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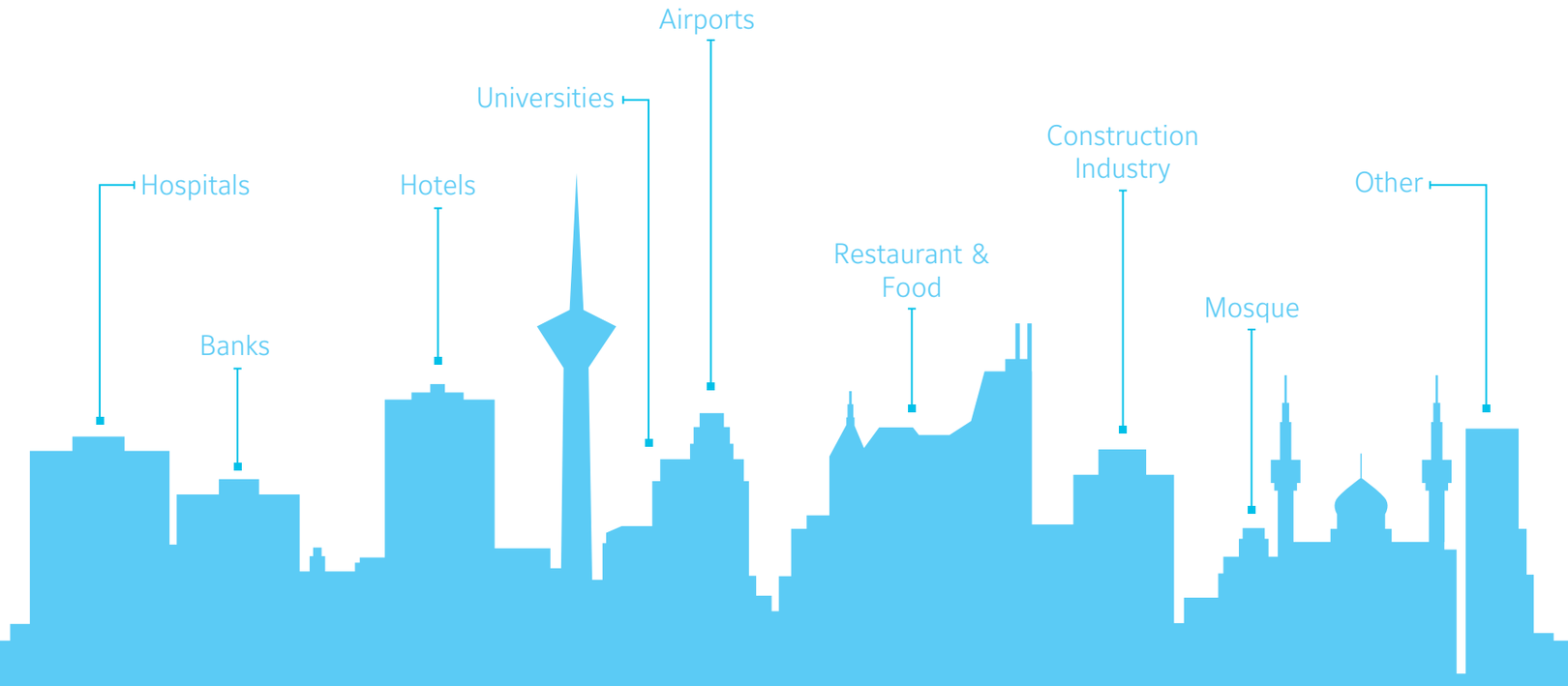
WALL MOUNTED
FAN COIL UNIT

