SDC

Dry Hermetic Cooling Tower

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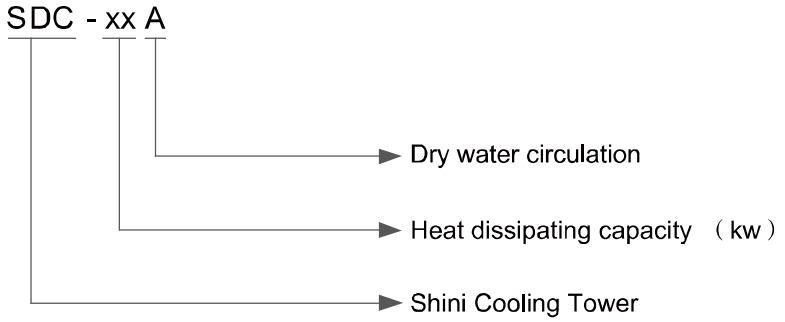
1. General Description

Read this manual carefully before operation to prevent damage of the machine or personal injuries.

It adopts the axial-flow blower to drive the ambient air to cool down the fin-style condenser. The high pressure water is divided into two ways through the water flow regulator from the main pipe, and enters the fin-style condenser respectively. Then, the two water flows are combined into one by the water flow regulator into the main pipeline, and it uses the axial flow blower to cool the high-temperature water.

Picture 1-1：Dry Hermetic Cooling Tower SDC-35A

1.1 Coding Principle



1.2 Feature

- The standard design is assembled by unit modules, and the number of unit modules can be customized according to the load. If it requires larger capacity, increase modules or select other appropriate modules for the unit and connect to current system.
- Easy installation: small modular volume, convenient transportation, which only needs to connect the power supply and water pipe to put into operation.
- It takes ambient air as the cooling medium without the compressor so save the cost, and the whole water loop adopts hermetic circulation with little water consumption that greatly saves the resource.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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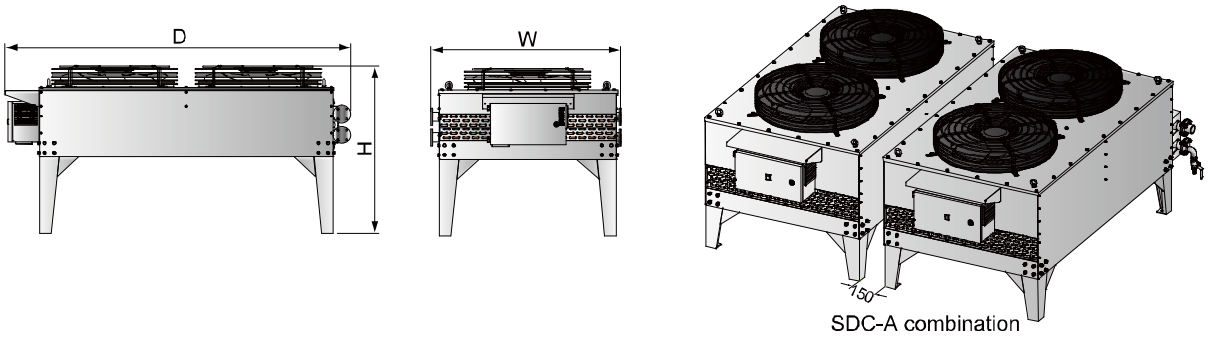
1.3 Machine Specification

1.3.1 Outline Drawing



Picture 1-2：Outline Drawing

1.3.2 Machine Specification

Table 1-1：Machine Specification

Machine Model	SDC-35A
Cooling Capacity (kW)	35
Blower(n)	2
Blower power(kW)	2.64
Air quantity (m^3/h)	13000
Max. current(A)	5.0
Rated water flow (m^3/h)	10
W×D×H(mm)	995×1811.5×880
Pipe connector	Flange
Pipe size(DN)	40

Notes：

1) Above data is based on power of 400V/3Φ/50Hz, sea level mount, and the working environment specified in the manual.

2) Dry working condition: In the ambient air, the temperature is 27℃. The inlet water temp. is 37℃, and outlet water temp. is 32℃.

1.4 Safety Regulations

Please abide by the safety rules in this manual to avoid personal injury and machine damage.

