pa)	dB(A)
2500	546	72.3
3200	585	71.8
3800	572	71.6
4500	547	72.1
5200	502	73.4



switch no.	1	2	3	4	5	6	7	8
position	open		open	open	open	open		
position		close					close	close

Table 1
Dip switch settings for outside PCB

Notes:

1. Dip switch settings, see table 1.
2. HP--1.2MPa open ,1.7MPa close
3. HP1,2--2.5MPa open,manual reset.
4. LP1,2--0.2MPa open,0.3MPa close.
5. —— —— by others.
6. ———— wiring by factory.
7. Elec.parts arrangement as follow.
8. Jump S1,S2,S4 open,S3 bridge

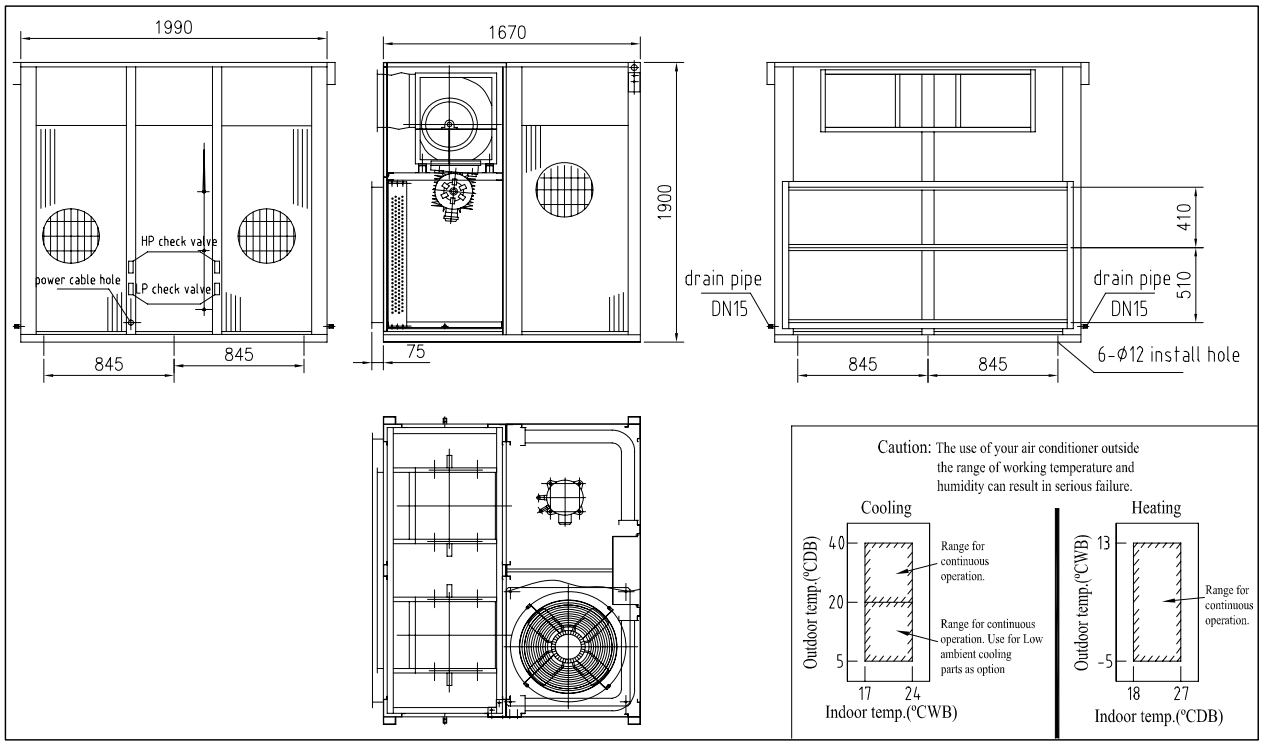
KM1	Compressor 1 contactor	LC1-D3201M5N	FR5,6	Compressor Contactor	RXZE1M2C
KM3	Outdoor Fan contactor	LC1-D0601M5N	ST1,4	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3	Outdoor sensor	
CM1	Compressor	JT335D	KM5,6	Indoor fan contactor	
CFM1	Outdoor Fan	LZF630 - 30x6	ST5	Return air sensor	
HP	Compressor HP switch	P20DE	QF2	Control ciruit breaker	
HP1	Compressor HP protector	P830			
LP1	Compressor LP protector	P830			
SR3	Fan inside protector				
YV1	4-way valve	C10C01S			

RTH 36

Rooftop Package

Information Sheet

RTH 56



MODEL			RTH 56
Total Cooling Capacity		kW	52.04
Sensible Cooling Capacity		kW	46.3
Heating Capacity		kW	54.67
Running Amps Cooling		A	36.5
Running Amps Heating		A	33
On Coil ºC DB / ºC WB		ºC	27/19
Off Coil ºC DB / ºC WB		ºC	15.55/14.62
Electric Heating		kW	24
Ambient		ºC	35
Altitude		masl	0
FLA		A	46
Sound Power Levels		dB(A)	72
Evap. Fan Data	Type Fan / Drive		KDFQ3.5 / Belt Drive
	Air Flow	l/s	3,420
	ESP	Pa	270
Evap. Fan Motor	Motor Output	kW	2 x 2.2
	Running Current	A	2 x 4.5
Evap. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Filter	Quantity / Arrangement		6
	Type		Panel Air Filter
	Size	mm	400 x 600 x 50
Cond. Fan Data	Motor Output	kW	2 x 0.75
	Running Current	A	2 x 1.6
Cond. Coil	Material Tube / Fins / Frame		Cu/Al/Gal
	FPI		12
Compressor	Type		2 x JT265D
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	2 x 12.15 / 2 x 10.49
	Locked Rotor Amps	A	85
Stages			100 / 50 / 0
Refrigerant			R22
Dimensions	Length	mm	1990
	Width	mm	1670
	Height	mm	1900
Weight		kg	1000

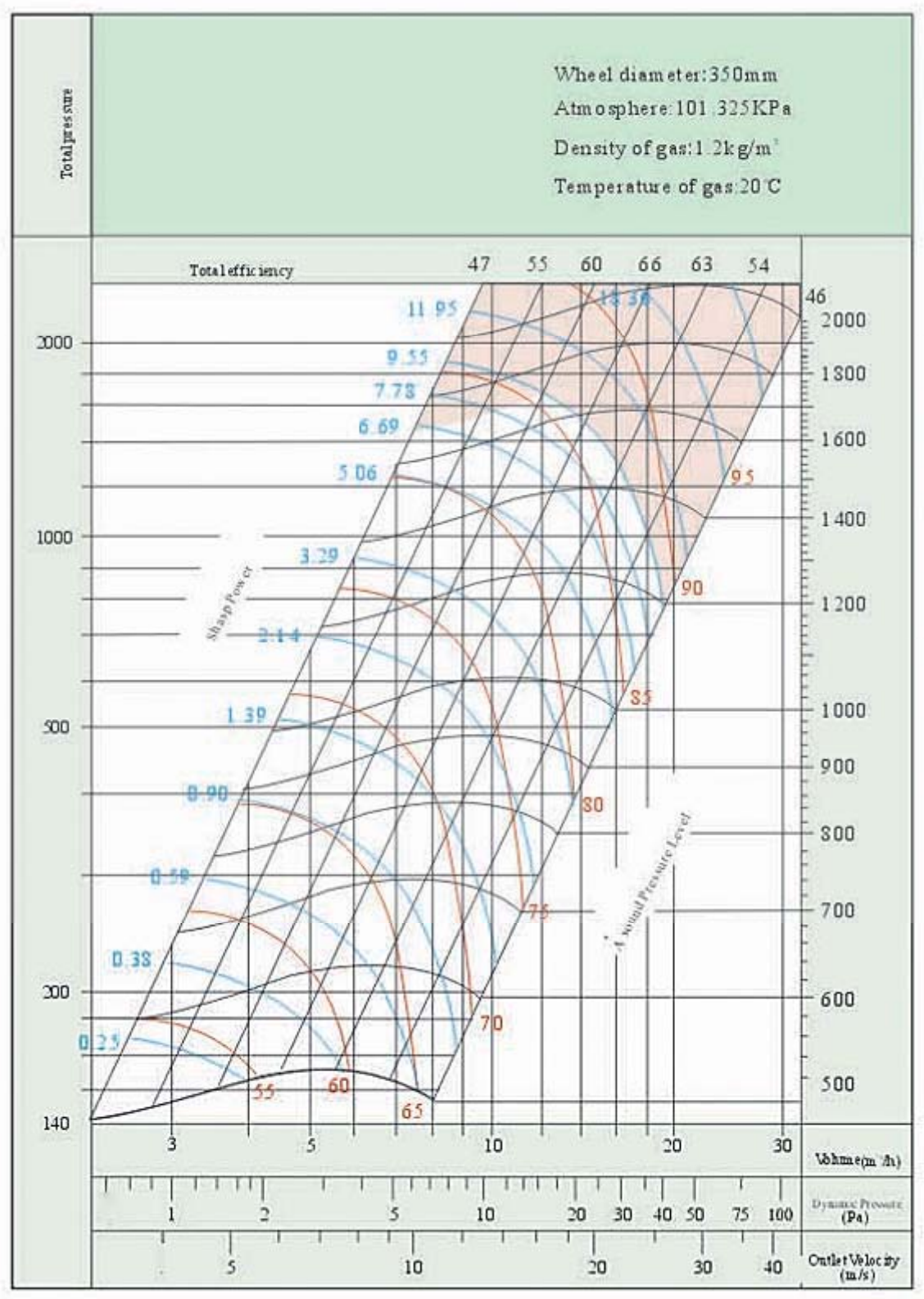
PleaseNote:

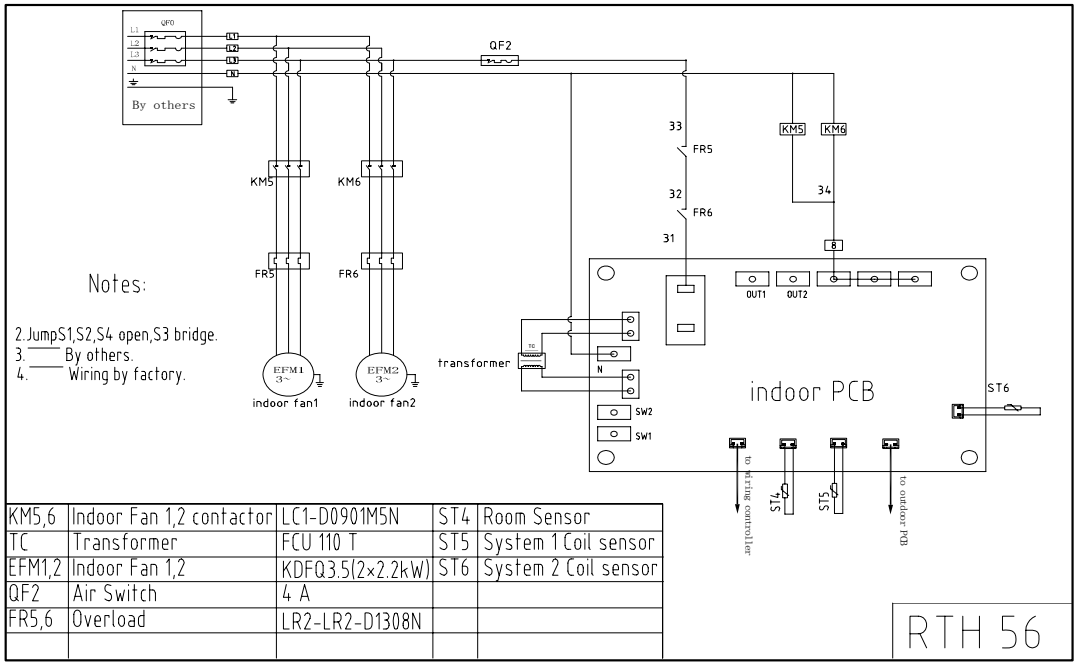
COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDFQ 3.5



