



Magnetic Central Chiller

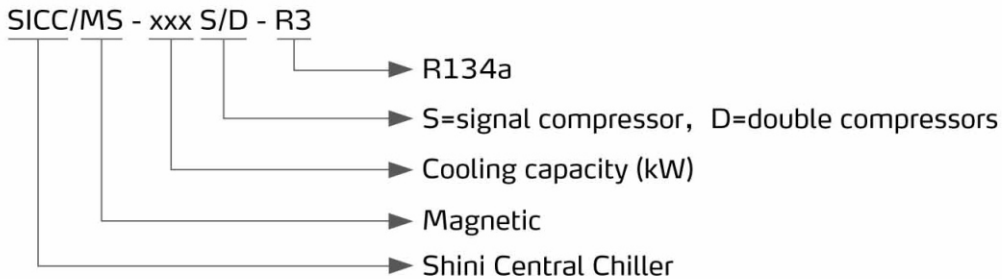
SICC/MS-150WS-R3



Refer carefully to this manual before operation.

SICC/MS Series

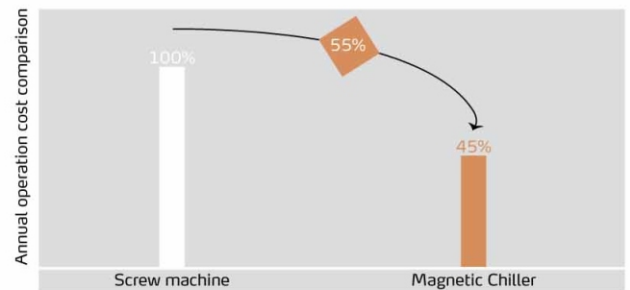
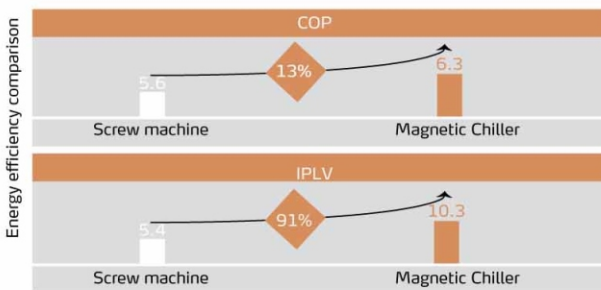
■ Coding Principle



■ Features

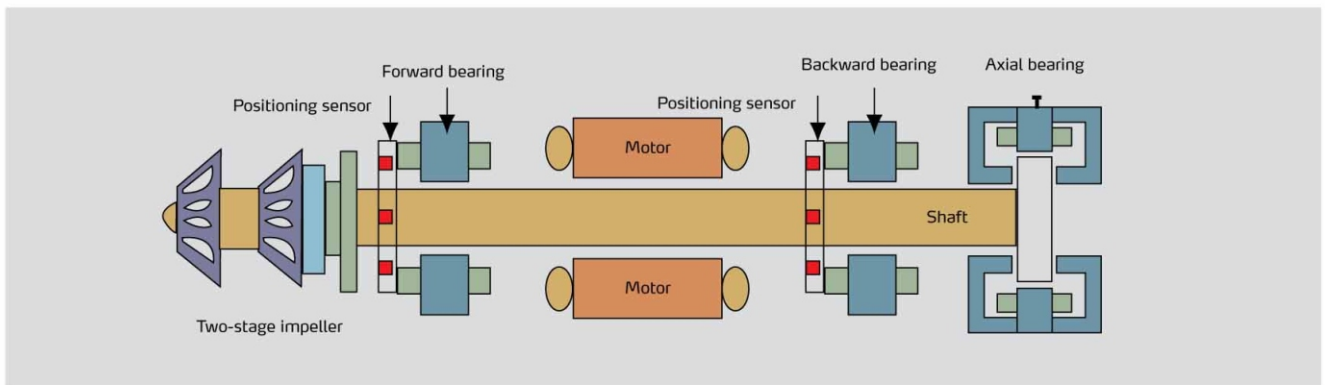
Energy saving

Adopt world famous magnetic oil-free inverter compressor, and single compressor start current of 2A without power network impact. The annual operation cost saves 55% compared with common centrifugal water chiller.