1.4.1 Safety Signs and Labels

 Danger!

For safety, it’s forbidden to dismantle the housing and power switch.

 Warning!

The unit should be operated by qualified personnel only.

During operation, avoid wearing gloves or clothes that may cause danger.

Turn off main switch when power supply is off.

Stop the unit when there may be power supply problems caused by static electricity.

Put on safety gloves and shoes during installation or relocation.

Components from our company can only be used for replacement.

 Attention!

Do not touch the switch with wet object or hands.

Do not use the machine before fully aware of its performance.

Be careful not to touch or hit the switch or sensor.

Please keep enough operation space, and keep away obstacles.

To avoid producing statics, clean the floor from oil or water to keep a dry environment.

Protect the machine against severe vibration or collision.

Drunken, medicine-taking, or men without proper judgment should not operate the machine.

1.5 Exemption Clause

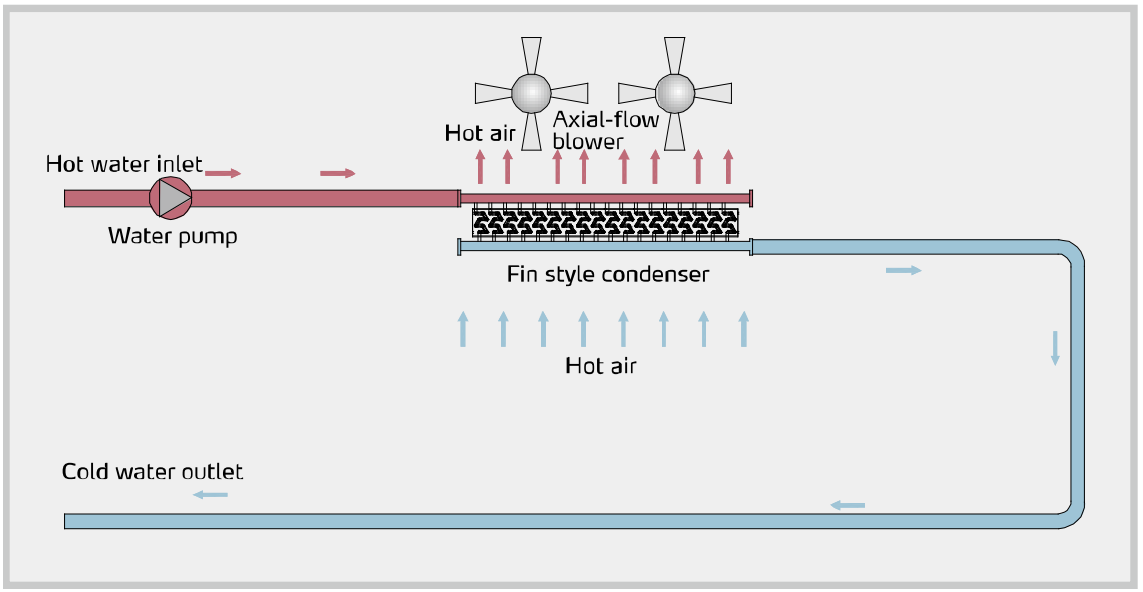
The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

1) Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2) Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3) Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4) Employing consumables or oil media that are not appointed by Shini.

2. Structure Characteristics and Working Principle

2.1 Working Principle



Picture 2-1：Working Principle

It adopts the axial-flow blower to drive the ambient air to cool down the fin-style condenser. The high pressure water flows in from one end of the main pipe above the fin-style condenser, and flows out from the other end of the lower main pipe after being cooled down by the condenser. Besides, it uses the axial flow blower to cool down the high-temperature water.