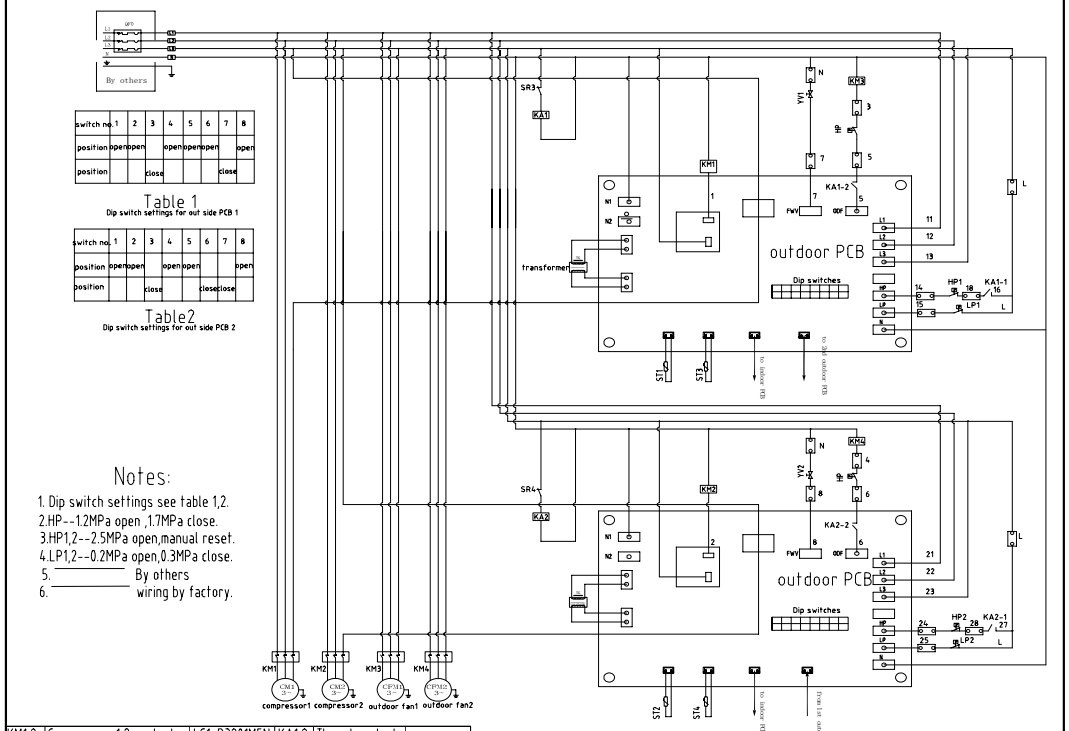


Notes:

2. JumpS1,S2,S4 open,S3 bridge.
3. _____ By others.
4. _____ Wiring by factory.

KM5,6	Indoor Fan 1,2 contactor	LC1-D0901M5N	ST4	Room Sensor
TC	Transformer	FCU 110 T	ST5	System 1 Coil sensor
EFM1,2	Indoor Fan 1,2	KDFQ3.5(2×2.2kW)	ST6	System 2 Coil sensor
QF2	Air Switch	4 A		
FR5,6	Overload	LR2-LR2-D1308N		

RTH 56



switch no.	1	2	3	4	5	6	7	8
position	open	open		open	open	open		open
position			close				close	

Table 1
Dip switch settings for out side PCB 1

switch no.	1	2	3	4	5	6	7	8
position	open	open		open	open			open
position			close			close	close	

Table2
Dip switch settings for out side PCB 2

Notes:

1. Dip switch settings see table 1,2.
2. HP--1.2MPa open ,1.7MPa close.
3. HP1,2--2.5MPa open,manual reset.
4. LP1,2--0.2MPa open,0.3MPa close.
5. _____ By others
6. _____ wiring by factory.

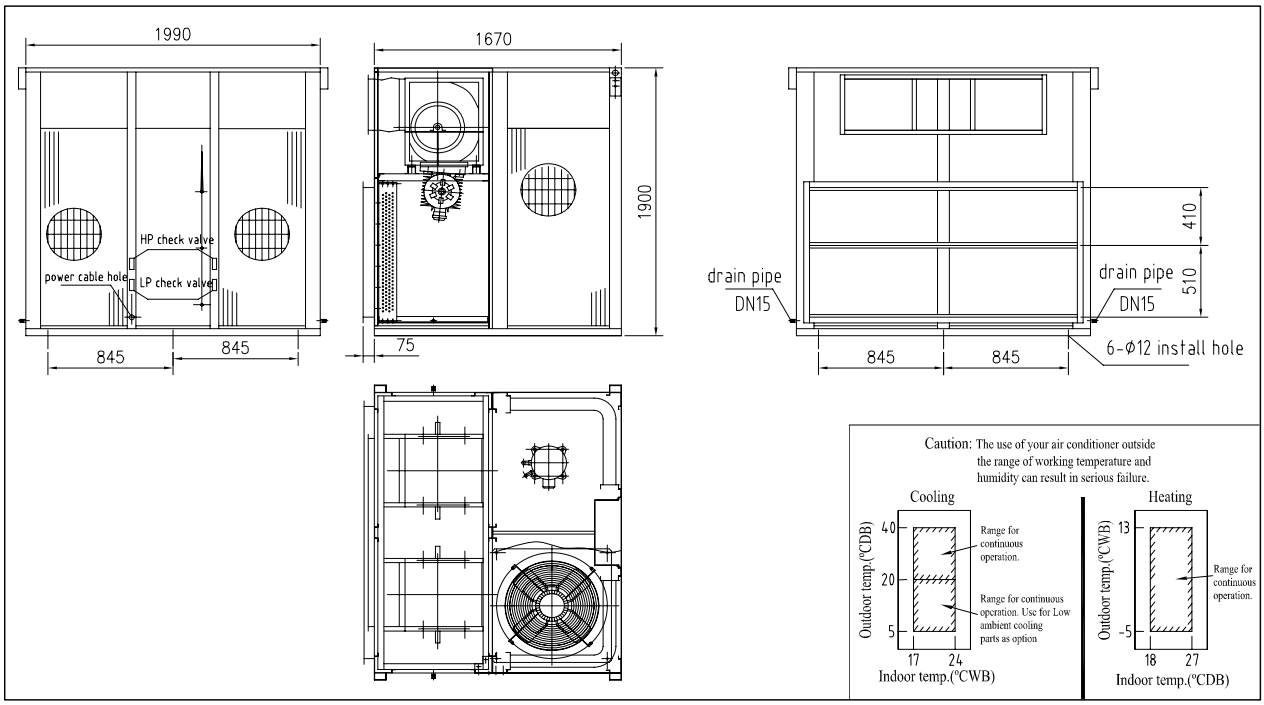
KM1,2	Compressor 1,2 contactor	LC1-D3201M5N	KA1,2	Thermal overload	RXZE1M2C
KM3,4	Outdoor Fan contactor	LC1-D0601M5N	ST1,2	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3,4	Outdoor sensor	
CM1,2	Compressor	JT265D-Y1L			
CFM1,2	Outdoor Fan				
HP	Compressor HP switch	P20DE			
HP1,2	Compressor HP protector	P830			
LP1,2	Compressor LP protector	P830			
SR3,4	Fan inside protector				
YV1,2	4-way valve	C10C01S			

RTH 56

Rooftop Package

Information Sheet

RTH 67



MODEL			RTH 67
Total Cooling Capacity		kW	64.26
Sensible Cooling Capacity		kW	53.11
Heating Capacity		kW	69.22
Running Amps Cooling		A	44
Running Amps Heating		A	40.5
		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.86 / 13.94
Electric Heating		kW	30
Ambient		ºC	35
Altitude		masl	0
FLA		A	56
Sound Power Levels		dB(A)	72
Evap. Fan Data	Type Fan / Drive		KDFQ3.5 / Belt Drive
	Air Flow	l/s	3,700
	ESP	Pa	300
Evap. Fan Motor	Motor Output	kW	2 x 2.2
	Running Current	A	2 x 4.5
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Filter	Quantity / Arrangement		6
	Type		Panel Air Filter
	Size	mm	400 x 600 x 50
Cond. Fan Data	Motor Output	kW	2 x 0.75
	Running Current	A	2 x 1.6
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Compressor	Type		2 x JT335D
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	2 x 15.93 / 2 x 14.15
	Locked Rotor Amps	A	110
Stages			100 / 50 / 0
Refrigerant			R22
Dimensions	Length	mm	1990
	Width	mm	1670
	Height	mm	1900
Weight		kg	1200

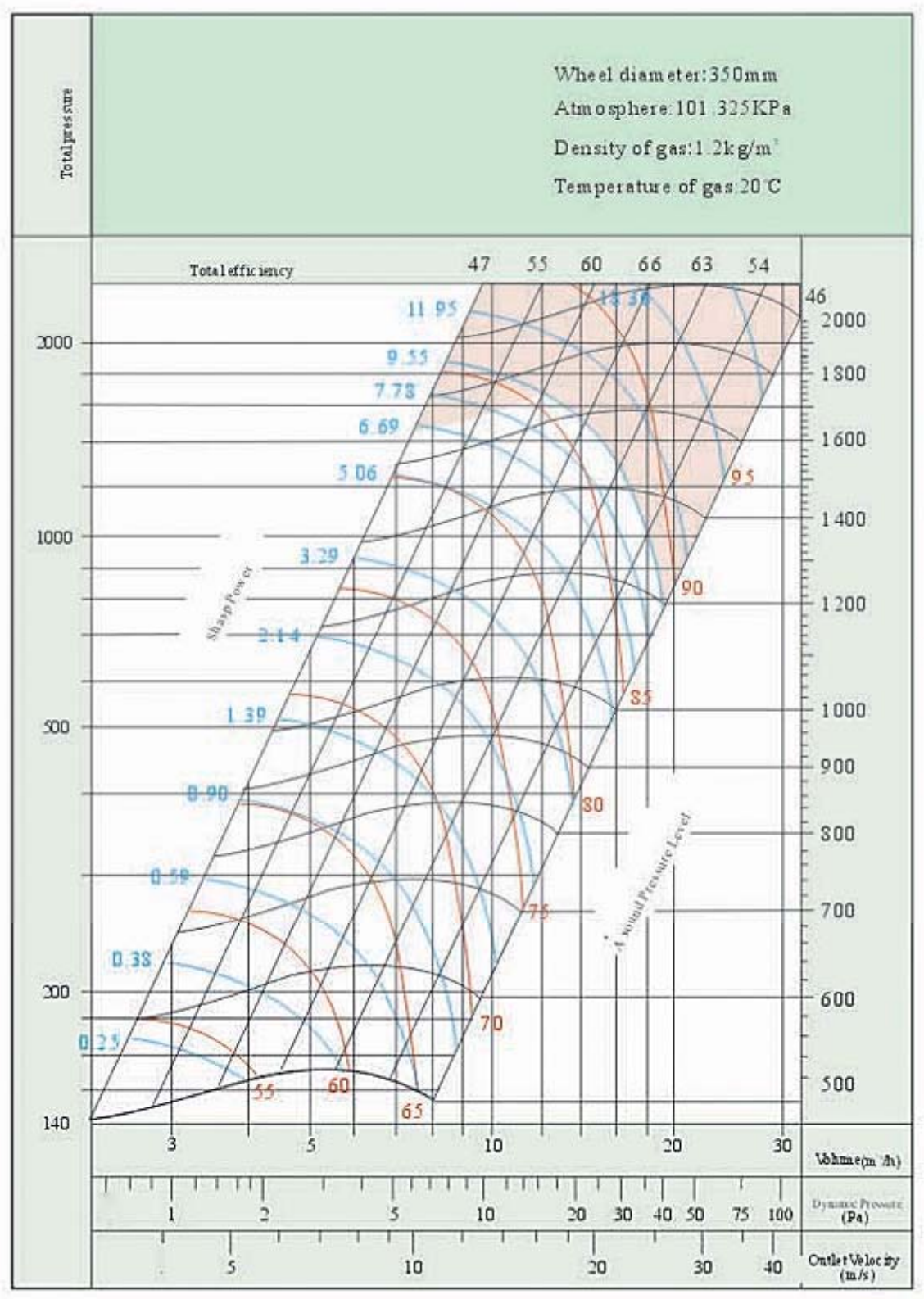
PleaseNote:

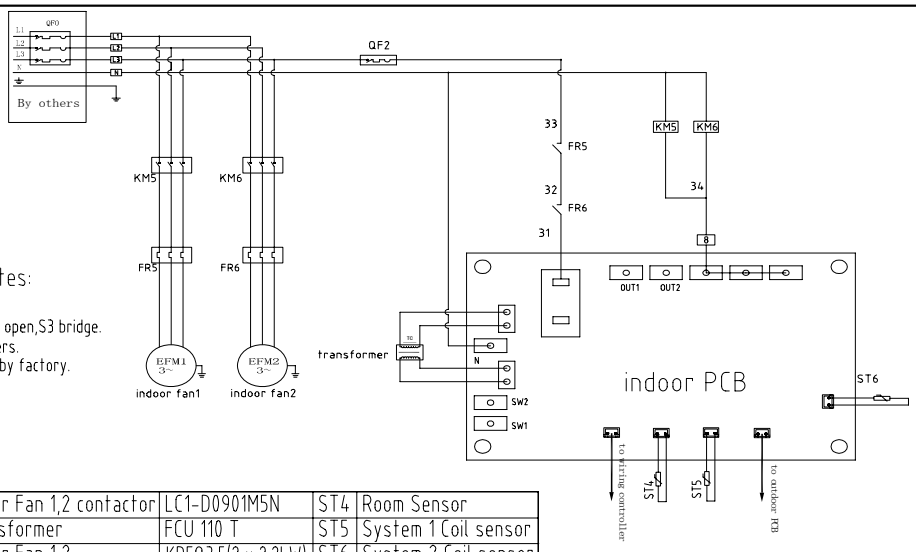
COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDFQ 3.5



