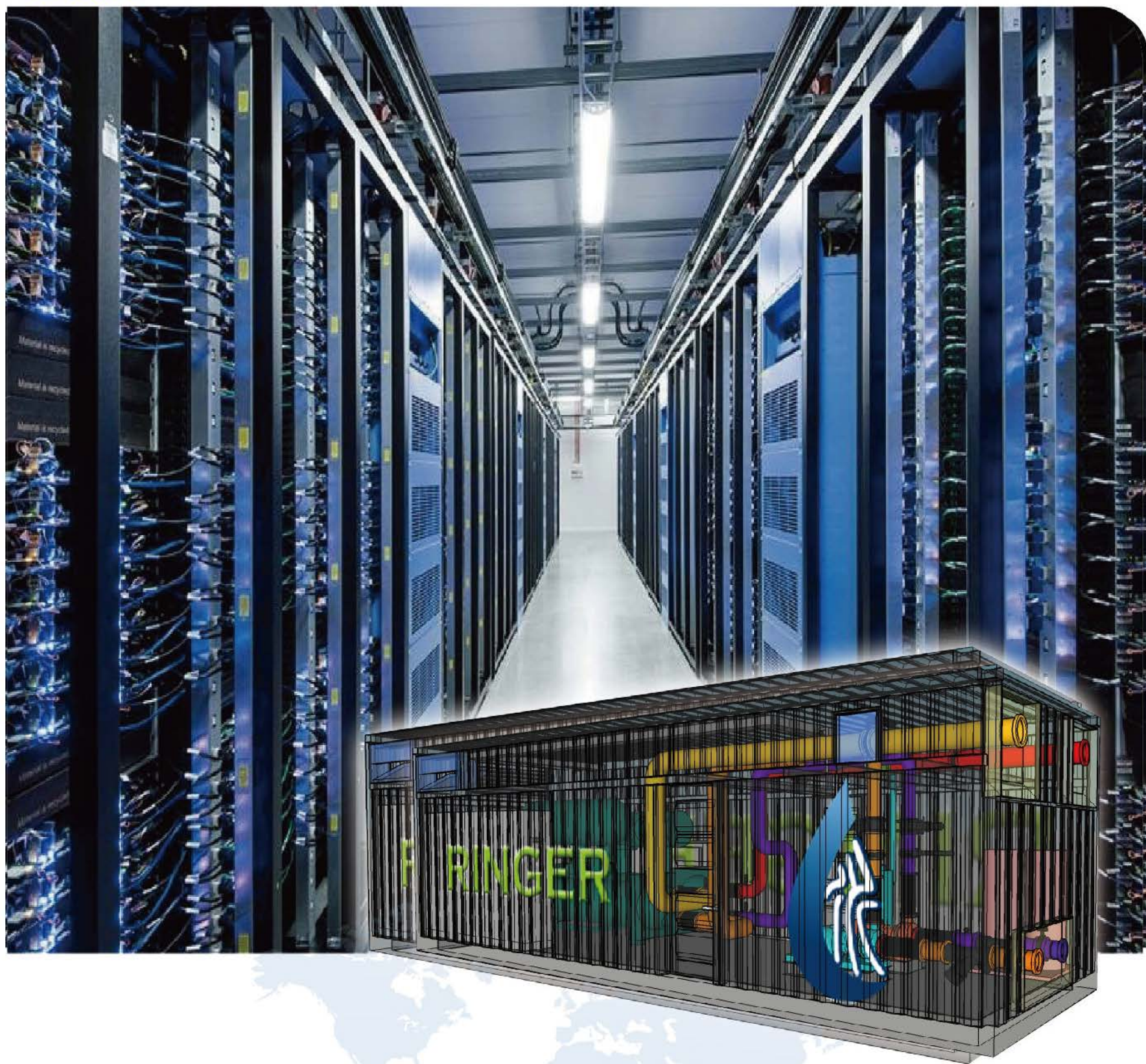




RINGER

Ringer Intelligent Chilling System Container



Shanghai Ringer Energy Technology Co.,Ltd



Innovation and Think-ahead are our strategies to develop business and conquer challenges from increasing change and urgent demand for tailor-made system in market. RINGER (RG) has developed an innovative solution, Chilling System Container (CSC), to chilling system for diverse projects. This integrated and intelligent container of HVAC intends to transform the routine of HVAC design, improve the performance of installation and increase the efficiency of operation (compared to traditional practice) –technically, financially, and environmentally.

