FAN COIL UNITS SINCLAIR

CATALOGUE 2014

sinclair
AIR CONDITIONING

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UNITS PROPERTIES

SF - XY

Type of unit:
C - cassette unit
H - wall mounted unit

Nominal airflow:
value x 100 m³/h
for C type units
value x10 m³/h
for H type units

Designation for Sinclair Fan Coil

MODEL DESIGNATION EXAMPLE:

SF - 85H stands for wall mounted unit with nominal airflow 850 m³/h

SF units are supplied as fans and water coils in one casing. The cassette type is supplied with condensate lift pump and back up electric heater element.

Hot or cold water is supplied to the SF unit where it passes through the coil that either heats or cools the air which is then put back into the room.

MAIN FAN COIL UNITS 2014 SINCLAIR FEATURES

ELEGANT LOOK

SF units are designed not to be intrusive in the room but to be discrete.

LOW NOISE

The indoor fan is designed for low noise with adequate air flow for comfort not disturbance.

HIGH HEATING AND COOLING CAPACITY

Three steps of fan speed control allows the capacity to meet the requirements.

EASIER MAINTENANCE

Maintenance is cut down by using high quality filters and the cleaning frequency can be reduced by up to 20 times.

INTELIGENT MANAGEMENT

Both types of units are equipped with microprocessor controls allowing the use of remote control.

SIMPLE OPERATION

Thanks to a full function remote control operation is clear and simple.

RANGE OF APPLICATIONS

SF units are ideal for residential, retail and commercial use and other places heating and cooling is required.

MICROCOMPUTER CONTROL

CONTROL

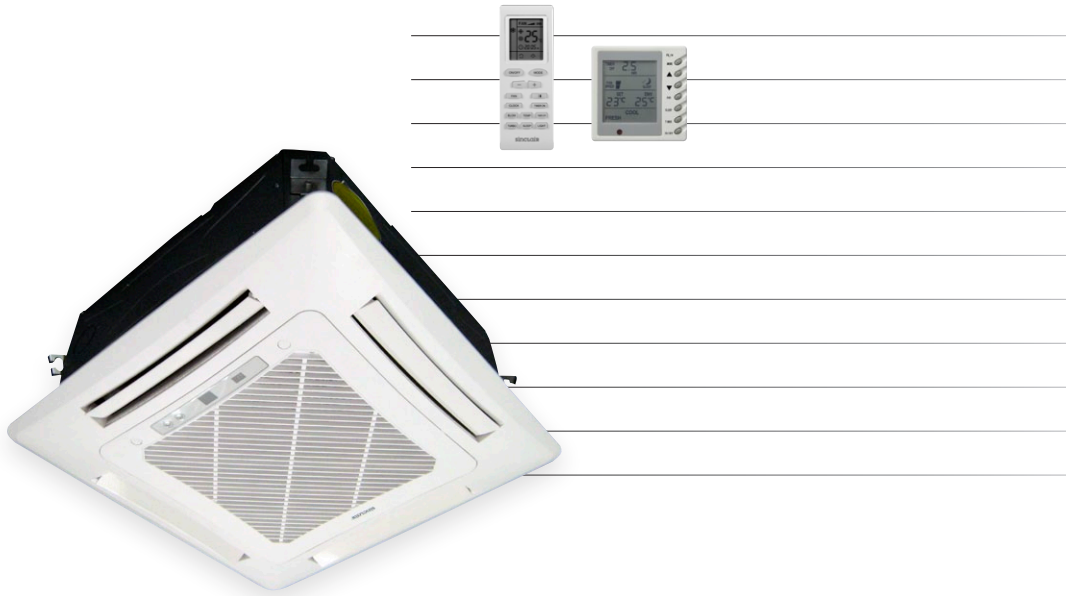
- Remote control
- Air flow direction control
- Timer control
- Temperature control
- Operation mode control
- Sleep mode control
- Automatic operation control

DISPLAY

- Timer setting
- Fan speed
- Operation mode (heating, cooling, etc.)