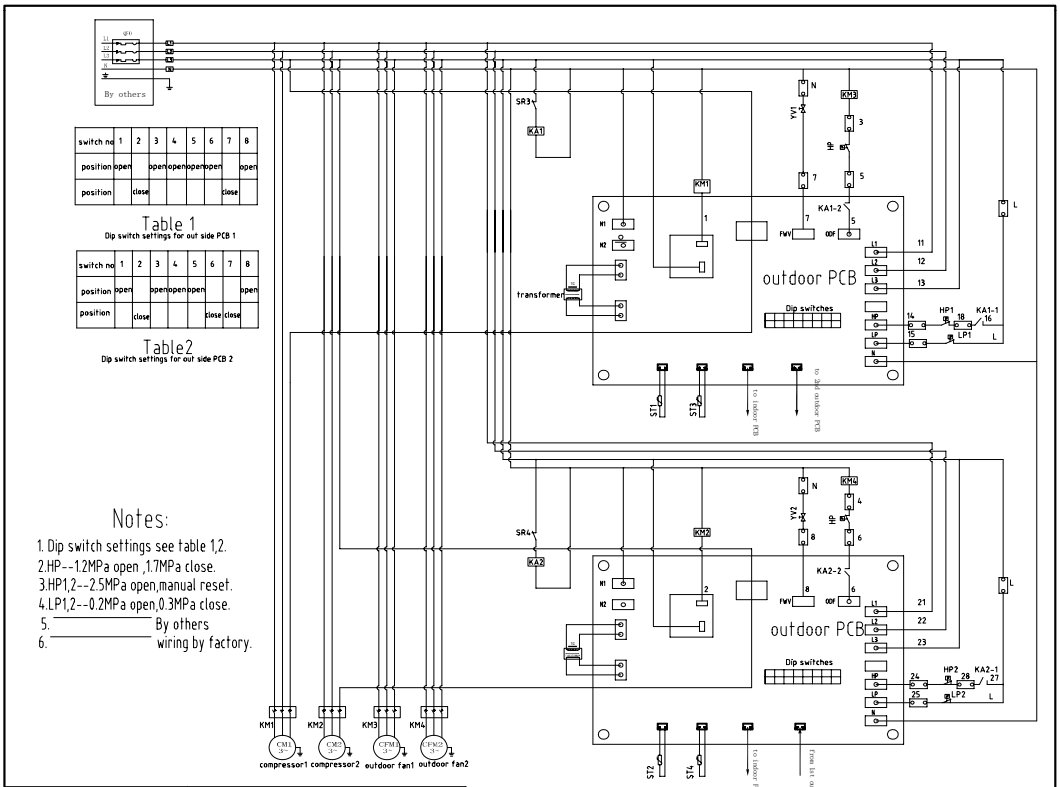


Notes:

2. JumpS1,S2,S4 open,S3 bridge.
3. _____ By others.
4. _____ Wiring by factory.

KM5,6	Indoor Fan 1,2 contactor	LC1-D0901M5N	ST4	Room Sensor
TC	Transformer	FCU 110 T	ST5	System 1 Coil sensor
EFM1,2	Indoor Fan 1,2	KDFQ3.5(2 x 2.2kW)	ST6	System 2 Coil sensor
QF2	Air Switch	4 A		
FR5,6	Overload	LR2-LR2-D1314N		

RTH 67



Notes:

1. Dip switch settings see table 1,2.
2. HP--1.2MPa open ,1.7MPa close.
3. HP1,2--2.5MPa open,manual reset.
4. LP1,2--0.2MPa open,0.3MPa close.
5. _____ By others
6. _____ wiring by factory.

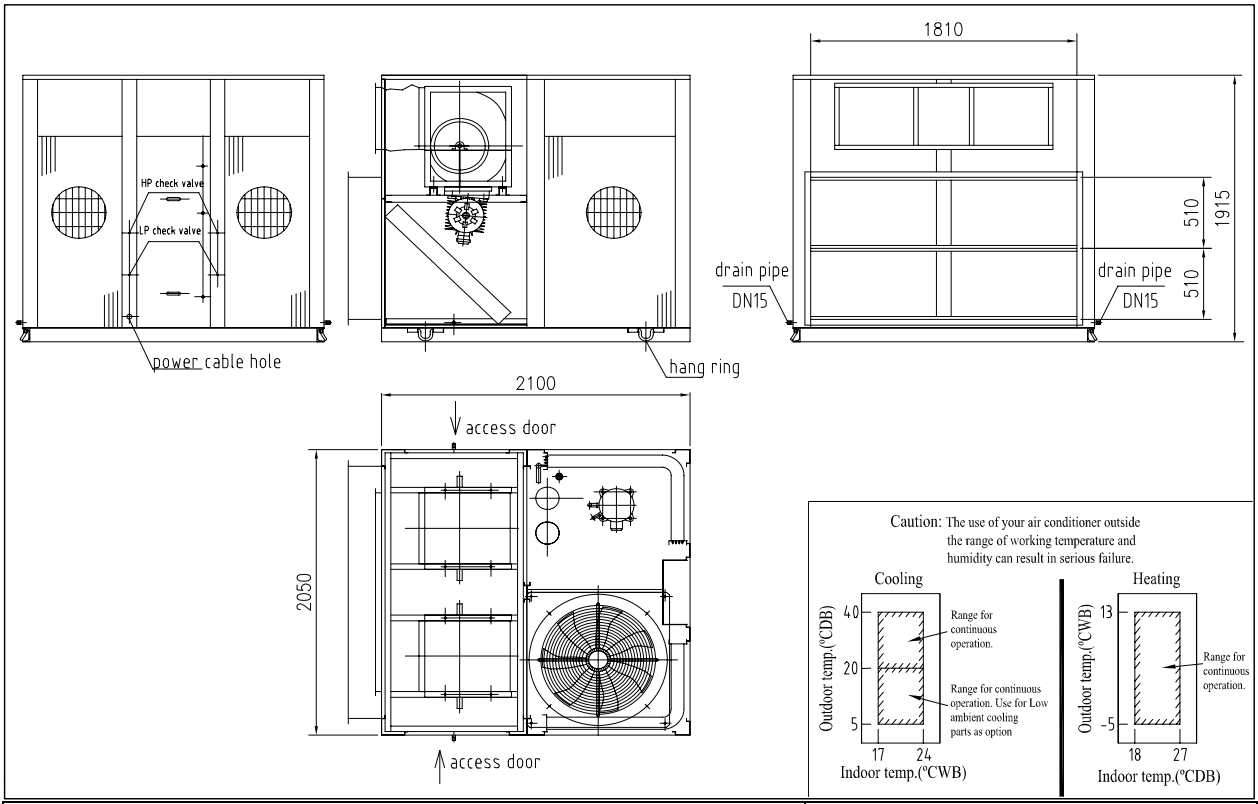
KM1,2	Compressor 1,2 contactor	LC1-D3201M5N	KA1,2	Thermal overload	RXZE1M2C
KM3,4	Outdoor Fan contactor	LC1-D0601M5N	ST1,2	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3,4	Outdoor sensor	
CM1,2	Compressor	JT33SD			
CFM1,2	Outdoor Fan				
HP	Compressor HP switch	P20DE			
HP1,2	Compressor HP protector	P830			
LP1,2	Compressor LP protector	P830			
SR3,4	Fan inside protector				
YV1,2	4-way valve	C10C01S			

RTH 67

Rooftop Package

Information Sheet

RTH 90



MODEL			RTH 90
Total Cooling Capacity		kW	85.52
Sensible Cooling Capacity		kW	68.58
Heating Capacity		kW	93.77
Running Amps Cooling		A	66.5
Running Amps Heating		A	64
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.58 / 13.64
Electric Heating		kW	42
Ambient		ºC	35
Altitude		masl	0
FLA		A	82
Sound Power Levels		dB(A)	74
Evap. Fan Data	Type Fan / Drive		KDFQ4.0 / Belt Drive
	Air Flow	l/s	4,667
	ESP	Pa	350
Evap. Fan Motor	Motor Output	kW	2 x 4.0
	Running Current	A	2 x 8.0
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Filter	Quantity / Arrangement		6
	Type		Panel Air Filter
	Size	mm	500 x 600 x 50
Cond. Fan Data	Motor Output	kW	2 x 1.52
	Running Current	A	2 x 2.97
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Compressor	Type		2 x SM185
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	2 x 22.3 / 2 x 20.92
	Locked Rotor Amps	A	156
Stages			100 / 50 / 0
Refrigerant			R22
Dimensions	Length	mm	2050
	Width	mm	2100
	Height	mm	1915
Weight		kg	1700

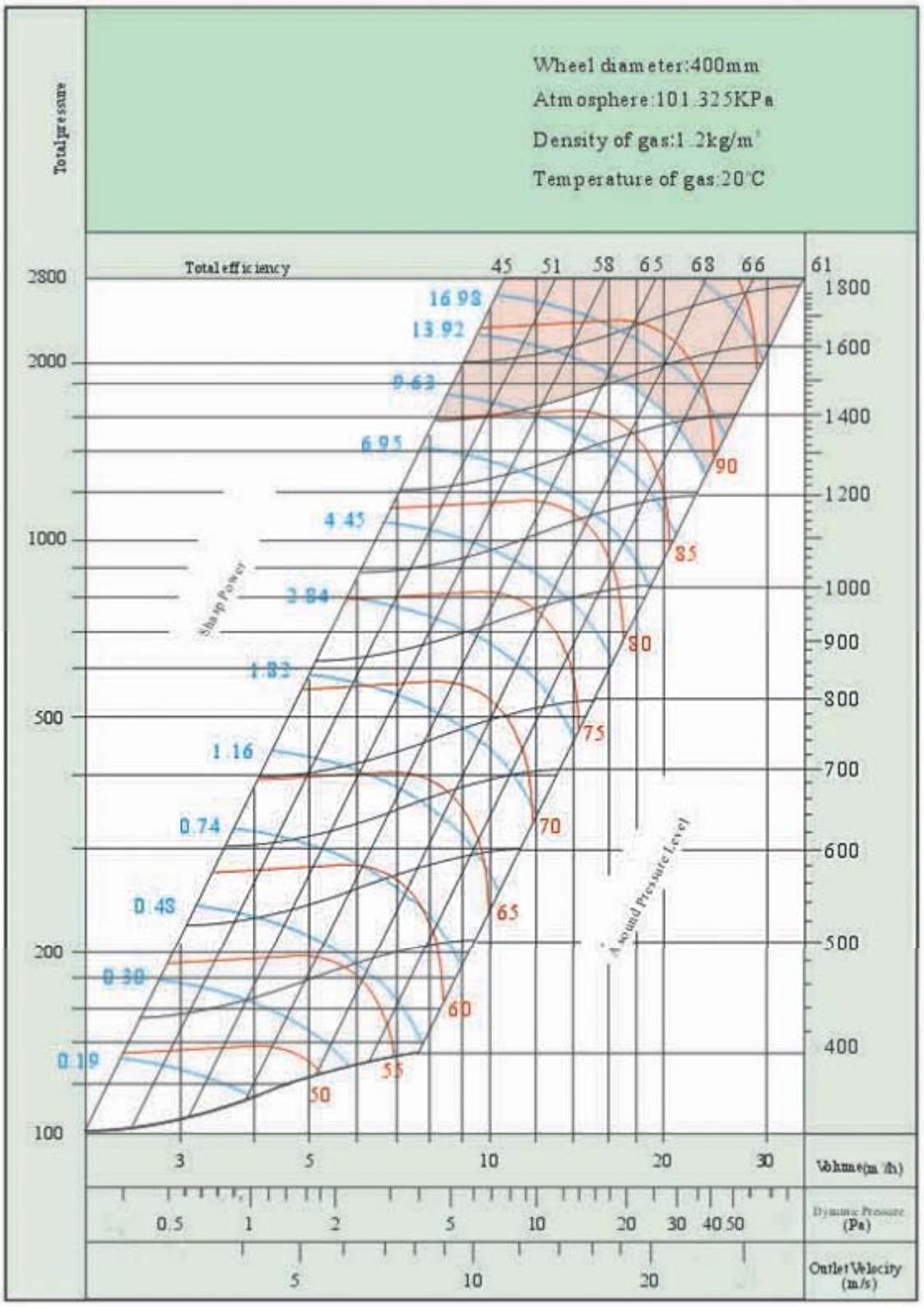
PleaseNote:

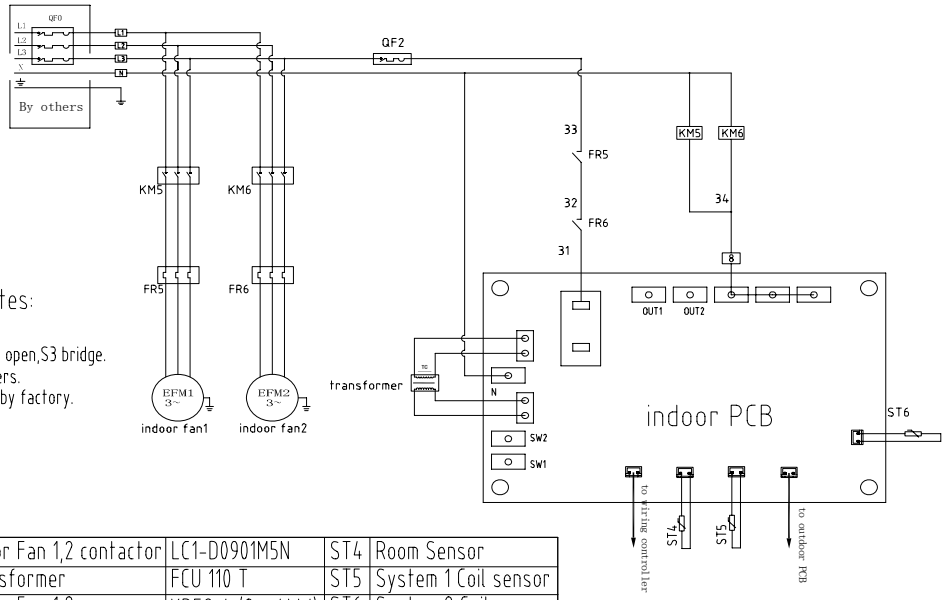
COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDFQ 4.0



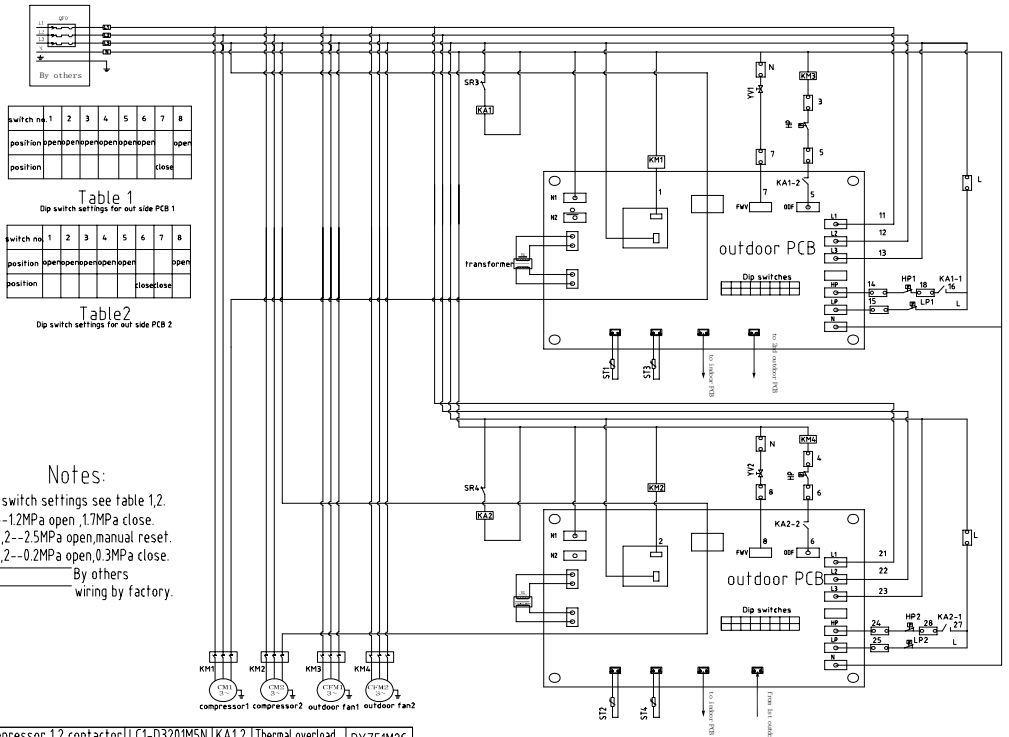


Notes:

2. JumpS1,S2,S4 open,S3 bridge.
3. ——— By others.
4. ——— Wiring by factory.

KM5,6	Indoor Fan 1,2 contactor	LC1-D0901M5N	ST4	Room Sensor
TC	Transformer	FCU 110 T	ST5	System 1 Coil sensor
EFM1,2	Indoor Fan 1,2	KDFQ 4 (2 x 4kW)	ST6	System 2 Coil sensor
QF2	Air Switch	4 A		
FR5,6	Overload	LR2-LR2-D1312N		

RTH 90



Notes:

1. Dip switch settings see table 1,2.
2. HP--1.2MPa open ,1.7MPa close.
3. HP1,2--2.5MPa open,manual reset.
4. LP1,2--0.2MPa open,0.3MPa close.
5. _____ By others
6. _____ wiring by factory.

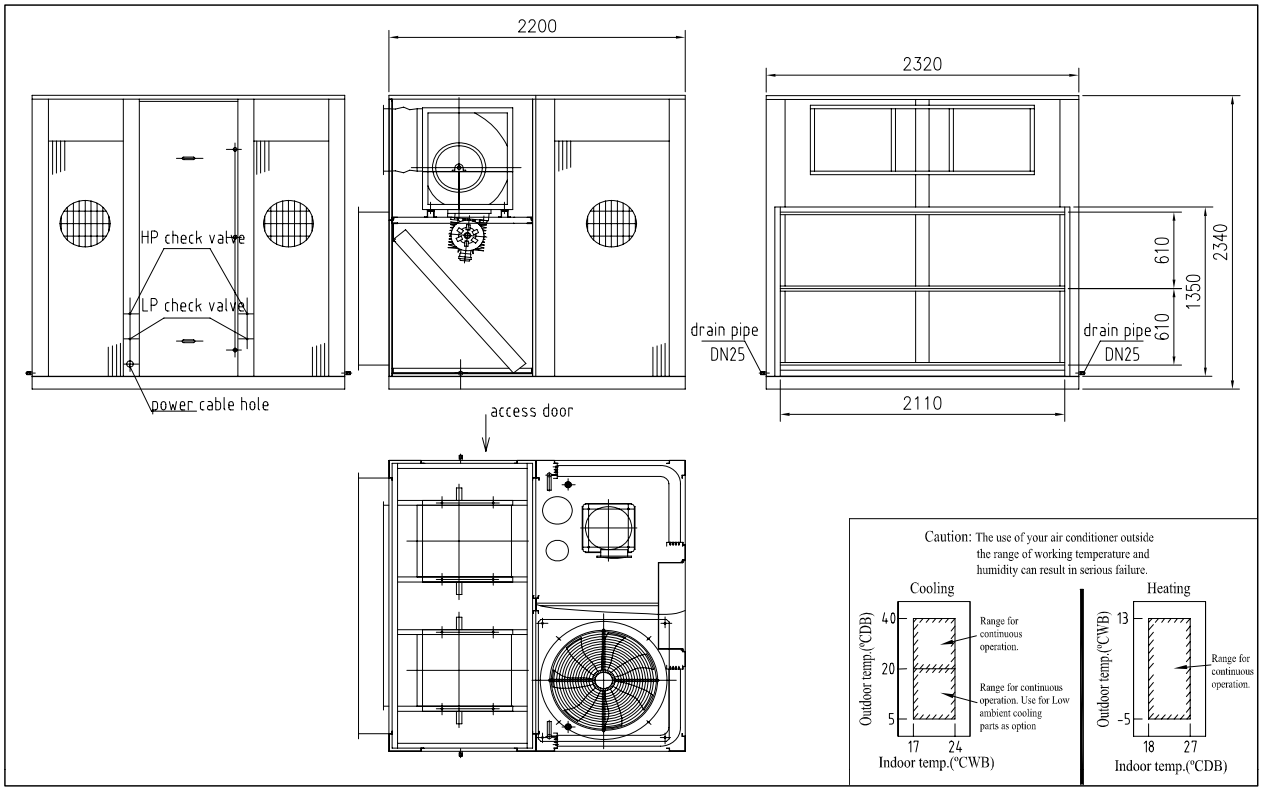
KM1,2	Compressor 1,2 contactor	LC1-D3201M5N	KA1,2	Thermal overload	RX7E1M2C
KM3,4	Outdoor Fan contactor	LC1-D0601M5N	ST1,2	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3,4	Outdoor sensor	
CM1,2	Compressor	SM185			
CFM1,2	Outdoor Fan				
HP	Compressor HP switch	P20DE			
HP1,2	Compressor HP protector	P830			
LP1,2	Compressor LP protector	P830			
SR3,4	Fan inside protector				
YV1,2	4-way valve	STF-1511			

RTH 90

Rooftop Package

Information Sheet

RTH 120



MODEL			RTH 120
Total Cooling Capacity		kW	118
Sensible Cooling Capacity		kW	97.42
Heating Capacity		kW	126.63
Running Amps Cooling		A	78
Running Amps Heating		A	71
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.89 / 13.95
Electric Heating		kW	57
Ambient		ºC	35
Altitude		masl	0
FLA		A	94
Sound Power Levels		dB(A)	74
Evap. Fan Data	Type Fan / Drive		KDFQ4.5 / Belt Drive
	Air Flow	l/s	6,800
	ESP	Pa	320
Evap. Fan Motor	Motor Output	kW	2 x 5.5
	Running Current	A	2 x 11
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Filter	Quantity / Arrangement		2 + 5
	Type		Panel Air Filter
	Size	mm	600 x 600 x 50 + 600 x 500 x 50
Cond. Fan Data	Motor Output	kW	2 x 1.50
	Running Current	A	2 x 2.93
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Gal
	FPI		12
Compressor	Type		2 x SY240
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (coo/heat)	A	2 x 25.02 / 2 x 21.72
	Locked Rotor Amps	A	175
Stages			100 / 50 / 0
Refrigerant			R22
Dimensions	Length	mm	2320
	Width	mm	2200
	Height	mm	2340
Weight		kg	2500

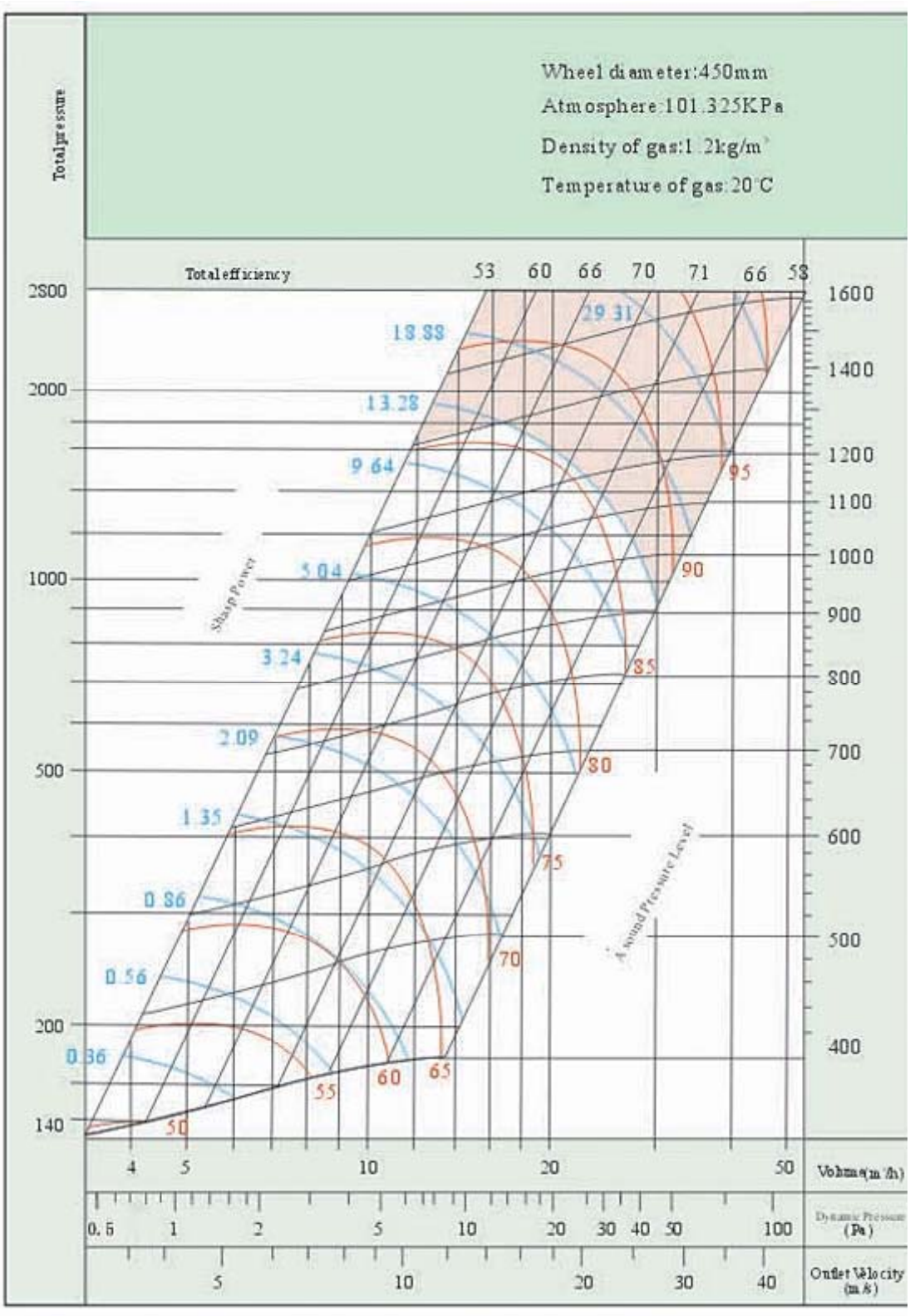
PleaseNote:

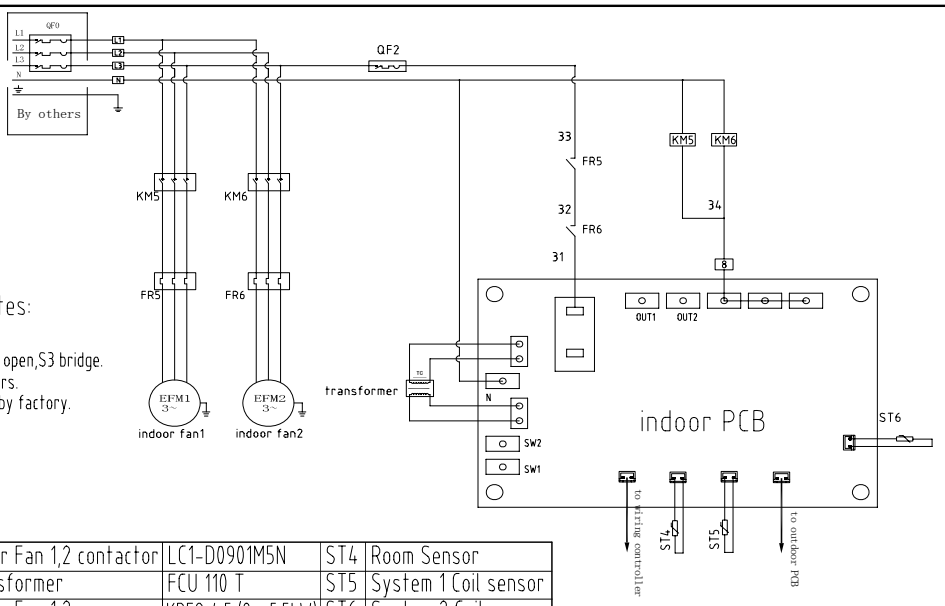
COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Evaporator Fan Curve for KDFQ 4.5



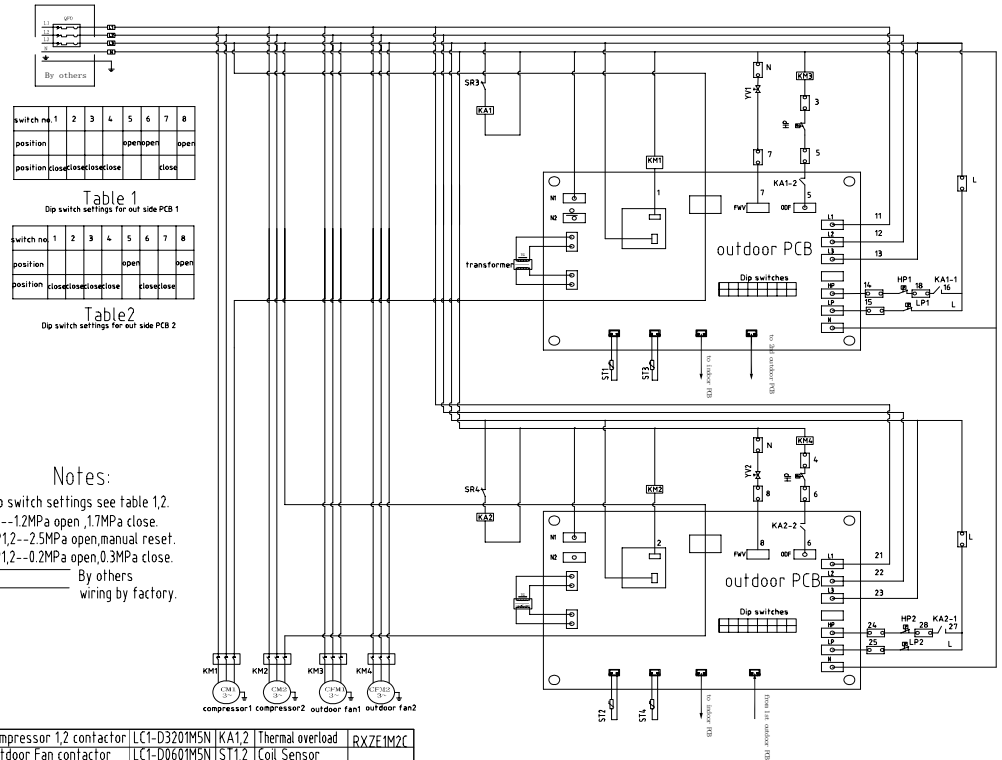


Notes:

2.JumpS1,S2,S4 open,S3 bridge.
3. —— By others.
4. —— Wiring by factory.

KM5,6	Indoor Fan 1,2 contactor	LC1-D0901M5N	ST4	Room Sensor
TC	Transformer	FCU 110 T	ST5	System 1 Coil sensor
EFM1,2	Indoor Fan 1,2	KDFQ 4.5 (2 x 5.5kW)	ST6	System 2 Coil sensor
QF2	Air Switch	4 A		
FR5,6	Overload	LR2-D1312N		

RTH 120



switch no.	1	2	3	4	5	6	7	8
position					open	open		open
position	close	close	close	close	close		close	

Table 1
Dip switch settings for out side PCB 1

switch no.	1	2	3	4	5	6	7	8
position					open			open
position	close	close	close	close	close	close	close	

Table2
Dip switch settings for out side PCB 2

Notes:

1. Dip switch settings see table 1,2.
2.HP--1.2MPa open ,1.7MPa close.
3.HP1,2--2.5MPa open,manual reset.
4.LP1,2--0.2MPa open,0.3MPa close.
5. ———— By others
6. ———— wiring by factory.

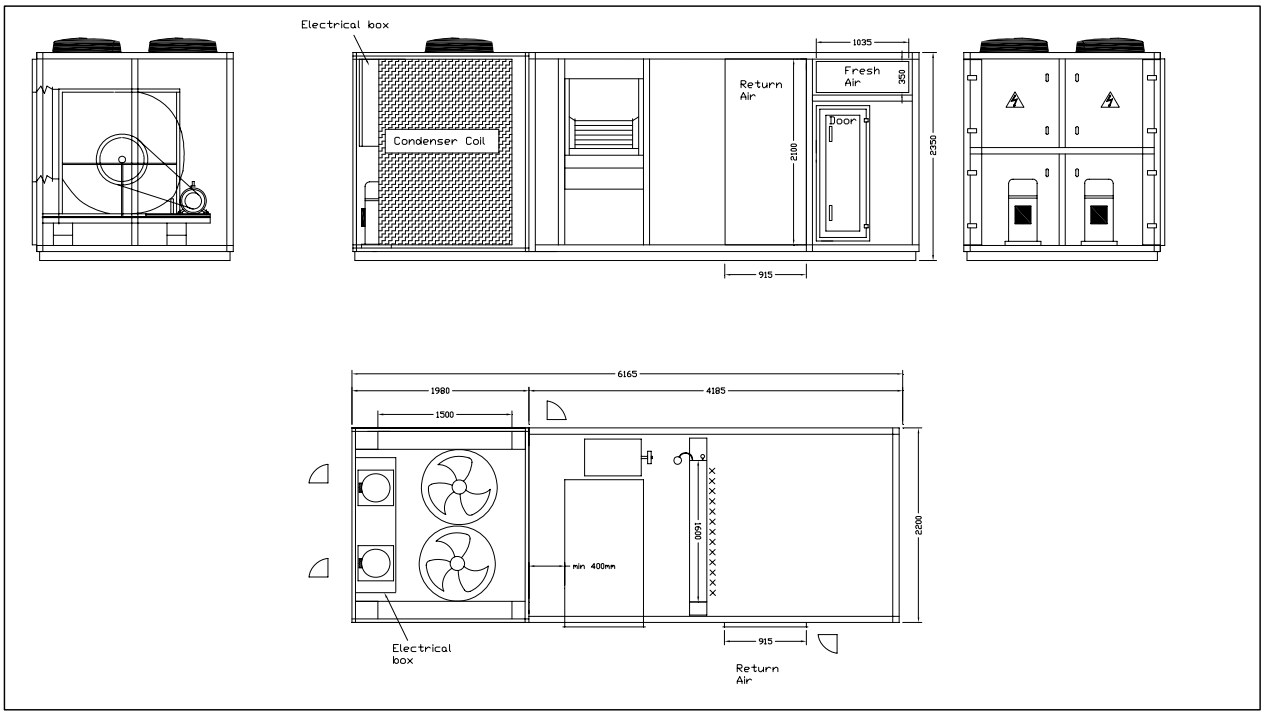
KM1,2	Compressor 1,2 contactor	LC1-D3201M5N	KA1,2	Thermal overload	RXZE1M2C
KM3,4	Outdoor Fan contactor	LC1-D0601M5N	ST1,2	Coil Sensor	
TC1	Transformer	FCU 110 T	ST3,4	Outdoor sensor	
CM1,2	Compressor	SY 240			
CFM1,2	Outdoor Fan				
HP	Compressor HP switch	P20DE			
HP1,2	Compressor HP protector	P830			
LP1,2	Compressor LP protector	P830			
SR3,4	Fan inside protector				
YV1,2	4-way valve	STF-1511			

RTH 120

Rooftop Package

Information Sheet

RTH 160



MODEL			RTH 160
Total Cooling Capacity		kW	157
Sensible Cooling Capacity		kW	123.8
Heating Capacity		kW	102
Running Amps Cooling		A	112.7
Running Amps Heating		A	97.9
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.7 / 13.5
Electric Heating		kW	N / A
Ambient		ºC	35
Altitude		masl	0
FLA		A	344
Sound Power Levels		dB(A)	78
Evap. Fan Data	Type Fan / Drive		KDFQ 6.3 / Belt Drive
	Air Flow	l/s	8,400
	ESP	Pa	300
Evap. Fan Motor	Motor Output	kW	15
	Running Current	A	28.5
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		3 x 4
	Type		50mm Washable Pleated
	Size	mm	4 x 500 x 500 x 50 + 8 x 600 x 500 x 50
Cond. Fan Data	Motor Output	kW	4 x 0.68
	Running Current	A	4 x 1.7
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		2 x SY300
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	38.7 / 31.3
	Locked Rotor Amps	A	270
Stages			2
Refrigerant			R22
Dimensions	Length	mm	6165
	Width	mm	2200
	Height	mm	2350
Weight		kg	2208