General Description

RG-CSC product series is the optimized solution to HVAC system for customers to reduce space that is occupied by machine room, save energy that is consumed by entire system, shorten the time when the equipment are installed and mitigate impacts on environment to the minimum. The range of chilling is designed from 100 USRT to 1000 USRT at 50Hz.

RG-CSC product series has two options of indoors or outdoors (all-day maintenance structure) installation for customer to choose. The container design enables customer to have an innovative and revolutionary solution to altering traditional design and construction of HVAC machine-room, which makes procurement simpler, construction easier, and erection faster.

RG-CSC product series is a systematic and intelligent solution through in-house pre-fabrication, which allows engineer to correctly size chiller and pump, effectively manage the space, and precisely calculate head loss of pipe and valve. The prominent features of container design are simple planning in design, faster erection during construction and easier maintenance in operation. Modular design is the way RINGER adopts to horizontally integrate various equipment of HVAC system, including chiller, chilling pump, cooling pump, water treatment device, pressure stabilizer, piping with valve, sub-water catcher, measure instrument and etc.. Pre-fabrication of container, pipe leakage test, and commissioning in house result in fast erection and easy commissioning in parallel on site.

In addition, based on various demands from diverse clients, RINGER is able to design and supply other modules, including intelligent group control, secondary chilling pump and cooling tower. There are so many options for end-users to choose and customize their chilling container based on their project requirement.

Design Merits

- ▶ Modular Design Standardization
- ▶ Better quality management and higher operation safety
- ▶ Full VSD driven
- ▶ Save overall cost for procurement, construction and installation
- ▶ Faster erection and installation on site
- ▶ Cut down the cost of facility management
- ▶ Reduce complexity of coordination between different suppliers
- ▶ Clear responsibility and improve the efficiency of system maintenance





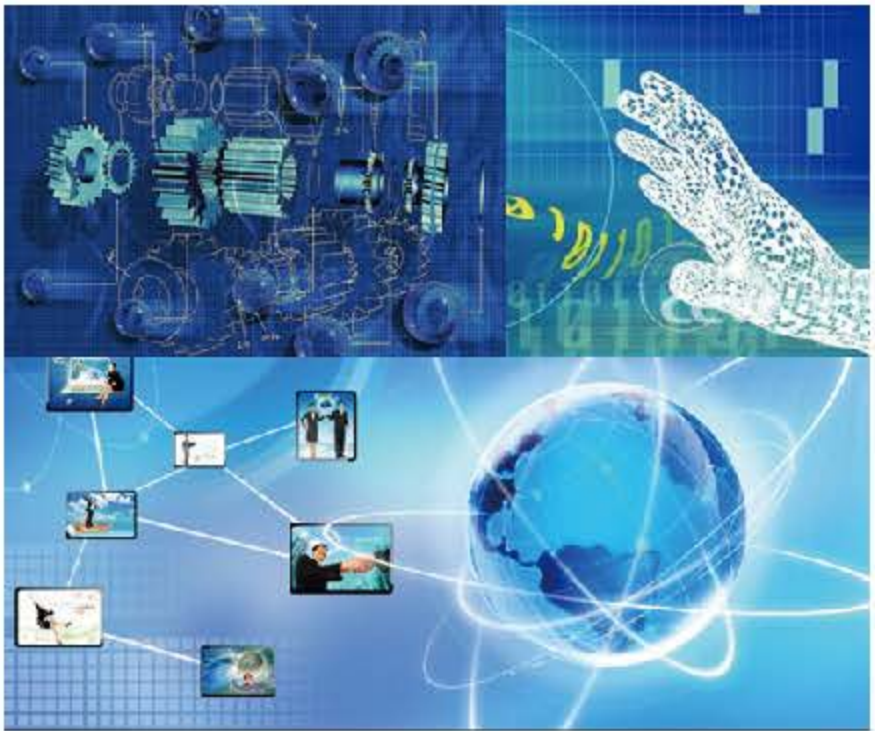


➔ Standardized Module

► Container

The chilling range is from 100 to 1000 USRT for RG-CSC series container, which has effectively integrated into one package various equipment, such as chiller, chilling pump, cooling pump, intelligent group control, power distribution panel and etc.. All design and installation works have been done in house, including piping and valve connection with main equipment, bracket design and pipe holder fabrication, additional ventilation system, cleaning and leakage test, and system commissioning. After container is delivered to project site, only two jobs are left to be done for installation in the field, power and pipe connection. Additionally, there are many other options for end-user to choose, more details in container specification sheet. There are 4 standardized types of container based on chilling capacity, as showed in below table.

