DC Inverter Air Source Heat Pumps (Monoblock Type)

1. Working source temperature range: -25℃ to 45℃
2. Control Object: water tank temperature
(Setting range: Heating: 30℃～55℃; Cooling: 32℃～12℃)
3. Control Way: wire controller
4. Water Pump: start/stop according to water tank temp
5. Working Modes: hot water/heating/cooling/hot water+cooling/hot water+heating

CGK025V3L-B，CGK-025V3L-B
CGK030V3L-B，CGK-030V3L-B
CGK040V3L-B，CGK-040V3L-B

CGK050V3L-B，CGK-050V3L-B

CGK060V3L-B，CGK-060V3L-B

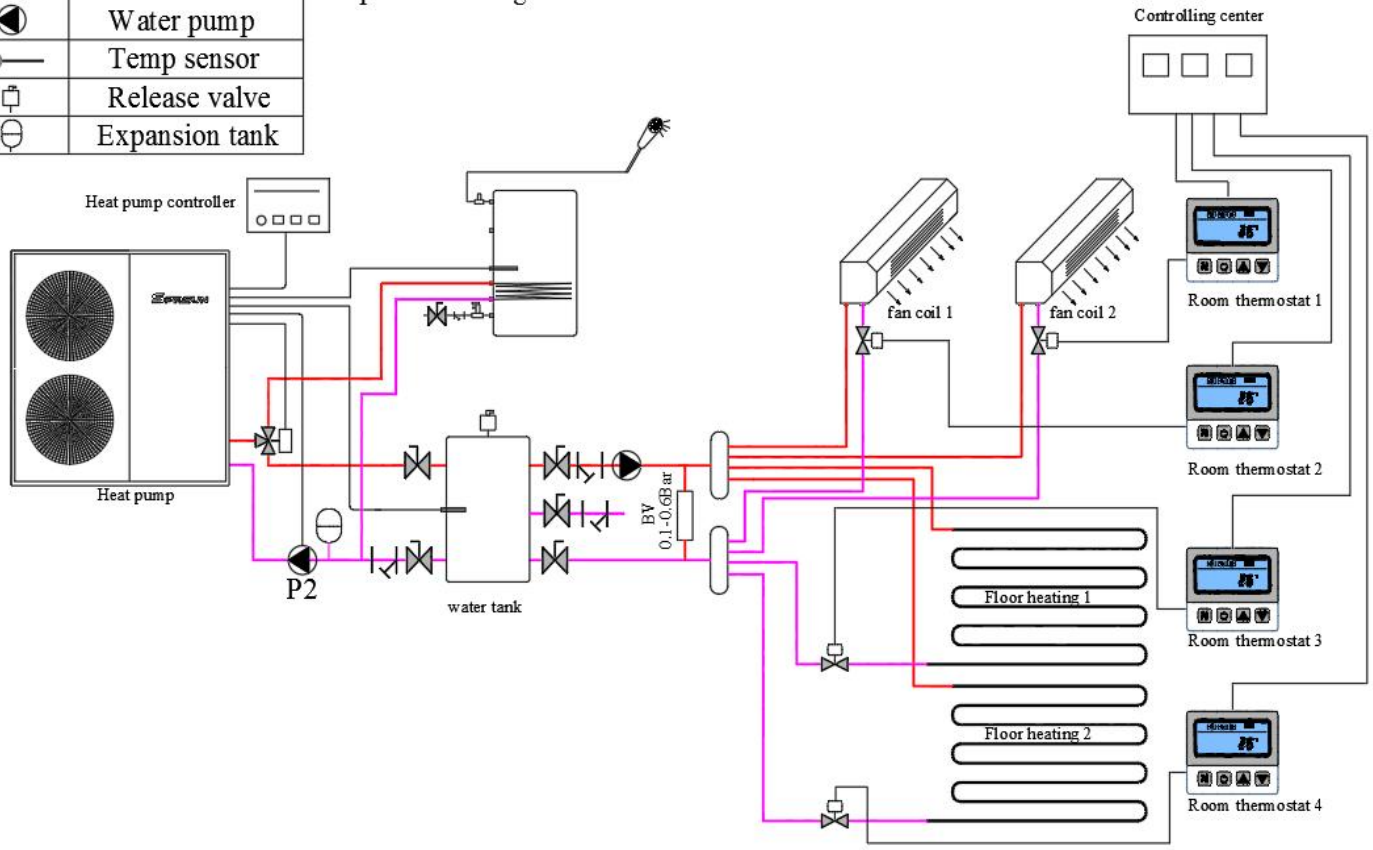
Guangzhou Sprsun New Energy Technology Development Co., Ltd.