Saran
Life's Pleasant Breeze



AIR CONDITIONING MFG.GROUP

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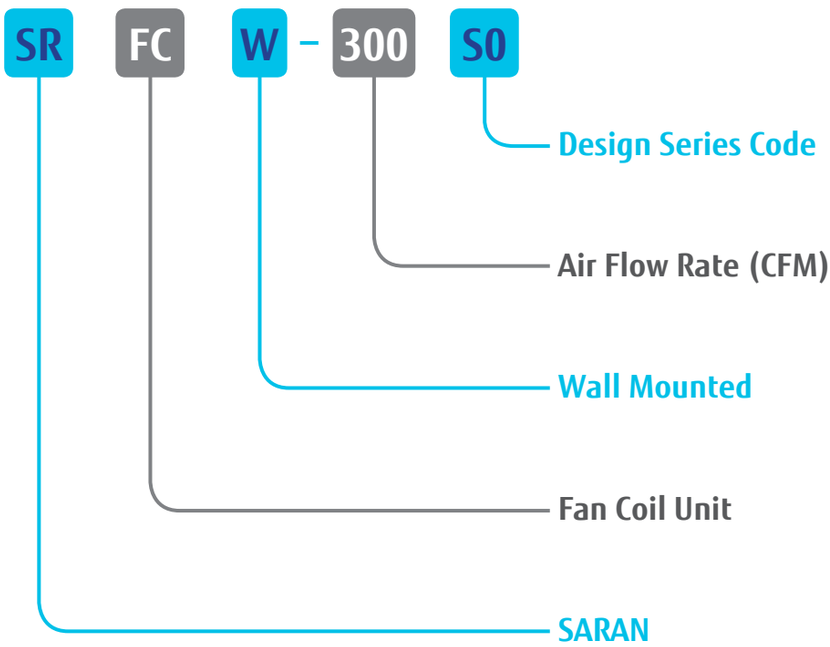
Contents

NOMENCLATURE



Introduction

The fan coil units mainly consist of centrifugal fan, coil heat exchanger, etc., they are the terminal devices of central air conditioning system, which are widely used in buildings with multi-rooms or industrial and household air conditioning occasions, for example: hotels, restaurants, factories, hospitals, exhibition halls, markets and office buildings, etc. These units can meet many requirements, like cooling, dehumidification and heating, etc., and make a clean, quiet and comfortable working and living environment.

Compared with other types of fan coil units, Saran wall-mounted fan coil unit has the following advantages, it can be mounted on any location of indoor wall and will not occupy extra space; it's easy for installation and maintenance, and can perfectly match with indoor decoration.

Features

- It can be mounted on any location of indoor wall and will not occupy extra space, which makes it very suitable for family and public places use;
- Excellent quality: The units adopt superb components to ensure its quality. The strict test during manufacturing process and 100% ex-factory test guarantee the reliable quality.
- Beautiful appearance and low noise: Resin type skin with thin and beautiful appearance; new turbine blade makes operation quiet and with low noise.
- Special heat isolation design, excellent heat isolation effect, and the casing will not get condensing water;
- Long-term air filter adopted, its cleaning period is 1/2 of the normal filter, which make maintenance easier;
- Plastic drip tray, adopts innovative foam-PS combination technology, the plastic surface thickness reaches 1mm. These features make the drip tray structure firmer and also avoid leakage;
- Safe and reliable, long-term lifetime: Each fan coil unit is conducted by leakage test with pressure; the inlet/outlet pipes (copper head) adopt forging brass structure to ensure its reliability.
- High EER: The unit design is customized and adopts high efficiency heat exchanger, which makes a perfect combination of large air flow volume, low noise fan and motor, in order to enhance heat transfer ability and make the unit EER more superior.;
- Standard remote controller

Technical Data

Table 1: Technical Data

Model		SRFCW-200	SRFCW-300	SRFCW-400	SRFCW-500	SRFCW-600	SRFCW-800
Nominal Air Flow Rate (CFM)		200	300	400	500	600	800
Total Heating Capacity (Btu/hr)		15020	21390	28470	35570	42660	59640
Total Cooling Capacity (Btu/hr)		6770	9250	12340	15400	18440	27240
Coil Data	Fan Quantity	1					
	Motor Quantity	1					
	Power Input (W)	52	52	62	76	96	134
Water Flow Rate (GPM)		1.5	2.7	3.5	4.2	4.8	6.1
Water Pressure Drop (Ft.W.G)		10.0	10.0	10.0	10.0	13.4	13.4
Inlet/Outlet Water Pipe		R1/2"(DN15)					
Drain Pipe		R1/2"(DN15)					
Noise (dBA)		42	42	43	47	47	49
Net/Gross Weight (kg)		11/12.5	11/12.5	12.6/14.5	15/17	16/18	20/23

NOTE

- Cooling capacities are based on entering chilled water temperature 44°F and entering air temperature of 80°F DB / 67°F WB at fan high speed.
- Heating capacities are based on entering hot water temperature 180°F and entering air temperature of 68°F DB at fan high speed.
- Parameters above may be modified as product improvement. We keep the right to change the product specifications without prior notice.