Chilling Capacity (USRT)	RG-CSC Series			
	A Type	B Type	C Type	D Type
100 (Single)	√	—	—	—
200 (Single)	√	—	—	—
300 (Single)	—	√	—	—
400 (Single)	—	√	—	—
500 (Single)	—	√	—	—
600 (Single)	—	√	—	—
700 (Single)	—	—	√	—
800 (Single)	—	—	√	—
900 (Single)	—	—	—	√
1000 (Single)	—	—	—	√



→ Feature

► ***High efficient and Intelligent***

All selected equipment for RG-CSC series are made by international manufacturers with good reputation, and there are more standard options for end-user to improve the performance of chilling system, for example, full-VSD driven system and intelligent management system, which can increase total efficiency of chilling system by 15%~35%. There is standard control panel supplied in product series, and the whole system can be switched on by pressing one button. Furthermore, the management of all equipment has been centralized through intelligent group control. The integrated interface of communication BMS will be released to the third party for monitoring the running performance.

► ***Small Occupied Space and Flexible Installation***

All mechanical equipment and electrical components in container are prefabricated and tested in house. The system can be put into operation directly after the connection of pipe and power. Compared to design and construction of traditional machine room of HVAC, the container solution has many merits for customer, such as faster construction, easier installation and simpler maintenance. Besides, the reinforced framework of container enables customer to dismantle and re-use the container of chilling system when factory facility need to be relocated.

► ***Lower risk for installation and running***

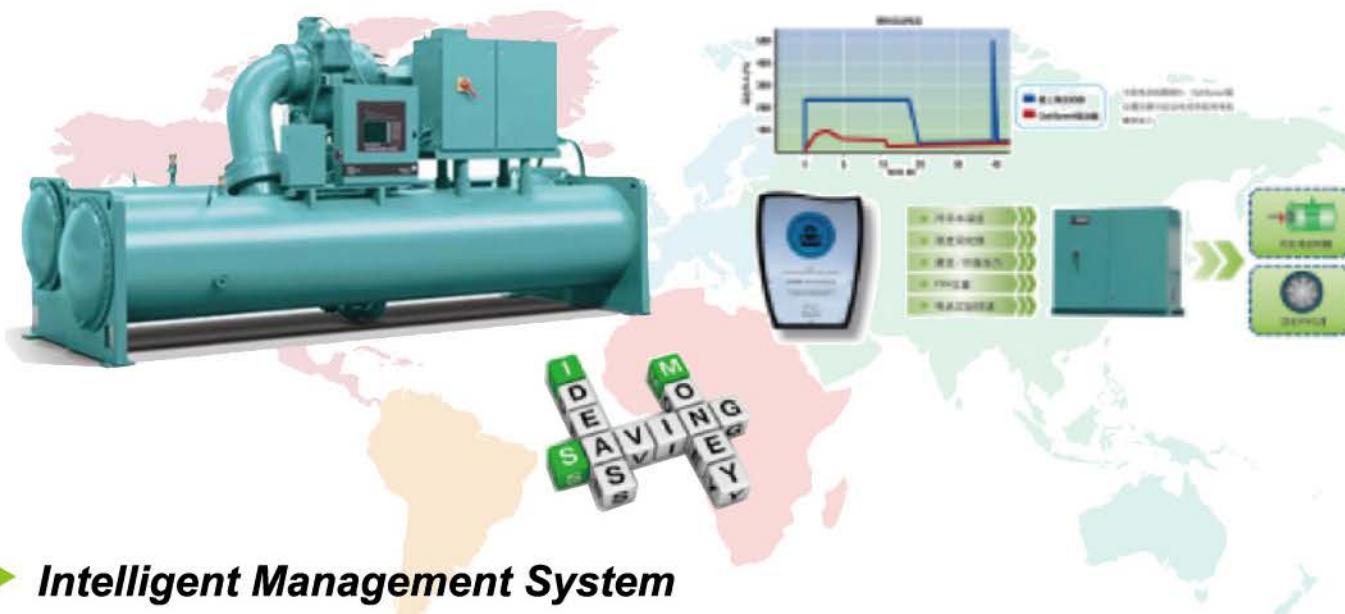
Reducing complicated procedures of Installation can improve quality, increase safety and shorten construction schedule. The cleaning of pipe and leakage test have been completed in house, which save a lot of time in commissioning on site. In the meanwhile, due to standard product design, the reliability and stability of whole system is improved and the probability of system failure is reduced.