Installation Diagram

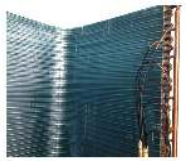
Symbol	Name
	3-way valve
	2-way valve
	Ball valve
	Non-return valve
	Filter
	Water pump
	Temp sensor
	Release valve
	Expansion tank

Notice:

1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
2. Two-way valve and BV valve are optional for installation. Only If you need to control the temperature by different zone, then pls install both.
3. Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.



SPRSUN DC inverter air source heat pump

Standard Materials								
Name	**Description**	**Picture**	**Name**	**Description**	**Picture**	**Name**	**Description**	**Picture**
Condenser	Plate Heat Exchanger		Evaporator	Hydropilic Aluminium foil and internal thread copper pipe heat exchanger		High Pressure Sensor	Manqiwei 0-4.5MPa	
Compressor	Panasonic Rotary Compressor		Expansion Valve	Danfoss Electronic expansion valve		Low Pressure Sensor	Manqiwei 0-3.45MPa	
4-way valve	SANHUA		DC Fan	NIDEC DC Fan		Package	corrugated board case / plywood case	
Controller	Touch screen Controller							

Functions

1. Defrost operation

λHeating or hot water enters defrost conditions:

When heating or hot water, the accumulative running time of the compressor is ≥45min (parameter P10), and the continuous running time of the compressor is ≥5min;

Outer coil temperature <-3℃ (parameter P11);

①(ambient temperature-outer coil temperature)≥5℃ (parameter P14), and -7℃≤ambient temperature≤parameter P16 for 30 seconds;

②(ambient temperature - outer coil temperature) ≥ 5°C (parameter P15), and ambient temperature <-7°C for 30 seconds;

When the above conditions are met at the same time, the defrost is entered; (Note: ① and ② only need to meet either condition)

When the temperature of the outer coil fails, if the ambient temperature is less than or equal to 20°C, the defrost will be changed to a regular defrost, and the defrost time is 10MIN;

λ Entering defrost conditions at startup:

When the shutdown/standby/press power-off time is greater than or equal to 30min;

-7℃≤ambient temperature≤3℃, and coil temperature <-3℃ (parameter P11);

When the compressor start-up conditions are met (the water temperature is lower than the return difference / the machine is turned on to start, but not started), enter when the above conditions are met

Defrost runs.

λ Exit defrost condition:

After 2 minutes of defrosting, when the temperature of the outer coil is greater than or equal to 20 ℃ (parameter P13) or the defrosting time reaches 10MIN (parameter P12), the system will exit the defrosting;

λDefrosting action: (the compressor is not turned off when defrosting, but the frequency is reduced to a minimum of 30Hz)

When the defrosting conditions are met, the following actions are performed:

1) The compressor drops to 30HZ, and the fan turns off after 15 seconds;

2) The four-way valve is powered on at 55S;

3) At 60S, the compressor will rise to the defrosting frequency of 60Hz (parameter P09);

4) The water pump keeps running;

When the exit defrost condition is met, the following actions are performed:

1) Press down to 30HZ;

2) The four-way valve loses power at 55S;

2. Heating electric heating

λ The control logic is as follows:

νStart condition:

1) In heating mode;

2) Ambient temperature <10°C (F59) or ambient temperature sensor failure

3) There is a demand for heating, that is, when the inlet water temperature ≤ heating set temperature - air conditioning return temperature (parameter P01);

4) The water pump is running

5) 5 minutes after the press starts (F57);

When the above conditions are met at the same time, the electric auxiliary heat is turned on.

νClose condition:

1) Cooling mode, hot water mode;

2) When there is no demand for heating or constant temperature control;

3) The water inlet temperature sensor malfunction alarm;

4) Ambient temperature > 10℃ (F59)

5) Water flow failure

6) The water pump is turned off

When any of the above conditions are met, the electric auxiliary heating stops

λ When the electric auxiliary heating is turned on, the water pump is turned on 30s in advance; when the auxiliary electric heating is turned off, the water pump is turned off after a delay of 30s.