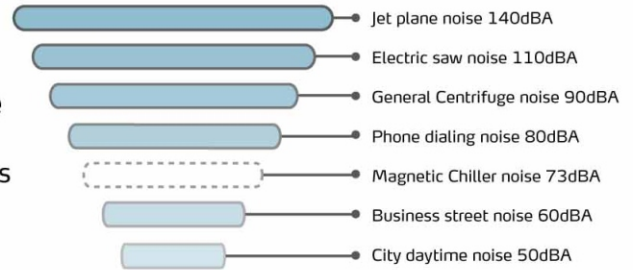
Oil-free operation

- Magnetic bearing in energy consumption of 180W, which is far lower than traditional compressor mechanical loss (10000W).
- The compressor rotor is in suspension during the operation, and there're no frictional parts, so that the full system oil-free operation is realized.
- Full system oil-free operation which avoids heat transfer loss due to lubricating oil formed oil film on heat exchanger surface for higher efficiency.



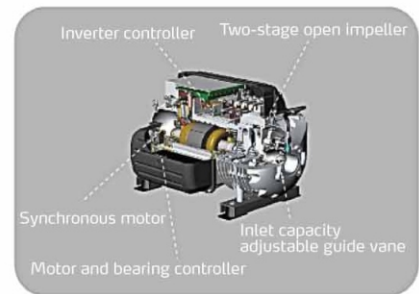
Environmental friendly without noise

- Running noise level <73 dBA
- R134a environment-friendly refrigerant doesn't deplete ozone layer that is safe, non-toxic and non hazardous.
- The moving parts are completely suspended, frictionless and the structural vibration is close to 0 without the silencer.



Stable and durable

- Stable operation performance with average service life >30 years.
- Intelligent multi-level reliability control and power failure protection ensure safer compressor operation.
- Permanent-magnet synchronous DC motor, direct-drive two-stage impeller and high-strength thermoplastic electronic shell ensure long-term operation.



Operation cost comparison

Contrast model

Magnetic Centrifugal Water Chillers (high-efficient type) (600RT), Centrifugal Water Chillers (600RT), and Screw Water Chillers (600RT)

Operation state

According to GB/T18430.1-2007 standard, 2.3% running time of the water chillers is under 100% full load condition, 41.5% running time of which is under 75% load condition, 46.1% running time of which is under 50% load condition, and 10.1% running time of which is under 50% load condition. The experimental results show that the parameters of the three types of chillers are as follows:

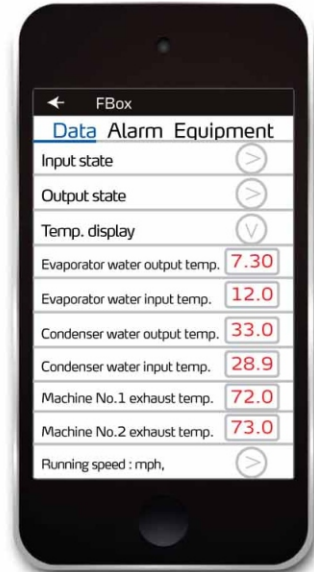
Project	Unit	Magnetic Centrifugal Chillers	Centrifugal Water Chillers	Screw Water Chillers
Cooling capacity	USRT	600	600	600
Refrigerant		R134a	R134a	R134a
Full load energy efficiency COP		6.15	6.11	5.61
Partial load coefficient of performance IPLV(GB/T 18430.1)		10.18	7.10	6.60
Annual average total cold load value(GB/T 18430.1)	KW	5,623,012	5,623,012	5,623,012
Annual average total power consumption	KWH	552,359	791,974	851,972
Annual operation cost	Yuan	552,359	791,974	851,972
Annual maintenance cost	Yuan	5,000	40,000	20,000

Cloud service system (option)

Cloud service system transfers large numbers of industrial equipment data or programs in different areas to remote cloud data center through the Internet (Ethernet, GPRS, 3G, etc.), which realizes remote data monitoring, equipment diagnosis, program maintenance and fault alarm lamp functions and provides users with a simple and reliable remote transmission plan for industrial Internet data.