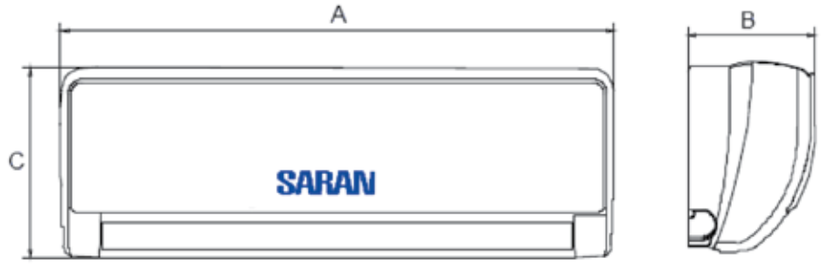


Table 2: Dimensions

Model	A	B	C
SRFCW- 200	850	198	300
SRFCW- 300	850	198	300
SRFCW- 400	850	198	300
SRFCW- 500	970	235	315
SRFCW- 600	970	235	315
SRFCW- 800	1100	235	330

NOTE

- All dimensions are in mm.
- The above data is subject to change without prior notice.

Selection Considerations

Following factors should be considered for selecting of Saran wall-mounted fan coil units:

- Available space for the unit including floor to ceiling height
- Type of application (Standard / District cooling)
- Presence of high sensible or peripheral loads in space
- Functionality of intended space usage
- Availability of access for pipes, drains and power
- Compatibility with intended space finish
- Fresh air and ventilation requirements
- Noise level desired at peak or part load operations
- Control system desired especially if winter heating is required
- Economy of layout

Saran wall mounted fan coil units rating data presented in the "Performance Data" tables indicate capacity of the fan coil units at fan high speed on sea level altitude, So for other condition, following performance adjustment factors shall be attend in unit selection:

Table 3: Altitude Correction Factors

Altitude (ft)	0	1000	2000	3000	4000	5000	6000
Total Cooling Capacity	1.00	0.99	0.98	0.97	0.96	0.94	0.93
Sensible Cooling Capacity	1.00	0.96	0.93	0.90	0.86	0.83	0.80
Total Heating Capacity	1.00	0.97	0.94	0.90	0.87	0.83	0.81

Table 4: Fan Speed Correction Factors

Fan Speed	High	Medium	Low
Total Cooling Capacity	1.00	0.85	0.65
Sensible Cooling Capacity	1.00	0.81	0.60
Total Heating Capacity	1.00	0.85	0.65

Selection Example:

Given:

Required Air Flow Rate: 400 CFM
Ambient Altitude: 2000 ft
Fan Speed: High

Summer Conditions

Total Cooling Load: 12000 Btu/hr
Sensible Cooling Load: 7200 Btu/hr
Entering Air Temperature: 80.6°F DB / 67.1°F WB
Entering Water Temperature: 44.5°F

Winter Conditions

Total Heating Load: 21000 Btu/hr
Entering Air Temperature: 70°F DB
Entering Water Temperature: 160°F

Step1: Appropriate Fan Coil Unit Selection

Because we need 400 CFM air flow rate, in first step we select SRFCW-400. By referring to performance table, we can see total and sensible cooling capacity of this unit with 3.3 GPM chilled water flow rate in given summer conditions are 12340 Btu/hr and 7780 Btu/hr, respectively. In addition, heating capacity of this unit with 3.3 GPM hot water flow rate in given winter conditions are 23240 Btu/hr.

Step2: Comparison of Selected Model Performance with Our Requirements

In this step, we check selected model performance in our condition:
Because of fan coil units performance tables are based on sea level altitude and fan high speed, we should be using load adjustment factor in our conditions, so that by referring to tables 1 and 2, we have:

- Actual Total Cooling Capacity = 12340 × 0.98 × 1.00 = 12093 Btu/hr
- Actual Sensible Cooling Capacity = 7780 × 0.93 × 1.00 = 7235 Btu/h
- Actual Heating Capacity = 23240 × 0.94 × 1.00 = 21846 Btu/hr

Therefore, the chosen unit satisfies the load requirements.