→ Green and Intelligent

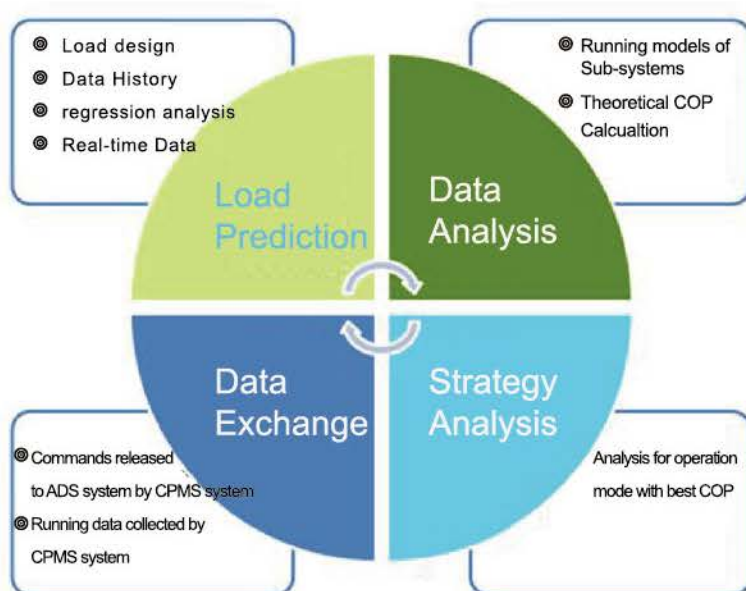
► Full-VSD Driven

RG-CSC product series can have all equipment available for VSD, including Chiller, Chilling and Cooling pumps, and Cooling Tower.



► Intelligent Management System

Adopting the strategies in high-efficient management and group control aims to improve overall COP of all equipment in chilling system container, including chiller, pump and cooling tower. For example, record the habit of end-user, automatically predict load by regression analysis and switch on the system at various frequency. All these strategies are able to increase the stability and reduce response time. Function of Intelligent Management System



► **Auxiliary Option**

There are many auxiliary options for RG-CSC product series, such as cleaning device, dosing system and water treatment device.



Cleaning System



Dosing Device



Water Treatment

► **Container Extension**

The design of Container extends to other modules, including water sub-catcher, secondary chilling pump system, cooling tower system and etc.. In addition, power distribution panel and intelligent management system can be integrated into container, which make installation more flexible, and management easier.

► **Tailor-made Chilling capacity**

The chilling capacity of standard product is within 1000USRT, and more than 1000USRT container can be tailor-made according to customer's requirement.



► **Security System**

In order to improve the security of container, access control and security system as option can be provided for service visit in order to ensure the security of system installed outdoors.