3. Installation and Debugging

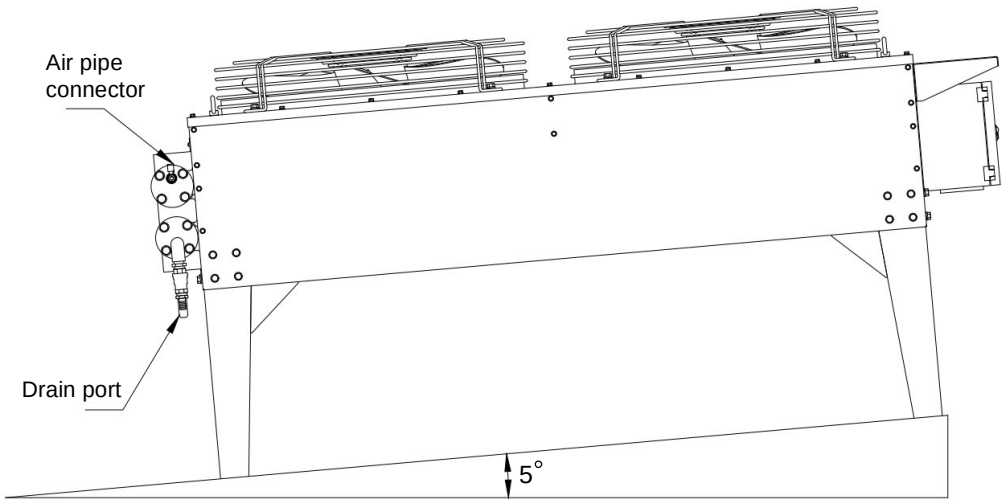
Read through this chapter carefully before installation, and install it as the following order!

3.1 Notices for Installation

1) Don’t touch the blower during machine operation.
2) Drain the water inside the pipeline during the shutdown for machine inspection.
3) The control box must with water proof.
4) Pay attention to antifreeze protection in winter, and the installation method is shown in the picture 3-1, with an inclination of 5 degree. When the machine is placed in low ambient temperature during shutdown, open the drain port to drain the water inside the pipe, and then connect the air pipe to blow out the residual moisture to prevent copper pipe damage due to freezing cold water.

3.2 Installation Space

The installation distance is greater than 150 mm, and there is no object above the blower. It’s better to tile 5 degree to the ground for installation, so that water inside the machine can be all exhausted when shutdown.



Picture 3-1：Installation Diagram

3.3 Power Connection

1) Make sure voltage and frequency of the power source comply with those indicated on the manufacturer nameplate, which is attached to the machine.
2) Power cable and earth connections should conform to your local regulations.
3) Use independent power cable and ON/OFF switch. The cable's size should not smaller than those wired in the electrical requirement of control panel.
4) The power cable connection terminals should be tightened securely.
5) The machine requires a 3-phase 4-wire power source, connect the power lead (L1, L2, L3) to the live wires, and the earth (PE) to the ground.
6) Power supply requirements:

   Main power voltage: ± 5%

   Main power frequency: ± 5%

7) Refer to the electrical wiring diagram to complete the electrical installation.

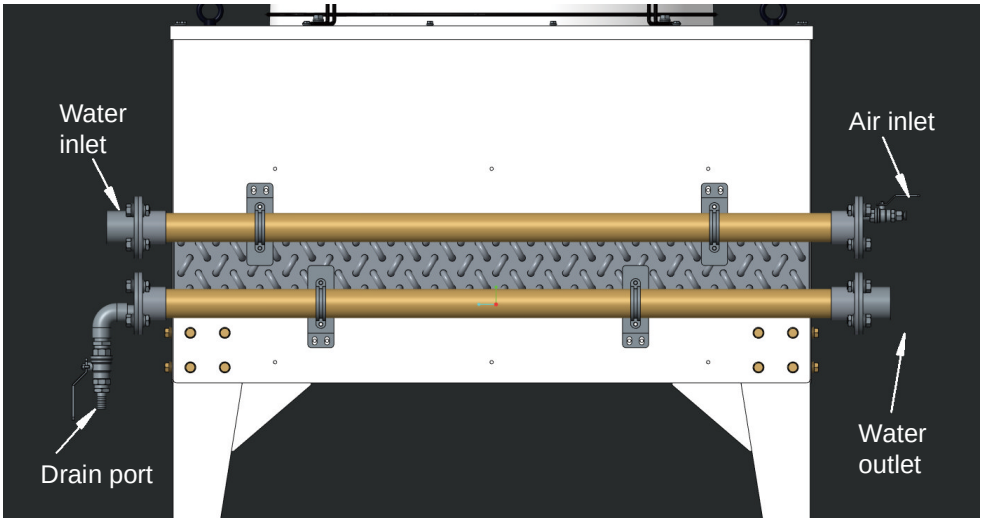
3.4 Pipeline Connection

1) Interface size

   Water inlet and outlet: 1.5’’ PT male thread; air exhaust port: 1/4PT female thread; water outlet: 1/2PT female thread;

2) Water source quality

   Try the best to use the clean water and tap water without impurities as the water source. Excessive impurities in the water may cause bad cooling effect of the condenser, which blocks the pipeline and damages the condenser.