Step3: Determine water flow range

To determine water flow range, we can using following formula:

$$\text{Chilled water flow range (°F)} = \frac{\text{Actual Total Cooling Capacity (Btu/hr)}}{500 \times \text{Chilled Water Flow Rate (GPM)}} = \frac{12093}{500 \times 3.3} = 7.3°F$$

$$\text{Chilled water flow range (°F)} = \frac{\text{Actual Total Cooling Capacity (Btu/hr)}}{500 \times \text{Chilled Water Flow Rate (GPM)}} = \frac{21846}{500 \times 3.3} = 13.2°F$$

Performance Data

Table 5a: Chilled Water Rating

Air inlet temperature (°F)			78.8 DB / 65.7 WB						80.6 DB / 66.2 WB					
Water inlet temperature (°F)			41		44.5		48		41		44.5		48	
Model	Water Flow Rate (GPM)	Water Pressure Drop (Ft.W.G)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)
SRFCW-200	0.7	0.8	4790	3630	4230	3400	3630	2970	4880	3830	4460	3600	3750	3140
	1.1	1.8	5470	4090	4820	3780	4140	3300	5630	4310	4970	3980	4290	3510
	1.5	3.3	6520	4430	5750	4070	4970	3540	6670	4640	5910	4280	5120	3790
	2.0	4.9	7130	4520	6340	4140	5460	3590	7310	4750	6420	4370	5640	3820
SRFCW-300	1.3	1.2	6500	4930	5750	4620	4930	4030	6640	5200	6050	4890	5100	4270
	1.8	2.0	7440	5550	6540	5140	5620	4490	7640	5860	6750	5410	5820	4760
	2.2	2.9	8780	5970	7750	5490	6690	4770	8990	6240	7960	5760	6890	5110
	2.6	4.0	9730	6170	8660	5660	7450	4900	9980	6480	8760	5970	7700	5210
SRFCW-400	1.9	2.7	8690	6590	7690	6170	6590	5400	8880	6950	8100	6540	6820	5720
	2.4	3.8	9940	7420	8750	6870	7510	6000	10210	7830	9020	7240	7780	6370
	2.9	5.2	11730	7970	10360	7330	8930	6370	12010	8340	10630	7700	9210	6830
	3.3	6.7	12990	8240	11560	7550	9940	6540	13310	8660	11700	7970	10270	6950
SRFCW-500	2.6	6.0	10860	8230	9600	7710	8230	6740	11090	8690	10120	8170	8520	7140
	3.1	8.0	12410	9270	10920	8580	9380	7490	12760	9780	11270	9040	9720	7950
	3.5	10.0	14650	9960	12940	9160	11160	7960	15000	10420	13280	9610	11500	8530
	4.0	12.4	16200	10280	14420	9420	12410	8160	16610	10800	14590	9940	12810	8670
SRFCW-600	3.3	7.2	13020	9870	11510	9250	9870	8090	13290	10420	12130	9800	10210	8560
	3.7	9.0	14880	11100	13090	10280	11240	8980	15290	11720	13500	10830	11650	9530
	4.2	10.9	17530	11910	15470	10950	13350	9510	17940	12460	15880	11500	13760	10200
	4.6	13.0	19400	12320	17270	11280	14860	9770	19890	12930	17480	11900	15340	10390
SRFCW-800	4.0	5.0	19250	14590	17020	13680	14590	11960	19660	15400	17940	14490	15100	12660
	4.8	7.0	22000	16420	19370	15210	16630	13280	22610	17340	19970	16020	17240	14090
	5.7	9.4	25960	17650	22920	16230	19780	14100	26580	18460	23530	17040	20390	15110
	6.6	12.0	28660	18190	25510	16670	21960	14430	29380	19110	25820	17580	22670	15350

NOTE

- Capacities are based on fan high speed and sea level altitude. For other condition, performance adjustment factors shall be attend in fan coil units selection (See Table 3&4).

Performance Data (Cont.)