λWhen defrosting, forced defrosting, and secondary antifreeze, the electric heating is forced to be turned on;

When the high pressure fault, low pressure fault, exhaust temperature sensing fault, and exhaust gas high protection stop, if the compressor cannot be started after locking, the electric heating will

3. Hot water electric heating

λ The control logic is as follows:

νStart condition:

1) In hot water mode;

2) Ambient temperature <10°C (F58) or ambient temperature sensor failure

3) There is a demand for hot water, that is, when the temperature of the water tank is less than or equal to the set temperature of the hot water - the return difference temperature of the hot water (parameter P02);

4) 5 minutes after the press starts (F56);

When the above conditions are met at the same time, the electric auxiliary heat is turned on.

νClose condition:

1) Cooling mode, heating mode;

2) When there is no demand for hot water or constant temperature control;

3) The water tank temperature sensor has a fault alarm;

4) Ambient temperature > 10℃ (F58)

When any of the above conditions are met, the electric auxiliary heating stops

λWhen defrosting, forced defrosting, and secondary antifreeze, the electric heating is forced to be turned on;

When the high pressure fault, low pressure fault, exhaust temperature sensing fault, and exhaust

Unit Name	Colorful Touch Screen -30℃ EVI Inverter Air Source Heat Pumps (Monoblock Type)