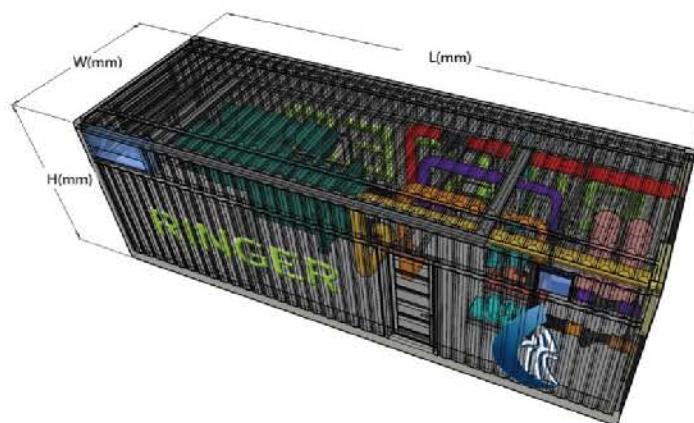


► Nomination Rule

Capacity(USRT) Constant , or V: VSD

RG-CSC — 100 — 5 — C — S

RINGER Chilling System Container 50Hz , 380V Option



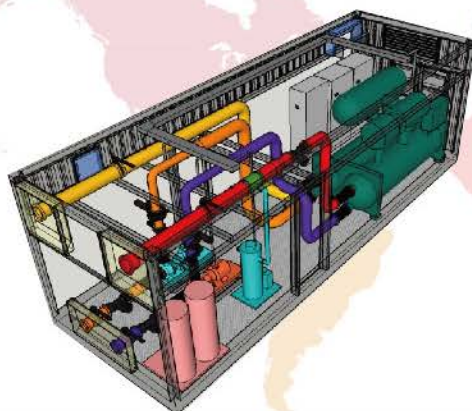
Technical Specification

Basic Data

Specification	Chilling Capacity	output (Kw)	Flow		Head in outlet				Pipe Connection		Overall Power (Kw)		Dimension (mm)	Transport Weight (Kg)		Running Weight (Kg)
			Chilling	Cooling	Chilling	Cooling	(incl.chiller and pumps)	Min			Max					
Unit Model	USRT	KW	m3/h	m3/h	Min	Max	Min	Max	Chilling (DN)	Cooling (DN)	Min	Max	L*W*H	Min	Max	Max
RG-CSC-A-1005/C(V)	100	359	65	81	12	38	15	25	100	100	85.2	118.8	7000*3000*3000	11475	11596	12147
RG-CHC-A-2005/C(V)	200	708	128	160	12	38	15	25	150	150	163	206	7000*3000*3000	13339	13526	14392
RG-CSC-B-3005/C(V)	300	1192	215	269	12	38	15	25	150	200	264.7	322.3	10500*3500*3500	20421	20739	21077
RG-CSC-B-4005/C(V)	400	1455	263	328	12	38	15	25	200	200	295	369	10500*3500*3500	23674	24243	25692
RG-CSC-C-5005/C(V)	500	1758	318	374	12	38	15	25	250	250	376	491.7	10500*3500*3500	25444	25983	26989
RG-CSC-C-6005/C(V)	600	2110	382	450	12	38	15	25	250	250	478	590	10500*3500*3500	26245	27479	28440
RG-CSC-C-7005/C(V)	700	2461	442	522	12	38	15	25	250	250	736.6	644.6	11000*3500*3800	29458	30324	31344
RG-CSC-C-8005/C(V)	800	2813	507	597	12	38	15	25	250	250	549	744	11000*3500*3800	30521	30970	31847
RG-CSC-D-9005/C(V)	900	3164	571	677	12	38	15	25	300	250	703	859.1	12000*4000*3800	21376	21824	38054
RG-CSC-D-10005/C(V)	1000	3516	635	752	12	38	15	25	300	250	780	933	12000*4000*3800	36309	37056	40702