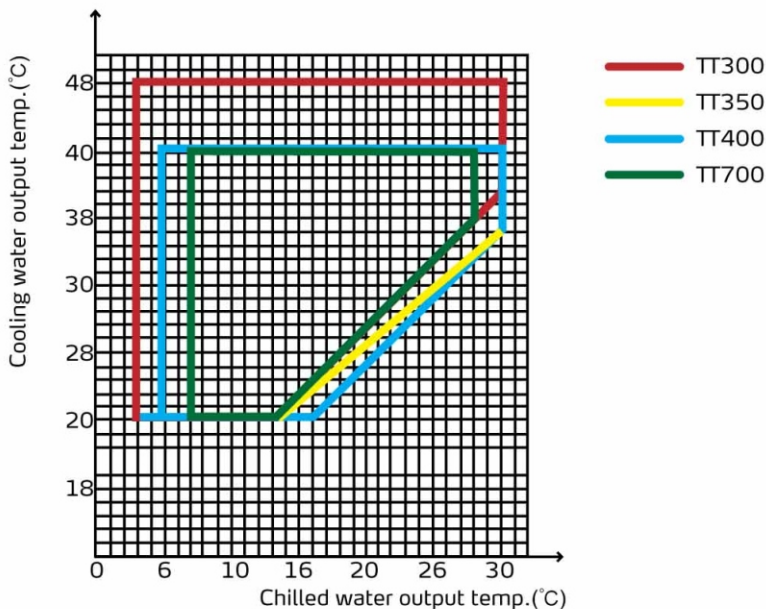
The unit alarm is sent to WeChat in real time



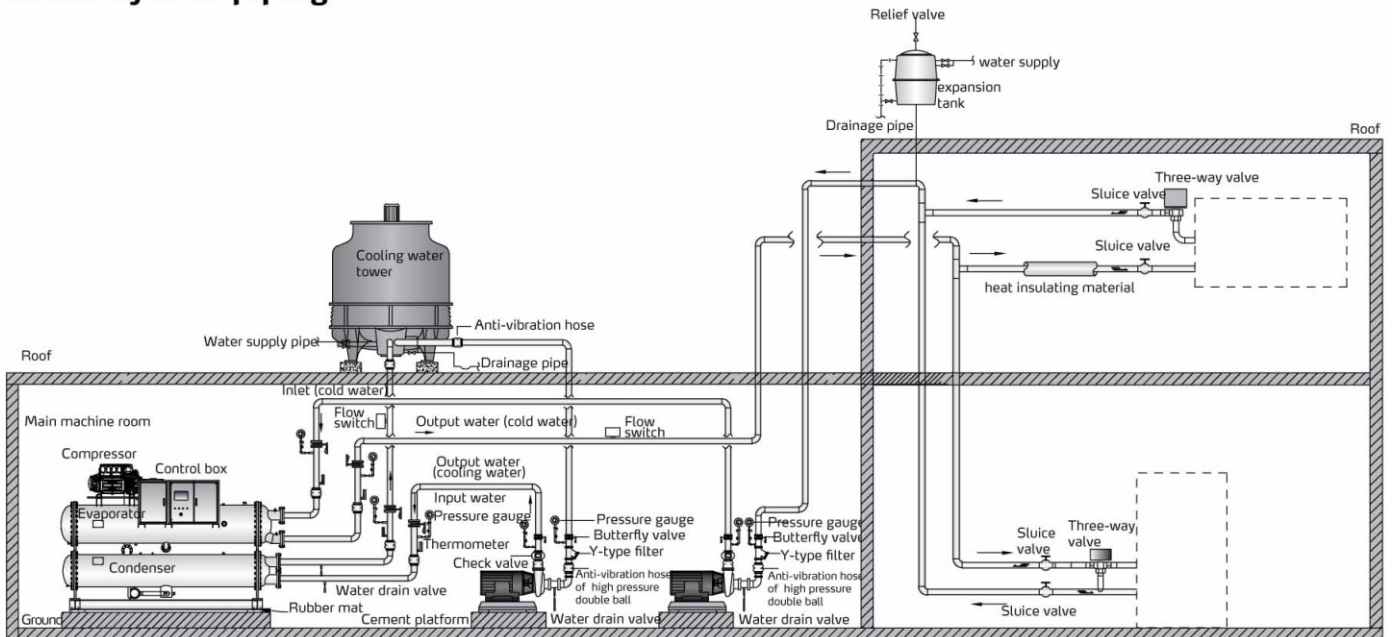
Customers can monitor the information status of the units in real time through the dedicated cloud APP.