Model			CGK025V3L-B	CGK030V3L-B	CGK040V3L-B	CGK050V3L-B	CGK060V3L-B	CGK-025V3L-B	CGK-030V3L-B	CGK-040V3L-B	CGK-050V3L-B	CGK-060V3L-B
Power Supply / Refrigerant		V/Hz/P	220-240/50/1 - R32	220-240/50/1 - R32	220-240/50/1 - R32	220-240/50/1 - R32	220-240/50/1 - R32	380-420/50/3 - R32	380-420/50/3 - R32	380-420/50/3 - R32	380-420/50/3 - R32	380-420/50/3 - R32
Max. Heating Capacity (A7℃/W35℃)		kW	9.5	11.6	15	19.8	22	9.5	12	15	20	22
C.O.P (A7℃/W35℃)		W/W	4.56	4.41	4.61	4.71	4.61	4.56	4.42	4.62	4.72	4.62
Heating Capacity Min./Max.(A7℃/W35℃)		kW	4.37 / 9.50	5.34 / 11.60	6.90 / 15.00	9.11 / 19.80	10.12 / 22.00	4.37 / 9.50	5.52 / 12.00	6.90 / 15.00	9.20 / 20.00	10.12 / 22.00
Heating Power Input Min./Max.(A7℃/W35℃)		W	767 / 2083	968 / 2630	1197 / 3254	1547 / 4204	1756 / 4772	767 / 2083	999 / 2715	1195 / 3247	1559 / 4237	1752 / 4762
C.O.P Min./Max.(A7℃/W35℃)		W/W	4.56 / 5.70	4.41 / 5.51	4.61 / 5.76	4.71 / 5.89	4.61 / 5.76	4.56 / 5.70	4.42 / 5.53	4.62 / 5.78	4.72 / 5.90	4.62 / 5.78
Max. Heating Capacity(A7℃/W45℃)		kW	9.1	11.1	14.4	19.0	21.1	9.1	11.5	14.4	19.2	21.1
C.O.P (A7℃/W45℃)		W/W	3.65	3.53	3.69	3.77	3.69	3.65	3.54	3.70	3.78	3.70
Heating Capacity Min./Max.(A7℃/W45℃)		kW	4.20 / 9.12	5.12 / 11.14	6.62 / 14.40	8.74 / 19.01	9.72 / 21.12	4.20 / 9.12	5.30 / 11.52	6.62 / 14.40	8.83 / 19.20	9.72 / 21.12
Heating power input Min./Max.(A7℃/W45℃)		W	968 / 2500	1223 / 3156	1513 / 3905	1954 / 5045	2218 / 5727	968 / 2500	1262 / 3258	1509 / 3896	1970 / 5085	2214 / 5714
C.O.P Min./Max.(A7℃/W45℃)		W/W	3.65 / 4.33	3.53 / 4.19	3.69 / 4.38	3.77 / 4.47	3.69 / 4.38	3.65 / 4.33	3.54 / 4.20	3.70 / 4.39	3.78 / 4.48	3.70 / 4.39
Max. Cooling Capacity(A35℃/W18℃)		kW	8.7	10.6	13.7	18.1	20.1	8.7	10.9	13.7	18.2	20.1
E.E.R (A35℃/W18℃)		W/W	3.54	3.42	3.58	3.65	3.58	3.54	3.43	3.59	3.66	3.59
Cooling Capacity Min./Max.(A35℃/W18℃)		kW	3.99 / 8.66	4.87 / 10.58	6.29 / 13.68	8.31 / 18.06	9.23 / 20.06	3.99 / 8.66	5.03 / 10.94	6.29 / 13.68	8.39 / 18.24	9.23 / 20.06
Cooling Power Input Min./Max.(A35℃/W18℃)		W	939 / 2448	1185 / 3091	1466 / 3824	1894 / 4941	2150 / 5609	939 / 2448	1223 / 3191	1463 / 3816	1909 / 4980	2146 / 5596
E.E.R Min./Max.(A35℃/W18℃)		W/W	3.54 / 4.25	3.42 / 4.11	3.58 / 4.29	3.65 / 4.39	3.58 / 4.29	3.54 / 4.25	3.43 / 4.12	3.59 / 4.30	3.66 / 4.39	3.59 / 4.30
Max. Cooling Capacity(A35℃/W7℃)		kW	6.1	7.5	9.6	12.7	14.2	6.1	7.7	9.6	12.9	14.2
E.E.R(A35℃/W7℃)		W/W	2.48	2.40	2.50	2.56	2.50	2.48	2.40	2.51	2.56	2.51
Cooling Capacity Min./Max.(A35℃/W7℃)		kW	2.81 / 6.11	3.43 / 7.46	4.44 / 9.65	5.86 / 12.74	6.51 / 14.15	2.81 / 6.11	3.55 / 7.72	4.44 / 9.65	5.92 / 12.86	6.51 / 14.15
Cooling Power Input Min./Max.(A35℃/W7℃)		W	752 / 2467	950 / 3115	1175 / 3853	1518 / 4978	1723 / 5651	752 / 2467	980 / 3215	1173 / 3844	1530 / 5017	1720 / 5639
E.E.R Min./Max.(A35℃/W7℃)		W/W	2.48 / 3.74	2.40 / 3.61	2.50 / 3.78	2.56 / 3.86	2.50 / 3.78	2.48 / 3.74	2.40 / 3.62	2.51 / 3.79	2.56 / 3.87	2.51 / 3.79
Max Power Input		kW	3.13	3.95	4.88	6.31	7.16	3.13	4.07	4.87	6.36	7.14
Max Current		A	14.95	18.88	23.35	30.17	34.25	6.59	8.59	10.28	13.41	15.07
Compressor	Type - Quantity/System		Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1
Fan	Quantity		1	1	1	2	2	1	1	1	2	2
	Airflow	m3/h	2500	3000	3500	5000	5500	2500	3000	3500	5000	5500
	Rated power	W	80	100	120	200	210	80	100	120	200	210
Water Side Heat Exchanger	Type		Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger
	Water Pressure Drop	kPa	18	20	21	23	25	18	20	21	23	25
	Piping Connection	Inch	G1"	G1"	G1"	G1"	G1"	G1"	G1"	G1"	G1"	G1"
Allowable Water Flow	Min./Rated./Max.	L/S	0.28 0.45 0.76	0.35 0.55 0.92	0.45 0.72 1.19	0.59 0.95 1.58	0.66 1.05 1.75	0.28 0.45 0.76	0.36 0.57 0.96	0.45 0.72 1.19	0.60 0.96 1.59	0.66 1.05 1.75
Noise Level		dB(A)	56	59	60	61	62	56	59	60	61	62
Net Dimension(L×D×H)		mm	1110*475*810	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355	1110*475*810	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355
Packing Dimension(L×D×H)		mm	1200*540*970	1200*540*970	1200*540*1120	1200*540*1510	1200*540*1510	1200*540*970	1220*540*970	1200*540*1120	1200*540*1510	1200*540*1510
Net Weight		kg	78	88	98	124	124	78	88	98	124	124
Gross Weight		kg	106	116	126	161	161	106	116	126	161	161