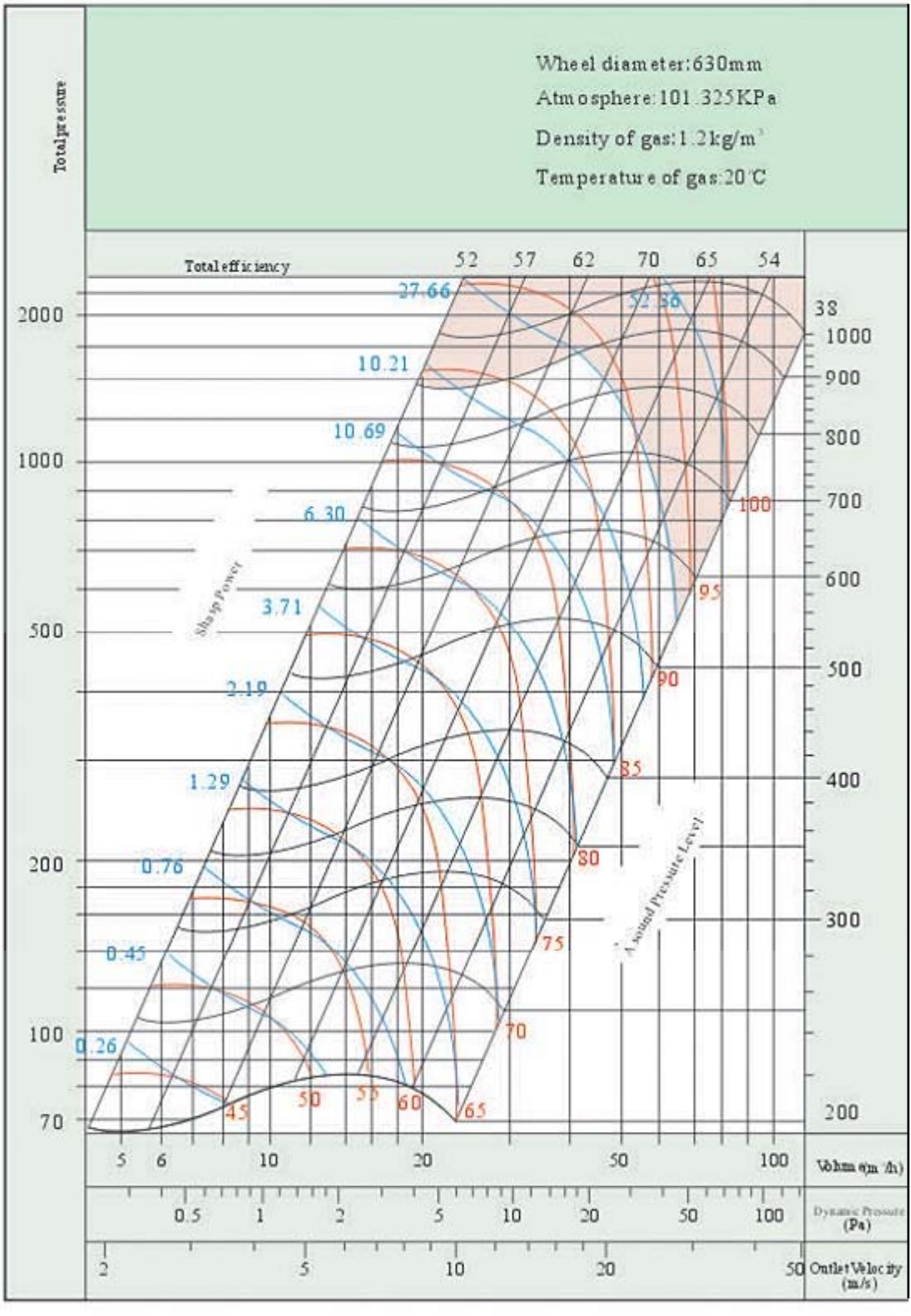
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

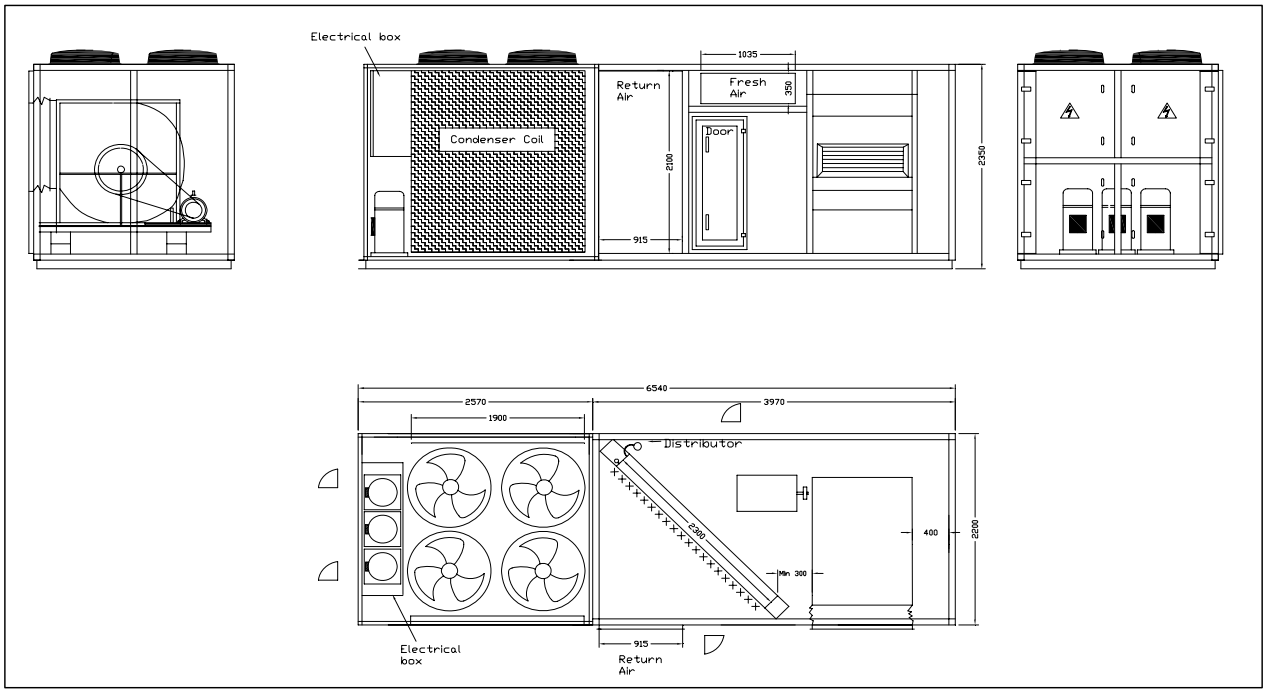
Fan Curve for KDFQ 6.3 Belt Drive



Rooftop Package

Information Sheet

RTH 205



MODEL			RTH 205
Total Cooling Capacity		kW	198.8
Sensible Cooling Capacity		kW	158.3
Heating Capacity		kW	201
Running Amps Cooling		A	169.31
Running Amps Heating		A	132.1
On Coil ºC DB / ºC WB		ºC	27/ 19
Off Coil ºC DB / ºC WB		ºC	14.9 / 13.6
Electric Heating		kW	N/A
Ambient		ºC	35
Altitude		masl	0
FLA		A	398
Sound Power Levels		dB(A)	77.9
Evap. Fan Data	Type Fan / Drive		KDFQ 8.0 / Belt Drive
	Air Flow	l/s	10,824
	ESP	Pa	300
Evap. Fan Motor	Motor Output	kW	15
	Running Current	A	30.3
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		3 x 4
	Type		50mm Washable Pleated
	Size	mm	600 x 600 x 9 + 500x600x3
Cond. Fan Data	Motor Output	kW	4 x 2.9
	Running Current	A	4 x 8.5
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		2 x SY300 + 1 xSM185
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	22.21 + 2x41.40
	Locked Rotor Amps	A	270 / 175
Stages			3
Refrigerant			R22
Dimensions	Length	mm	6540
	Width	mm	2200
	Height	mm	2350
Weight		kg	3745

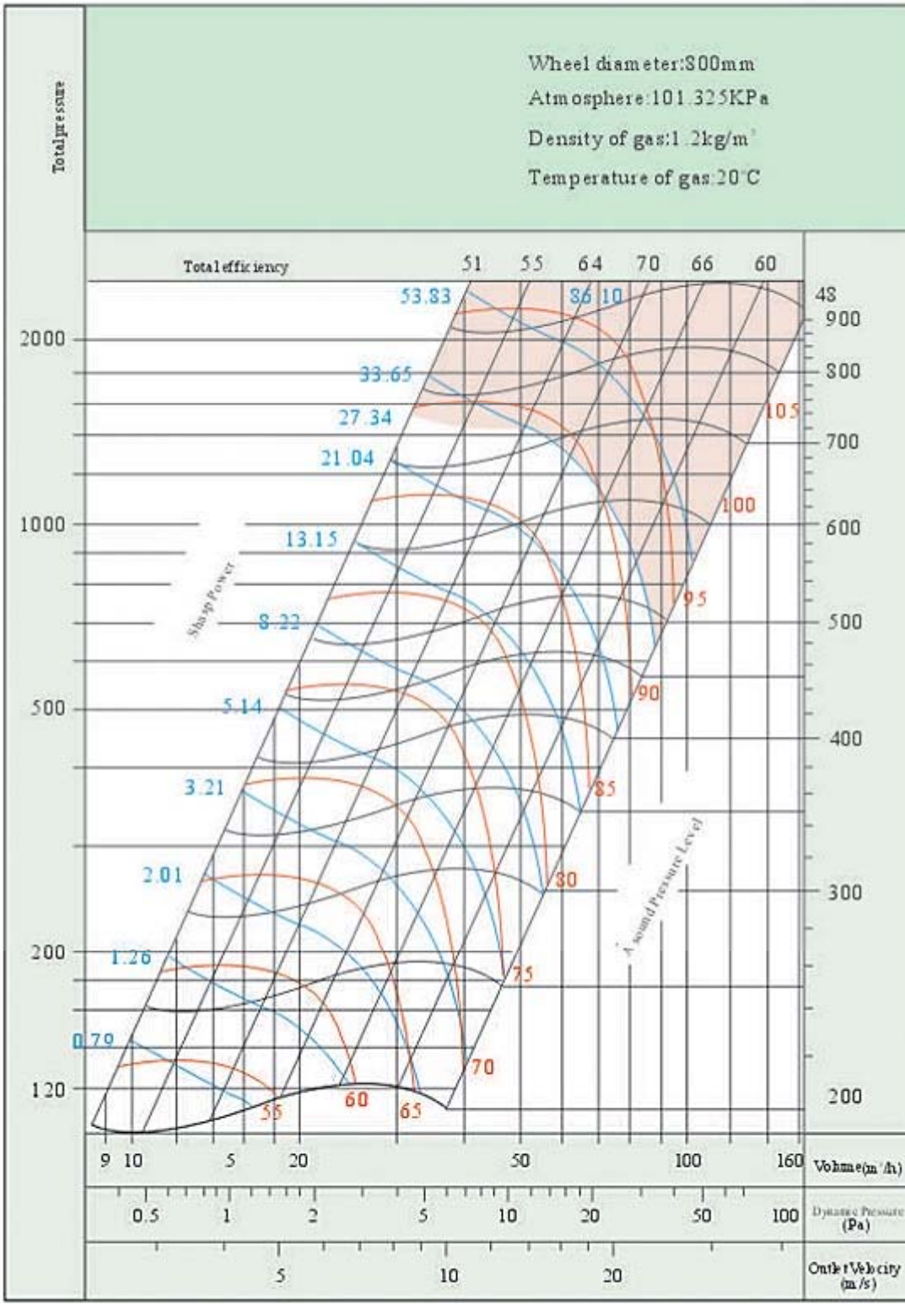
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

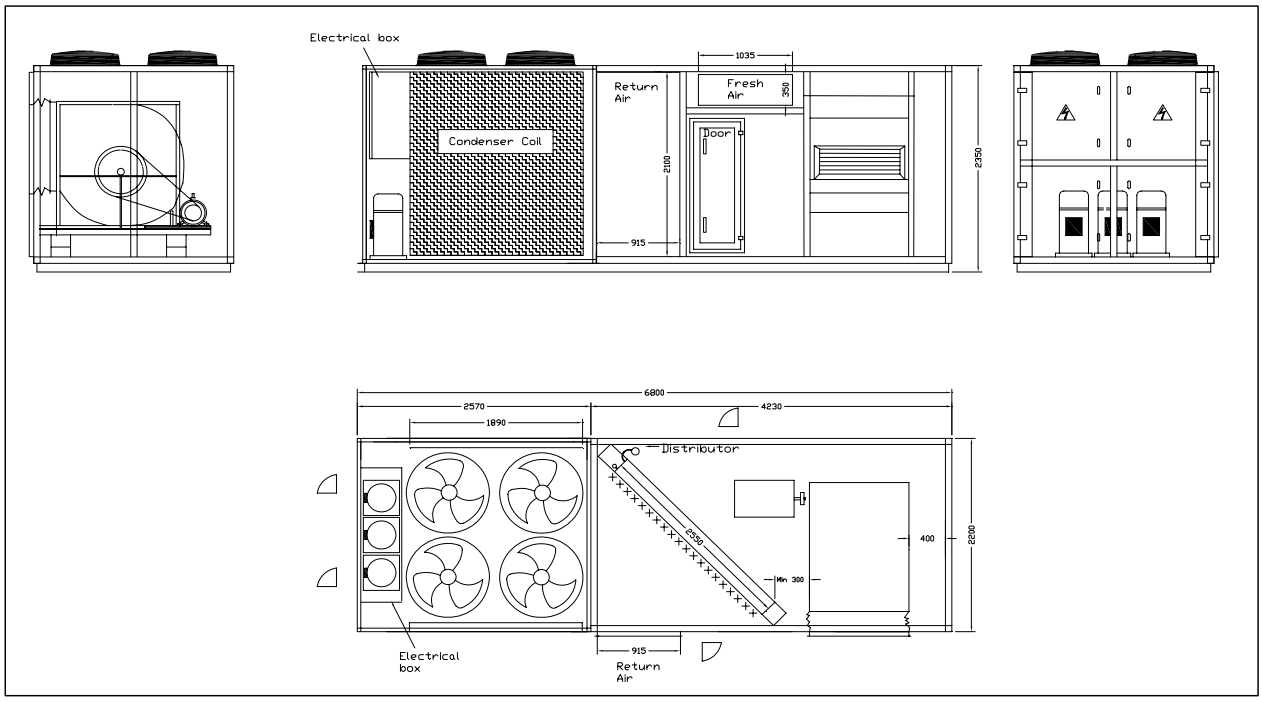
Fan Curve for KDFQ 8.0 Belt Drive



Rooftop Package

Information Sheet

RTH 225



MODEL			RTH 225
Total Cooling Capacity		kW	224.3
Sensible Cooling Capacity		kW	186.2
Heating Capacity		kW	229
Running Amps Cooling		A	174.56
Running Amps Heating		A	153.34
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	15.5/14.2
Electric Heating		kW	N/A
Ambient		ºC	35
Altitude		masl	0
FLA		A	406
Sound Power Levels		dB(A)	80
Evap. Fan Data	Type Fan / Drive		KDFQ 8.0 / Belt Drive
	Air Flow	l/s	13,387
	ESP	Pa	300
Evap. Fan Motor	Motor Output	kW	18.5
	Running Current	A	37
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		8 + 8 / 4 x 4
	Type		50mm Washable Pleated
	Size	mm	600 x 500 x 50 + 600 x 600 x 50
Cond. Fan Data	Motor Output	kW	4 x 2.2
	Running Current	A	4 * 6.6
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		SY240 + 2 x SY300
	Power Supply	V/Ph/Hz	380 / 3 / 50
	Running Current (cool/heat)	A	32.22 + 39.47 / 24.94 + 32.5
	Locked Rotor Amps	A	215 / 270
Stages			3
Refrigerant			R22
Dimensions	Length	mm	6800
	Width	mm	2200
	Height	mm	2350
Weight		kg	3996