Operating range

The operating range (rated flow) is as below Fig., if actual operating condition is beyond the scope shown as below Table, please contact Shini in advance. We will make special design for your machine unit or system according to your actual operating conditions to ensure machine units normal operation.



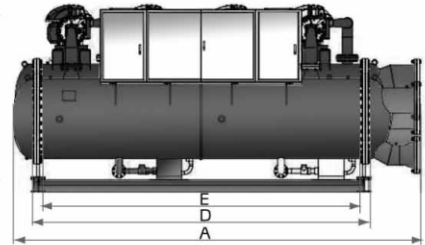
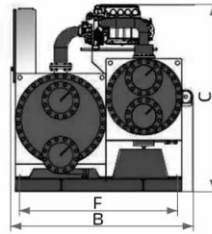
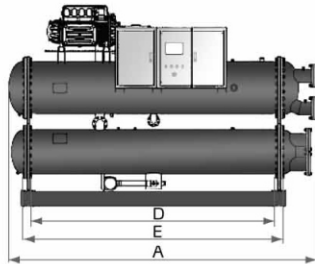
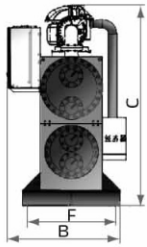
Water system piping



1. The shock-proof hose, sluice valve, filter, water flow switch, water pressure gauge, thermometer, cooling tower, cooling water pump and other auxiliary equipments must be mounted on cooling water pipe system.
2. The shock-proof hose, sluice valve, filter, water flow switch, water pressure gauge, thermometer, expansion tank, chilled water pump and other auxiliary equipments must be mounted on the cold water pipe system.
3. All water distribution pipes should be protected by thermal insulation layer, and the thermal insulation of water pipeline should be ensured as to improve operation efficiency and reduce system energy loss.
4. The water pump must be set at water inlet, and expansion tank must be set at water pump inlet that should be mounted with the filter as to prevent foreign matters entering heat exchanger.
5. If the machine unit is installed in areas with poor water quality, water treatment should be done to avoid heat exchanger damage.
6. To improve the operation efficiency of water system, the exhaust valve must be installed at the water pipeline elbow.
7. The water flow switch must be set up in the water pipeline, and the real contacts must be interlocked with the unit control circuit.
8. It is installed externally in low temperature, and long time shutdown will make the water pipeline frozen. The water pipeline construction and design must have anti-freezing function as to prevent machine unit damage.
9. In winter, machine units will shut down for a long period of time (about several months), so it's best to drain the water in the pipeline as to avoid pipeline frozen.
10. As to ensure machine unit's operation efficiency, the pipes must be cleaned after pipeline completion as to avoid foreign matter in the pipeline.
11. When installing the unit, the earth line must be connected as to prevent leakage accidents.
12. The evaporator of our water chillers is not suitable for the open chilled water system as to avoid the unit capacity deficiency caused by the recycled water pollution. Please clean the tube, and exhaust the gas before debugging.