Note: (1) Heating condition: water inlet/outlet temperature: 30℃/35℃, Ambient temperature: DB 7℃/WB 6℃;

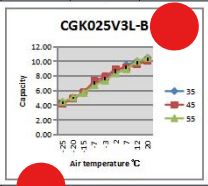
(2) Heating condition: water inlet/outlet temperature: 40℃/45℃, Ambient temperature: DB 7℃/WB 6℃;

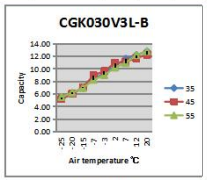
(3) Cooling condition: water inlet/outlet temperature: 23℃/18℃, Ambient temperature: DB35℃/WB24℃;

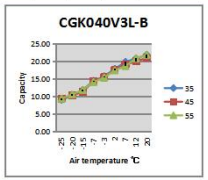
(4) Cooling condition: water inlet/outlet temperature: 12℃/7℃, Ambient temperature: DB35℃/WB24℃;

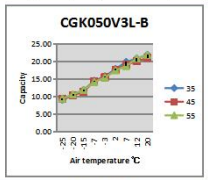
Heating Capacity at Different Conditions

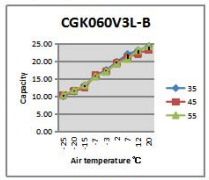
Model	CGK025V3L-B			CGK030V3L-B			CGK040V3L-B			CGK050V3L-B			CGK060V3L-B			CGK-025V3L-B			CGK-030V3L-B			CGK-040V3L-B			CGK-050V3L-B			CGK-060V3L-B		
Air temp ℃	Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)			Heating capacity (KW)		
-25	4.30	4.23	4.50	5.25	5.17	5.50	6.86	7.11	7.11	9.06	9.38	9.39	10.07	10.42	10.43	9.95	9.80	10.43	5.43	5.35	5.69	6.86	7.11	7.11	9.15	9.48	9.48	10.07	10.42	10.43
-20	4.94	4.92	5.08	6.03	6.01	6.20	7.80	7.81	8.02	10.30	10.31	10.58	11.44	11.45	11.76	11.44	11.40	11.76	6.24	6.22	6.41	7.80	7.81	8.02	10.40	10.41	10.69	11.44	11.45	11.76
-15	5.68	5.79	5.69	6.93	7.07	6.94	8.97	8.58	8.98	11.84	11.33	11.85	13.15	12.59	13.17	13.15	13.41	13.17	7.17	7.31	7.18	8.97	8.58	8.98	11.96	11.44	11.97	13.15	12.59	13.17
-7	6.93	7.33	6.76	8.46	8.95	8.25	10.94	10.86	10.67	14.43	14.34	14.09	16.04	15.93	15.66	16.04	16.97	15.66	8.75	9.26	8.54	10.94	10.86	10.67	14.58	14.48	14.23	16.04	15.93	15.66
-3	7.54	7.88	7.37	9.21	9.63	9.00	11.91	11.68	11.64	15.72	15.42	15.36	17.46	17.14	17.07	17.46	18.26	17.07	9.53	9.96	9.31	11.91	11.68	11.64	15.88	15.58	15.52	17.46	17.14	17.07
2	8.55	8.94	8.36	10.44	10.91	10.20	13.50	13.25	13.19	17.82	17.49	17.42	19.80	19.43	19.35	19.80	20.70	19.35	10.80	11.29	10.56	13.50	13.25	13.19	18.00	17.66	17.59	19.80	19.43	19.35
7	9.50	9.12	8.94	11.60	11.14	10.91	15.00	14.40	14.11	19.80	19.01	18.63	22.00	21.12	20.70	22.00	21.12	20.70	12.00	11.52	11.29	15.00	14.40	14.11	20.00	19.20	18.82	22.00	21.12	20.70
12	9.98	9.58	9.99	12.18	11.69	12.20	15.75	15.12	15.78	20.79	19.96	20.83	23.10	22.18	23.14	23.10	22.18	23.14	12.60	12.10	12.62	15.75	15.12	15.78	21.00	20.16	21.04	23.10	22.18	23.14
20	10.47	10.05	10.48	12.79	12.28	12.80	16.54	15.88	16.55	21.83	20.96	21.85	24.26	23.28	24.27	24.26	23.28	24.27	13.23	12.70	13.24	16.54	15.88	16.55	22.05	21.17	22.07	24.26	23.28	24.27
Hot water	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55	30/35	40/45	50/55