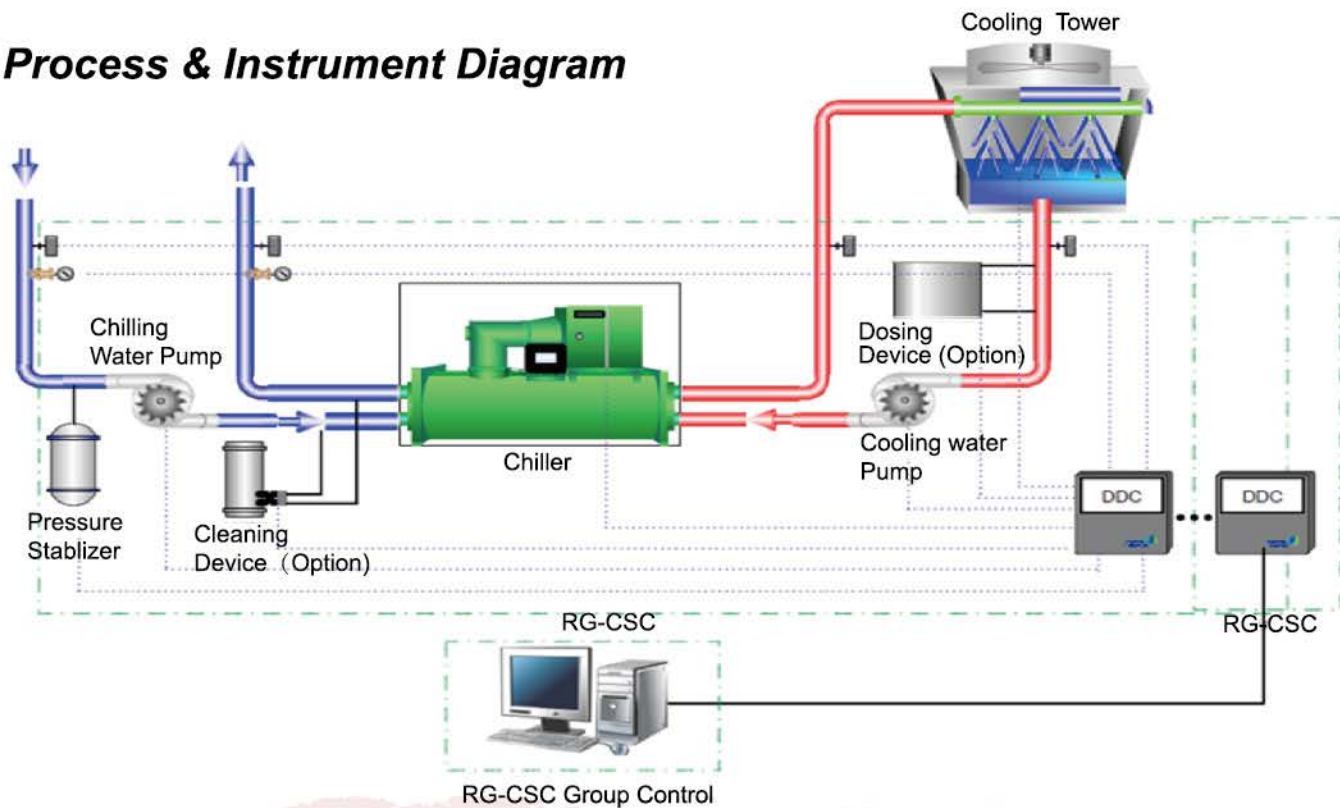
Note:

- 1、 In container, thermal insulation and noise isolation have been done in container, noise level:≤85dBA, Design temperature:≤35 °C .
- 2、 All-day maintenance structure: Monitoring freezing medium, illumination, Separate power, Cooling Ventilation System, Non-Slip floor, service door, surveillance and alarm system for freezing medium leakage.



→ System Schematic Diagram& Specification


► Process & Instrument Diagram



Tailor-made Design in Container

Series	100USRT	200USRT	300USRT	400USRT	500USRT	600USRT	700USRT	800USRT	900USRT	1000USRT
Equipment										
Chiller	●	●	●	●	●	●	●	●	●	●
Chilling pump	●	●	●	●	●	●	●	●	●	●
Cooling pump	●	●	●	●	●	●	●	●	●	●
Valve	●	●	●	●	●	●	●	●	●	●
Electrical Valve	●	●	●	●	●	●	●	●	●	●
Temp. Transmitter	●	●	●	●	●	●	●	●	●	●
Pressure Transmitter	●	●	●	●	●	●	●	●	●	●
Cleaning Device	●	●	●	●	●	●	●	●	●	●
Air Conditioner	●	●	●	●	●	●	●	●	●	●
Water-proof structure of piping	●	●	●	●	●	●	●	●	●	●
Water-proof structure of power connection	●	●	●	●	●	●	●	●	●	●
Illumination	●	●	●	●	●	●	●	●	●	●
Power plug	●	●	●	●	●	●	●	●	●	●
Ventilation	●	●	●	●	●	●	●	●	●	●
Bypass Piping	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Dosing Device	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Power distribution Panel	●	●	●	●	●	●	●	●	●	●
Chiller Control Panel	○	○	○	○	●	●	●	●	●	●
Pump Control Panel	●	●	●	●	●	●	●	●	●	●
Cooling Tower	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Control Panel for cooling tower	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
VSD control system	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Intelligent Management System	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Pressure Stabilizing device	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Free Cooling Device	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Decoration	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Remarks	● ----- Standard ▲ ----- Option ○ ----- Integrated									

Remarks: If there could any changes in product design, specification and outline in the brochure,
no more information can be released. This brochure is only for your reference, and more
precise information will be based on physical goods after purchase.



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