SICC/MS Series

Outline Drawings



SICC/MS-100WS-R3~SICC/MS-220WD-R3

SICC/MS-240WD-R3~SICC/MS-400WD-R3

Specifications

Model SICC/MS-		401WS-R3	558WS-R3	656WS-R3	873WS-R3	802WD-R3	959WD-R3	
Refrigeration Capacity ¹	kW	401	558	656	873	802	959	
	kcal/hr	344,860	479,880	564,160	750,780	689,720	824,740	
Refrigeration Capacity ²	kW	349	485	570	759	697	834	
	kcal/hr	300,489	417,585	490,770	653,499	600,117	718,074	
Power Source	kW	62.1	76.8	94.7	109.3	124.2	138.9	
Operation current	A	103	127	156	181	205	229	
Max.operation current	A	145	234	187	227	290	376	
Startup current	A	2	2	2	2	2	2	
Power adjustment	%	20%-100%						
Compressor		Buffer startup						
Refrigerant	Type	R134a						
	Filling amount	kg	100	120	160	230	200	220
Evaporator	Type	Full liquid type						
	Cooling Flow	m ³ /hr	68.9	96.0	112.8	150.2	137.9	164.9
	PressureLoss	kPa	50	55	55	60	60	60
	Pipe Outlet		DN125	DN150	DN150	DN150	DN150	DN150
Condenser	Type	Tube-in-shell style						
	Cooling Flow	m ³ /hr	79.6	109.2	129.0	169.1	159.2	188.8
	PressureLoss	kPa	50	55	55	60	60	60
	Pipe Outlet		DN125	DN150	DN150	DN150	DN150	DN150
Net Weight	kg	2150	2600	3000	3300	3500	3600	
Operating Weight	kg	2350	2800	3300	3600	3800	3900	
Dimensions	A	mm	3250	3300	3700	3700	3800	4000
	B	mm	1200	1300	1300	1300	1500	1550
	C	mm	2000	2100	2200	2200	1700	1750
Installing Dimensions	D	mm	2600	2600	2900	2900	3170	3170
	E	mm	2800	2800	3100	3100	3370	3370
	F	mm	850	850	850	950	1110	1200

- Notes: 1) Working conditions 1: cold water inlet/ outlet temp. is 20/15°C; cooling water inlet/ outlet temp. is 30/35°C.
 2) Working conditions 2: cold water inlet/ outlet temp. is 12/7°C; cooling water inlet/ outlet temp. is 30/35°C.
 3) Dirt coefficient: cold water side: 0.018 m² · °C/ kW; cooling water side: 0.044 m² · °C/ kW.
 4) The model, parameter and performance will be changed due to product improvement without prior notice. The specific parameters should be based on the product nameplate.
 5) The products printed data may be different from real objects. Please refer to the machine when purchasing.
 6) Other non-standard working conditions are not limited to this.

Specifications

Item		Model SICC/MS-						
		1116WD-R3	1214WD-R3	1311WD-R3	1413WD-R3	1529WD-R3	1746WD-R3	
Refrigeration Capacity ¹	kW	1116	1214	1311	1413	1529	1746	
	kcal/hr	959,760	1,044,040	1,127,460	1,229,800	1,314,940	1,501,560	
Refrigeration Capacity ²	kW	971	1055	1140	1244	1329	1518	
	kcal/hr	836,031	908,355	981,540	1,071,084	1,144,269	1,306,998	
Power Source	kW	153.6	171.5	189.4	186.6	204.5	219.6	
Operation current	A	254	283	313	308	338	363	
Max.operation current	A	462	418	374	458	414	454	
Startup current	A	2	2	2	2	2	2	
Power adjustment	%	20%~100%						
Compressor	Buffer startup							
Refrigerant	Type	R134a						
	Filling amount	kg	260	280	330	350	390	460
Evaporator	Type	Full liquid type						
	Cooling Flow	m ³ /hr	192.0	208.7	225.5	246.2	262.9	300.3
	PressureLoss	kPa	60	60	60	65	65	65
	Pipe Outlet		DN200	DN200	DN200	DN200	DN200	DN200
Condenser	Type	Tube-in-shell style						
	Cooling Flow	m ³ /hr	218.4	238.2	258.1	278.3	298.1	338.1
	PressureLoss	kPa	60	65	65	65	65	70
	Pipe Outlet		DN200	DN200	DN200	DN200	DN200	DN200
Net Weight	kg	3700	3800	4000	4500	5100	5400	
Operating Weight	kg	4100	4200	4400	4900	5600	5900	
Dimensions	A	mm	4000	4000	4000	4400	4400	4100
	B	mm	1650	1750	1750	1750	1800	2000
	C	mm	1800	1900	1900	1900	1950	1950
Installing Dimensions	D	mm	3170	3170	3170	3470	3470	3170
	E	mm	3370	3370	3370	3670	3670	3370
	F	mm	1250	1350	1350	1390	1450	1570

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