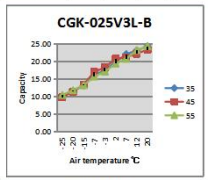


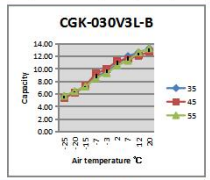


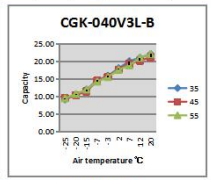


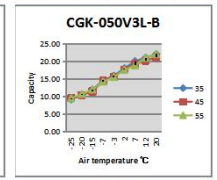


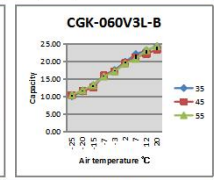












Model	CGK025V3L-B			CGK030V3L-B			CGK040V3L-B			CGK050V3L-B			CGK060V3L-B			CGK-025V3L-B			CGK-030V3L-B			CGK-040V3L-B			CGK-050V3L-B			CGK-060V3L-B		
Air temp ℃	COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW			COP kW/kW		
-25	2.04	1.85	1.44	1.98	1.79	1.40	2.32	2.03	1.60	2.37	2.07	1.63	2.32	2.03	1.60	2.07	1.87	1.46	1.98	1.79	1.40	2.32	2.03	1.60	2.37	2.07	1.64	2.32	2.03	1.73
-20	2.32	2.18	1.70	2.25	2.11	1.64	2.55	2.20	1.76	2.60	2.25	1.80	2.55	2.20	1.76	2.35	2.20	1.72	2.25	2.11	1.65	2.55	2.21	1.76	2.61	2.25	1.80	2.55	2.21	1.90
-15	2.70	2.37	1.85	2.61	2.29	1.79	2.86	2.39	1.91	2.93	2.44	1.95	2.86	2.39	1.91	2.73	2.39	1.87	2.62	2.29	1.79	2.87	2.40	1.91	2.93	2.45	1.96	2.87	2.40	2.06
-7	3.33	2.75	2.15	3.22	2.66	2.08	3.37	2.78	2.17	3.44	2.84	2.22	3.37	2.78	2.17	3.37	2.78	2.17	3.23	2.67	2.08	3.38	2.79	2.17	3.45	2.85	2.22	3.38	2.79	2.34
-3	3.61	2.99	2.33	3.49	2.89	2.25	3.65	3.02	2.36	3.73	3.09	2.41	3.65	3.02	2.36	3.65	3.02	2.36	3.50	2.90	2.26	3.66	3.03	2.36	3.74	3.09	2.41	3.66	3.03	2.54
2	3.97	3.36	2.62	3.84	3.25	2.53	4.01	3.39	2.65	4.10	3.47	2.70	4.01	3.39	2.65	4.01	3.39	2.65	3.85	3.25	2.54	4.02	3.40	2.65	4.11	3.47	2.71	4.02	3.40	2.86
7	4.56	3.65	2.85	4.41	3.53	2.75	4.61	3.69	2.88	4.71	3.77	2.94	4.61	3.69	2.88	4.61	3.69	2.88	4.42	3.54	2.76	4.62	3.70	2.88	4.72	3.78	2.95	4.62	3.70	3.10
12	5.11	3.94	3.07	4.94	3.81	2.97	5.16	3.98	3.11	5.28	4.07	3.17	5.16	3.98	3.11	5.16	3.98	3.11	4.95	3.82	2.98	5.17	3.99	3.11	5.29	4.08	3.18	5.17	3.99	3.35
20	5.72	4.61	3.60	5.53	4.46	3.48	5.78	4.66	3.63	5.91	4.76	3.71	5.78	4.66	3.63	5.78	4.66	3.63	5.54	4.47	3.49	5.80	4.67	3.64	5.92	4.77	3.72	5.80	4.67	3.92
Hot water temp ℃	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55	35	45	55