Table 5b: Chilled Water Rating

Air inlet temperature (°F)			80.6 DB / 67.1 WB						82.4 DB / 71.6 WB					
Water inlet temperature (°F)			41		44.5		48		41		44.5		48	
Model	Water Flow Rate (GPM)	Water Pressure Drop (Ft.W.G)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)	Total (Btu/hr)	Sensible (Btu/hr)
SRFCW-200	0.7	0.8	5060	3750	4480	3470	4130	3460	6350	4700	5740	4450	5190	3840
	1.1	1.8	5830	4210	5170	3880	4500	3680	7290	5270	6640	4980	5980	4320
	1.5	3.3	6980	4580	6160	4200	5380	3980	8640	5670	7920	5400	7130	4680
	2.0	4.9	7560	4700	6770	4270	5920	4010	9480	5900	8650	5450	7740	4810
SRFCW-300	1.3	1.2	6880	5100	6090	4720	5610	4700	8620	6390	7800	6050	7050	5220
	1.8	2.0	7910	5720	7020	5280	6120	5000	9900	7160	9010	6770	8120	5870
	2.2	2.9	9400	6170	8300	5660	7240	5370	11630	7640	10670	7270	9600	6310
	2.6	4.0	10320	6420	9250	5830	8080	5470	12940	8050	11800	7440	10560	6570
SRFCW-400	1.9	2.7	9200	6820	8140	6310	7500	6290	11530	8550	10430	8090	9430	6990
	2.4	3.8	10580	7650	9390	7050	8170	6680	13240	9570	12050	9050	10860	7850
	2.9	5.2	12560	8250	11090	7560	9670	7170	15540	10210	14250	9720	12830	8430
	3.3	6.7	13770	8560	12340	7780	10780	7300	17270	10740	15750	9930	14090	8760
SRFCW-500	2.6	6.0	11490	8520	10170	7890	9370	7860	14400	10680	13030	10100	11770	8730
	3.1	8.0	13210	9550	11730	8810	10210	8350	16530	11950	15050	11300	13560	9800
	3.5	10.0	15680	10300	13850	9440	12080	8950	19410	12750	17800	12140	16030	10530
	4.0	12.4	17180	10690	15400	9710	13450	9110	21550	13400	19650	12390	17580	10930
SRFCW-600	3.3	7.2	13770	10210	12200	9450	11230	9420	17270	12800	15620	12110	14120	10460
	3.7	9.0	15840	11450	14050	10560	12230	10000	19810	14320	18030	13540	16250	11740
	4.2	10.9	18760	12320	16570	11300	14450	10710	23210	15250	21290	14520	19170	12590
	4.6	13.0	20570	12800	18440	11630	16110	10910	25800	16050	23540	14840	21060	13100
SRFCW-800	4.0	5.0	20370	15100	18040	13980	16610	13930	25540	18930	23110	17910	20880	15480
	4.8	7.0	23420	16930	20790	15610	18100	14800	29310	21180	26670	20030	24030	17370
	5.7	9.4	27790	18260	24550	16730	21410	15860	34390	22590	31540	21510	28400	18660
	6.6	12.0	30390	18910	27240	17180	23800	16110	38120	23710	34760	21920	31100	19350

NOTE

- Capacities are based on fan high speed and sea level altitude. For other condition, performance adjustment factors shall be attend in fan coil units selection (See Table 3&4).

Performance Data (Cont.)