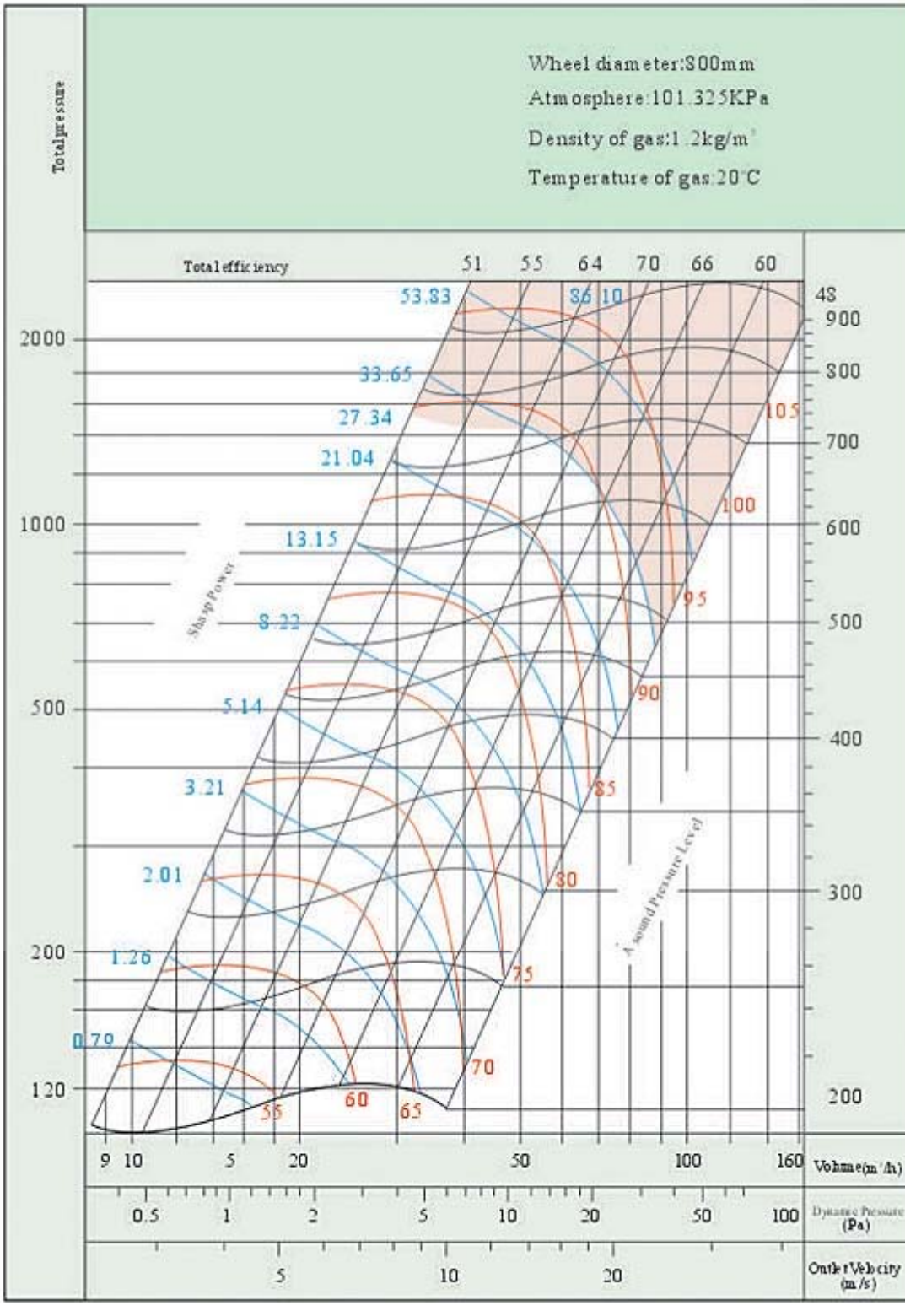
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

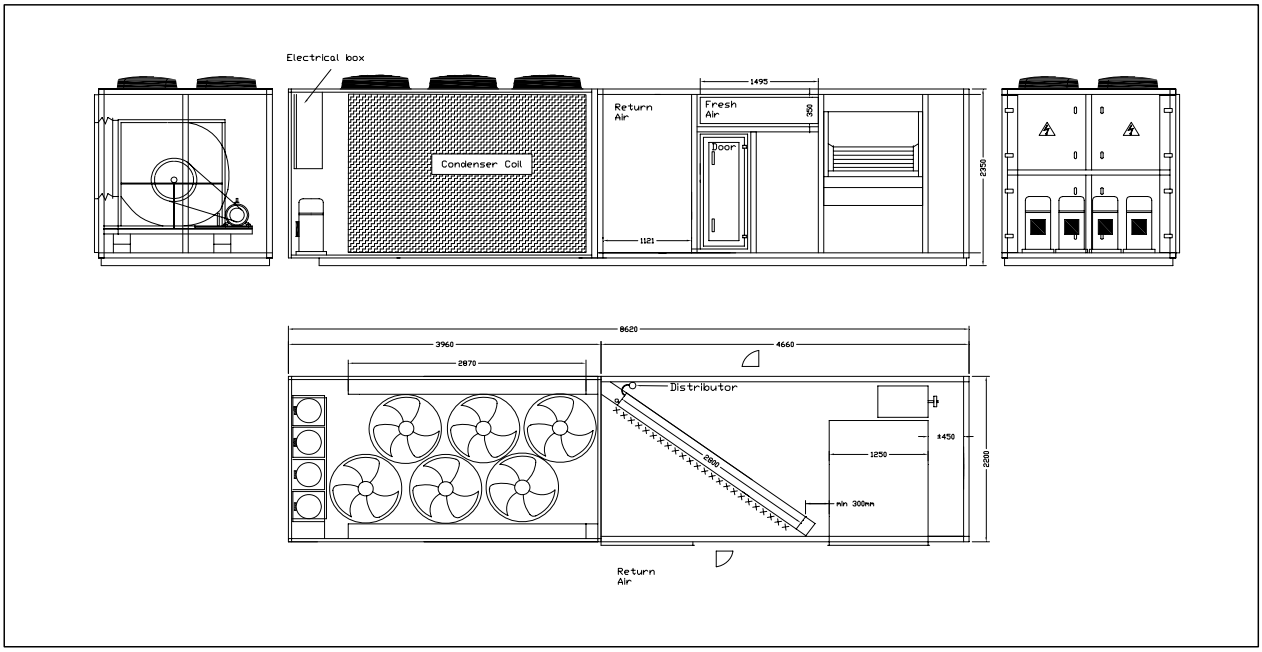
Fan Curve for KDFQ 8.0 Belt Drive



Rooftop Package

Information Sheet

RTH 285



MODEL			RTH 285
Total Cooling Capacity		kW	285.2
Sensible Cooling Capacity		kW	222.2
Heating Capacity		kW	303
Running Amps Cooling		A	223.72
Running Amps Heating		A	208.78
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.6 / 13.4
Electric Heating		kW	N / A
Ambient		ºC	35
Altitude		masl	0
FLA		A	457
Sound Power Levels		dB(A)	78.7
Evap. Fan Data	Type Fan / Drive		KDFQ 9.0 / Belt Drive
	Air Flow	l/s	14,932
	ESP	Pa	300
Evap. Fan Motor	Motor Output	kW	18.5
	Running Current	A	37
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		20 / 4 x 5
	Type		50 mm Washable Pleated
	Size	mm	3 x 500 x 500 + 4 x 600 x 600 + 13 x 500 x 600
Cond. Fan Data	Motor Output	kW	2.9 x 6
	Running Current	A	8.5 x 6
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		2 x SY240 + 2 x SY300
	Power Supply	V/Ph/Hz	400 / 50 / 3
	Running Current (cool/heat)	A	30.78/27.33 + 37.08/33.06
	Locked Rotor Amps	A	215 / 270
Stages			4
Refrigerant			R22
Dimensions	Length	mm	8620
	Width	mm	2200
	Height	mm	2350
Weight		kg	3222

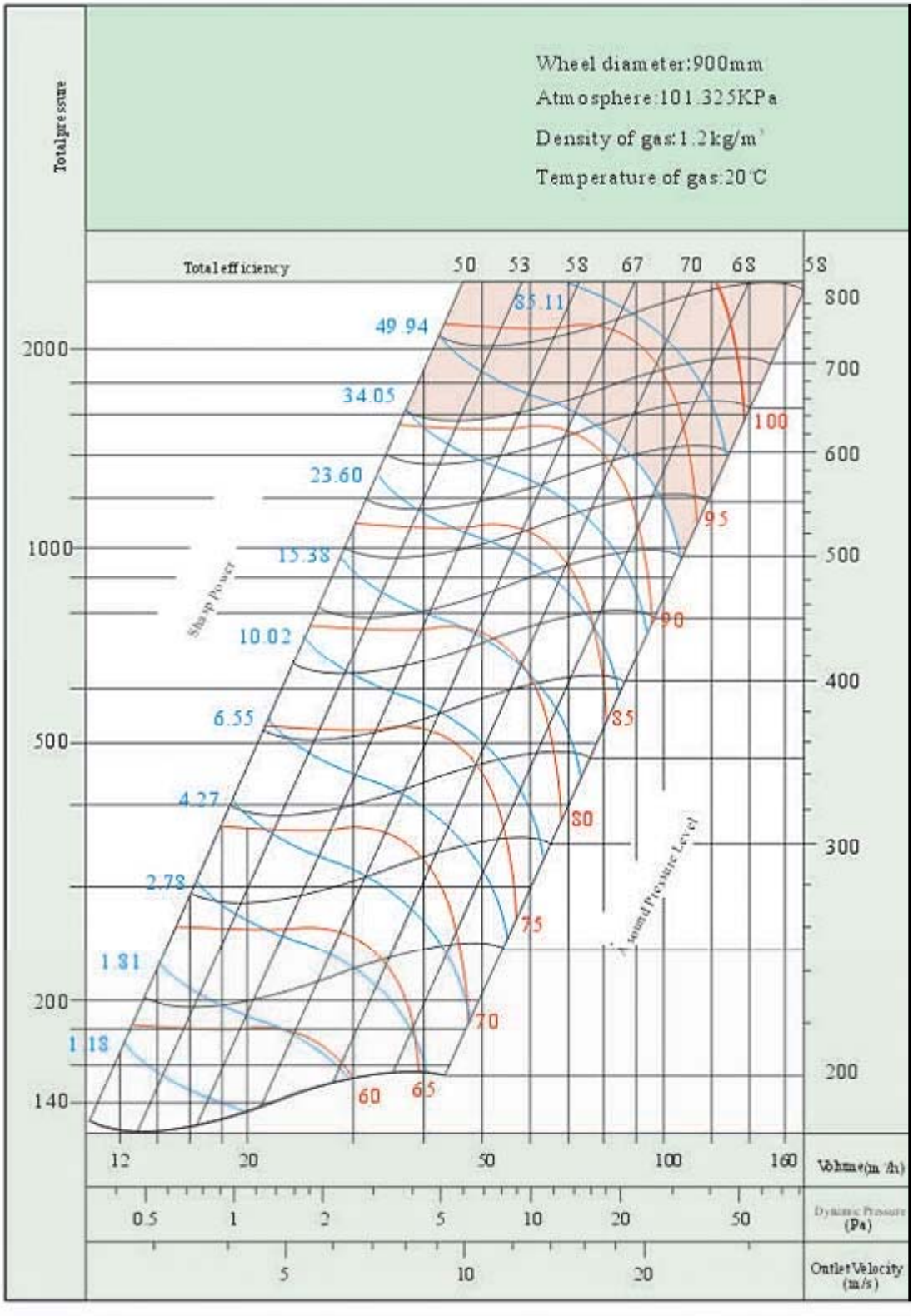
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