Picture 3-2：Pipe Connection Diagram

4. Application and Operation

4.1 Notices

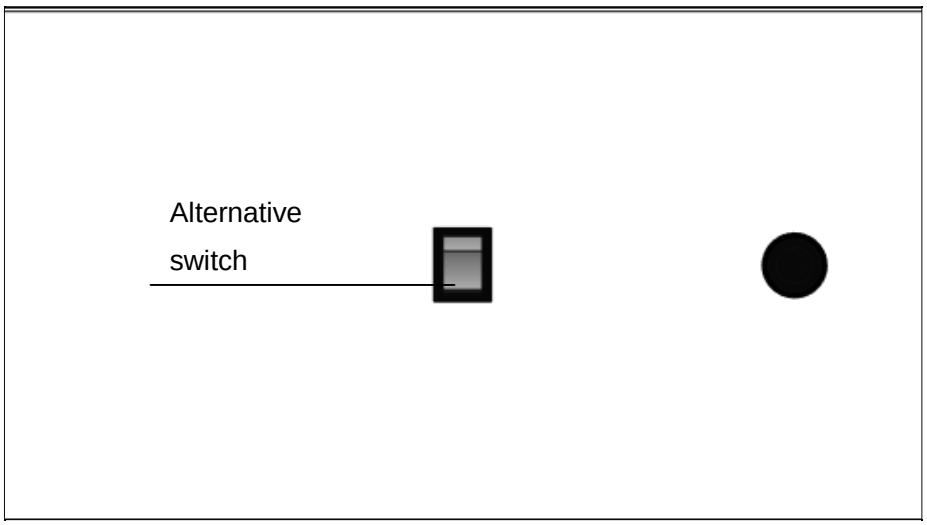
1) It must exhaust the air the air in the condenser before operation.

2) The method to exhaust the air in the system: After pipeline connection, connect the water source, close the drain ball valve and open the exhaust ball valve to discharge the gas in the fin-style condenser till the water is sprayed from the drain port. Then, turn off the exhaust ball valve before startup.

3) In case of blower system error, shut down the machine immediately to trouble shoot. The blades shall be repaired or replaced according to the actual degree of wear to ensure good running of the cooling tower.

4.2 How to stop the machine ?

1) The alternative switch on the door plank controls the machine startup and shutdown. Before machine startup, check whether the inlet and outlet water pipes are properly connected and connect to the power supply. Press the <alternative switch> on the door plank to start the blower, and the machine starts running.



2) Turn off the machine in the order opposite to the starting steps.

5. Trouble-shooting

Symptom	Possible causes	Solution
The fan doesn’t work	Power disconnected	Connect to the power supply.
	Fuse broken or control circuit damaged.	Replace the fuse or check the control circuit.
	Fan damaged.	Replace the fan.

6. Repair and Maintenance

6.1 Repair

All maintenance works must be completed by professional personnel to avoid personal injury and machine damage.

6.2 Maintenance

Please keep the machine clean, remove the leaves, dust and other sundries in time, and keep the fins clean to ensure good heat dissipation.

6.3 Maintenance Schedule

6.3.1 General Machine Information

Model: _____ No.: _____ Manufaturing date : _____

Voltage: ___ Φ _____ V Frequency: ____ Hz Total power: _____ kW

6.3.2 Installation & Inspection

☐ Check whether the machine peripheral space is enough.

☐ Check whether the pipe is connected correctly.

Inspection of Electrical Components

☐ Voltage _____ V _____ Hz

☐ Fuse melt current：1Φ _____ A 3Φ _____ A

☐ Check whether the control box power and signal wiring are correct.

6.3.3 Daily Checking

☐ Check the alternative switch.

☐ Check whether the control box metal connector is loose.

6.3.4 Weekly Checking

☐ Check all wires.

☐ Check whether the motor fixed screw is loose.