Table 6: Hot Water Rating

			Heating Capacity (Btu/hr)								
Air inlet temperature (°F)			68			70			72		
Water inlet temperature (°F)			140	160	180	140	160	180	140	160	180
Model	Water Flow Rate (GPM)	Water Pressure Drop (Ft.W.G)									
SRFCW-200	0.7	0.8	8140	10190	12210	7940	9990	11980	7740	9760	11780
	1.1	1.8	8750	10930	13130	8550	10730	12930	8300	10500	12670
	1.5	3.3	9520	11860	14250	9240	11630	13970	9010	11380	13770
	2.0	4.9	10000	12510	15020	9750	12250	14760	9490	12000	14530
SRFCW-300	1.3	1.2	11680	14620	17520	11390	14330	17190	11100	14000	16900
	1.8	2.0	12550	15680	18840	12260	15390	18550	11900	15060	18180
	2.2	2.9	13570	16920	20330	13180	16590	19930	12850	16230	19640
	2.6	4.0	14250	17820	21390	13880	17450	21030	13520	17090	20700
SRFCW-400	1.9	2.7	15560	19480	23350	15180	19100	22920	14790	18660	22530
	2.4	3.8	16730	20890	25100	16350	20500	24710	15860	20070	24230
	2.9	5.2	17740	22100	26560	17220	21670	26040	16790	21200	25660
	3.3	6.7	18970	23720	28470	18480	23240	27990	18000	22750	27550
SRFCW-500	2.6	6.0	19460	24350	29190	18970	23870	28640	18490	23320	28160
	3.1	8.0	20910	26110	31370	20430	25630	30880	19820	25080	30280
	3.5	10.0	22610	28170	33850	21940	27630	33190	21400	27020	32700
	4.0	12.4	23690	29630	35570	23080	29020	34960	22480	28420	34420
SRFCW-600	3.3	7.2	23340	29220	35020	22760	28640	34360	22180	27980	33780
	3.7	9.0	25090	31320	37630	24510	30740	37050	23780	30090	36330
	4.2	10.9	26770	33360	40090	25980	32710	39300	25340	32000	38730
	4.6	13.0	28410	35530	42660	27680	34800	41930	26960	34080	41270
SRFCW-800	4.0	5.0	32650	40860	48970	31840	40050	48060	31020	39140	47250
	4.8	7.0	35090	43810	52640	34280	43000	51830	33270	42090	50810
	5.7	9.4	37930	47260	56800	36820	46350	55690	35900	45340	54870
	6.6	12.0	49670	59620	71550	48650	58610	70320	47640	57690	68660

NOTE

- Capacities are based on fan high speed and sea level altitude. For other condition, performance adjustment factors shall be attend in fan coil units selection (See Table 3&4).

Installation Recommendations

Notices of Unit Installation

- The installation location should keep away from direct solar radiation and cooling/heating sources;
- There must be enough space reserved for easier installation, maintenance and filter disassembly;
- Choose a better installation location to make the air distribution reasonable, and it should fully cover blind space;
- When connect the inlet and outlet water pipes, it's better to use raw material to seal the connection joints;
- The inlet/outlet water pipes should be conducted heat reservation, and add valve;
- The condensing water inlet should be installed with filter, in case of being blocked;
- Before wiring, check the voltage and phase number of power supply, and ensure they meet the unit requirement; the difference of voltage better not exceed 10% of rated voltage;
- The water used by the unit should meet: cold water temperature should be no lower than 42°F (avoid defrost), hot water no higher than 140°F, and the water should be clean;
- The installation location should keep away from place with much dust and oil mist, in case it causes heat exchanger performance drop, electric shock and unit damage made by corrosive plastic, etc.;
- The installation location should be keep away from the TV and radio with more than 1 meter, in case it disturb them;

Installation Location Selection

The fan coil unit should be mounted on solid wall, and the height better be 1.8~2m. The unit should be kept away from the ceiling and walls on 2 sides with above 10~15cm, which will make ventilation easier.
The installation location should keep away from direct solar radiation, and the air outlet cannot face to people; besides, the condensing water drainage issue should be taken into consideration.

Unit Installation

Take off the hanging plate of indoor unit and hold it horizontally on target position of the wall. Find out the arrow indication on 4 corners of the plate, and mark the holes positions, and then use electric drill to make holes on the marked positions; fill in bilge anchor bolts, and access through the holes in the plate with wood screw, and then screw into the bilge anchor bolts to fasten the hanging plate.
The next step is to drill holes through the wall, and the holes are used for the duct pipe of the fan coil unit. The positions of the holes should be decided by the circle gap on the installation plate. While drilling holes, drill a circle of smaller holes around the gap, and then use tool to make the real hole, which can be more accurate and time-saving. The positions of holes should be slightly incline from inside to outside, which makes it easier for condensing water drainage. According to different installation location, the water discharge ways of duct connection have the following types: discharge from back left side, discharge from back right side, discharge from bottom right side, discharge from bottom left side, etc.
After the duct led out, put heat preservation pipe on the coupling hose, and then pack up at around 10mm position inside the case. The pack-up should stop when it reaches to the hose joints, and the rest should be done when the joints put together.
After all the above operation done, hang the unit on the hanging plate and make the discharge duct access through the holes on the wall.