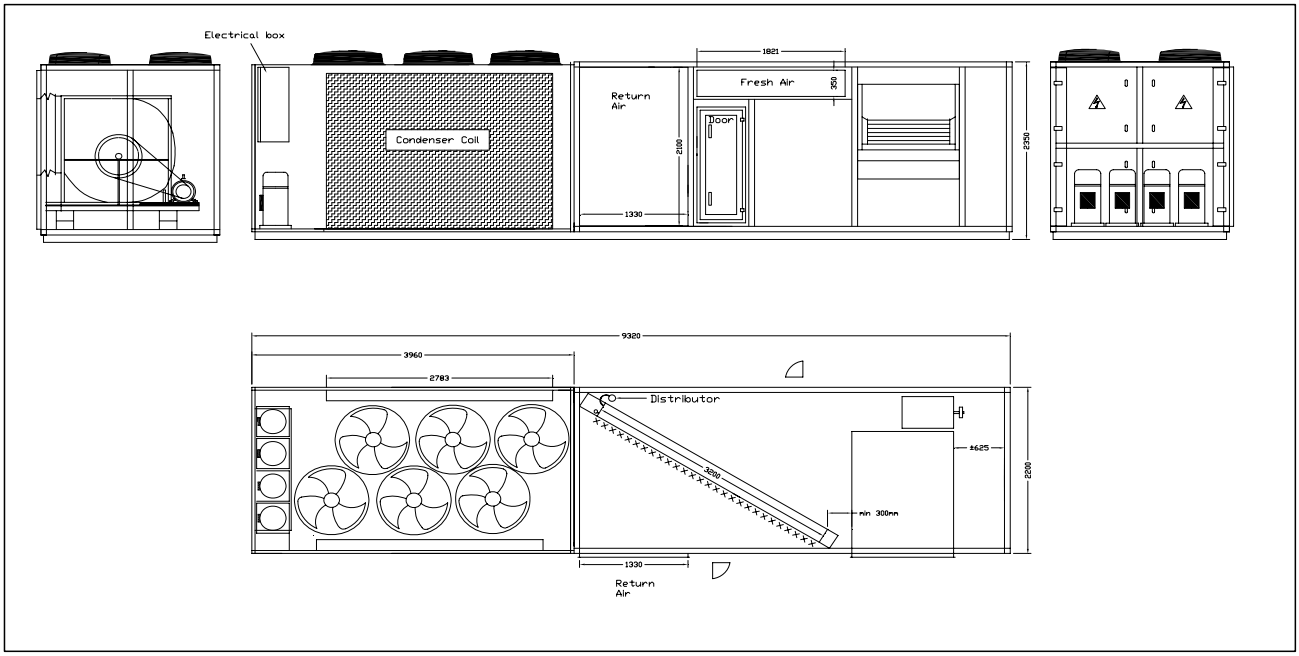
Fan Curve for KDFQ 9.0 Belt Drive



Rooftop Package

Information Sheet

RTH 310



MODEL			RTH 310
Total Cooling Capacity		kW	307.6
Sensible Cooling Capacity		kW	245.2
Heating Capacity		kW	317
Running Amps Cooling		A	268.9
Running Amps Heating		A	239.1
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	14.8 / 13.6
Electric Heating		kW	N/A
Ambient		ºC	35
Altitude		masl	0
FLA		A	499
Sound Power Levels		dB(A)	81.2
Evap. Fan Data	Type Fan / Drive		KDFQ 9.0 / Belt Drive
	Air Flow	l/s	16,800
	ESP	Pa	400
Evap. Fan Motor	Motor Output	kW	30
	Running Current	A	56.8
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		24 / 4 x 6
	Type		50 mm Washable Pleated
	Size	mm	16 x 500 x 500 + 8 x 500 x 600
Cond. Fan Data	Motor Output	kW	30
	Running Current	A	56.8
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		4 x SY300
	Power Supply	V/Ph/Hz	400 / 3 / 50
	Running Current (cool/heat)	A	40.27 / 32.82
	Locked Rotor Amps	A	270
Stages			4
Refrigerant			R22
Dimensions	Length	mm	9320
	Width	mm	2200
	Height	mm	2350
Weight		kg	5190

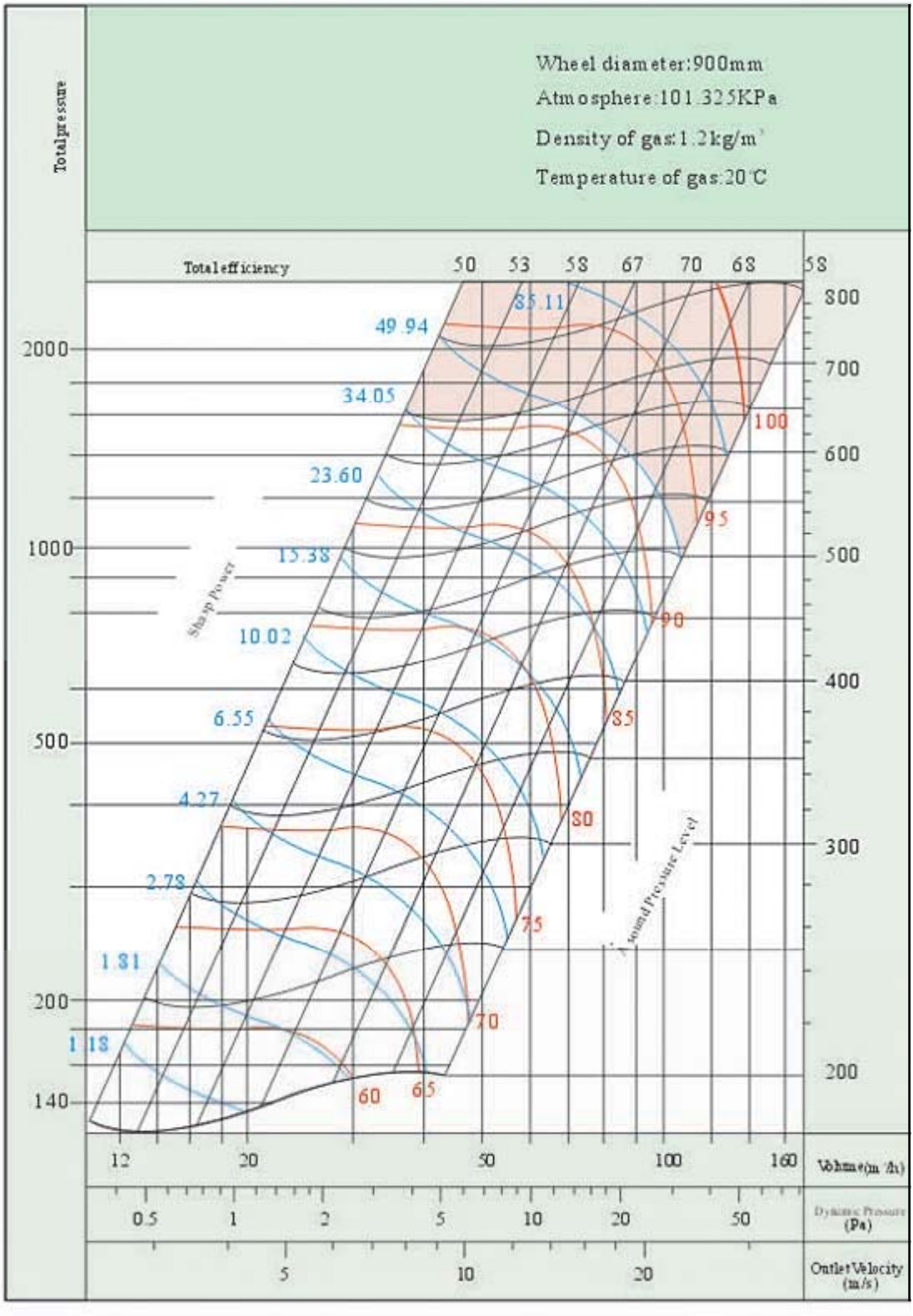
PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

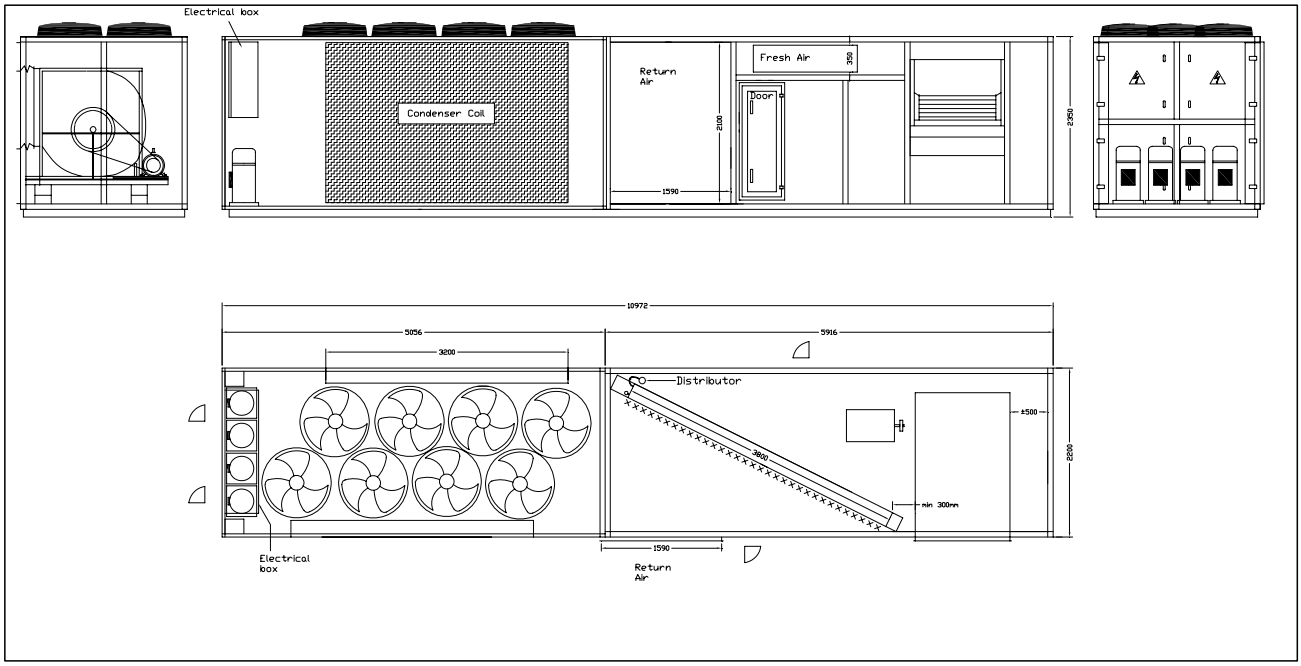
Fan Curve for KDFQ 9.0 Belt Drive



Rooftop Package

Information Sheet

RTH 330



MODEL			RTH 330
Total Cooling Capacity		kW	329.2
Sensible Cooling Capacity		kW	276.4
Heating Capacity		kW	327
Running Amps Cooling		A	266.4
Running Amps Heating		A	236.08
On Coil ºC DB / ºC WB		ºC	27 / 19
Off Coil ºC DB / ºC WB		ºC	15.4 / 14.2
Electric Heating		kW	N/A
Ambient		ºC	35
Altitude		masl	0
FLA		A	497
Sound Power Levels		dB(A)	82.6
Evap. Fan Data	Type Fan / Drive		KDFQ 10.0 / Belt Drive
	Air Flow	l/s	19,950
	ESP	Pa	400
Evap. Fan Motor	Motor Output	kW	30
	Running Current	A	56.8
Evap. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		12
Filter	Quantity / Arrangement		28 / 4 x 7
	Type		50 mm Washable Pleated
	Size	mm	12 x 500 x 500 + 16 x 600 x 500
Cond. Fan Data	Motor Output	kW	8 x 2.2
	Running Current	A	8 x 6.6
Cond. Coil	Material Tube / Fins / Frame		Cu / Al / Galv
	FPI		10
Compressor	Type		SY 300
	Power Supply	V/Ph/Hz	300 / 3 / 50
	Running Current (cool/heat)	A	39.2 / 31.62
	Locked Rotor Amps	A	270
Stages			4
Refrigerant			R22
Dimensions	Length	mm	10972
	Width	mm	2200
	Height	mm	2350
Weight		kg	5910

PleaseNote:

COOLING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 27ºC DB/19ºC WB AND 35ºC DB/24ºC AMBIENT TEMPRATURE

HEATING CAPACITY BASED ON ENTERING AIR TEMPRATURE AT 20ºC DB AND 7ºC DB/6ºC WB AMBIENT TEMPRATURE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Fan Curve for KDQF 10.0 Belt Drive