CASSETTE UNITS

SF-08C
SF-12C
SF-16C



Model			SF-08C	SF-12C	SF-16C
Power system	Type	V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50
	Input	W	100	150	160
Air flow volume	High	ft^3/min	850	1250	1640
		m^3/h	500	735	965
	Medium	ft^3/min	638	1030	1450
		m^3/h	375	606	853
	Low	ft^3/min	515	914	1328
		m^3/h	303	538	781
Capacity	Cooling	W	4640	6700	8700
	Heating	W	7500	10500	12900
Electric heater rated power		W	1400	1400	1400
Water systém	Water flow volume	m^3/h	0.81	1.18	1.53
	Pressure drop	kPa	15	25	27
Sound pressure level L_A		dB	46	47	53
Coil	Type	-	Aluminium fin - copper tube		
	Operating pressure	MPa	<1.6MPa	<1.6MPa	<1.6MPa
Electric motor	Type	-	FN35B	FN35B	FN50T
	Capacitor	uF	2.5	3.5	4.5
Connection pipe size	Water inlet / outlet	inch	3/4"	3/4"	3/4"
	Condensing water drain	mm	32	32	32
Outline dimensions	Body	mm	840x840x240	840x840x240	840x840x320
	Panel	mm	960x960x60	960x960x60	960x960x60
Package dimensions	Body	mm	960x960x310	960x960x310	960x960x394
	Panel	mm	1040x1025x115	1040x1025x115	1040x1025x115
Net weight	Body	kg	30	30	38
	Panel	kg	6.5	6.5	6.5
Gross weight	Body	kg	38	38	46
	Panel	kg	10	10	10
Wired remote controller (optional)			Z5K351/Z4E351B		
Wireless remote controller (standard)			YB1F2(X-FAN)		

Notes:
1. Unit is designed only for indoor instalation . Temperature in the room should be between 5 ºC and 43 ºC, the inlet water should be between 7 ºC and 60 ºC .
2. Testing conditions for cooling mode: dry bulb temperature DB=27 ºC, wet bulb temperature WB=19 ºC, inlet water temperature 7 ºC and outlet water temperature 12 ºC
3. Testing conditions for heating mode: dry bulb temperature DB=21 ºC, inlet water temperature 50 ºC and outlet water temperature 40 ºC
4. Testing conditions for freeze-up mode: dry bulb temperature DB=27 ºC, wet bulb temperature WB=24 ºC, inlet water temperature 6 ºC and outlet water temperature 10 ºC
5. Sound pressure level tested in accordance with ISO 5151. Noise measured 1 m below air outlet at 1 m distance.

WALL MOUNTED UNITS

SF-51H
SF-68H
SF-85H

Model			SF-51H	SF-68H	SF-85H
Power system	Type	V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50
	Input	W	50	60	60
Air flow volume	High	m^3/h	550	680	850
		ft^3/min	324	400	500
	Medium	m^3/h	413	591	708
		ft^3/min	242	347	416
	Low	m^3/h	367	532	616
		ft^3/min	215	312	362
Capacity	Cooling	W	2700	3600	4200
	Heating	W	4050	5400	6300
Water systém	Water flow volume	m^3/h	0.45	0.6	0.7
		gal/min	1.98	2.64	3.8
	Pressure drop	kPa	24	44	45
		Ft-WG	7.9	14.5	14.8
Sound pressure level L_A		dB	40	43	48
Coil	Type	-	Aluminium fin - copper tube		
	Operation pressure	MPa	<1.5MPa	<1.5MPa	<1.5MPa
Electric motor	Type	-	FN20J-PG	FN20V-PG	FN20V-PG
	Capacitor	uF	1	1.5	1.5
	Power output	W	20	20	20
Connection pipe size	Water inlet/outlet	inch	1/2"	1/2"	1/2"
	Condensate drain	mm	15,6	15,6	15,6
Outline dimensions (WxDxH)		mm	845x180x275	940x200x298	940x200x298
Package dimensions (WxDxH)		mm	915x255x355	1010x285x380	1010x285x380
Net weight		kg	11	13	13
Gross weight			14	17	17
Wired remote controller (optional)			Z4E351B		
Wireless remote controller (standard)			YB1FA		

Notes:
1. Unit is designed only for indoor instalation . Temperature in the room should be between 5 ºC and 43 ºC, the inlet water should be between 7 ºC and 60 ºC .
2. Testing conditions for cooling mode: dry bulb temperature DB=27 ºC, wet bulb temperature WB=19 ºC, inlet water temperature 7 ºC and outlet water temperature 12 ºC
3. Testing conditions for heating mode: dry bulb temperature DB=21 ºC, inlet water temperature 50 ºC and outlet water temperature 40 ºC
4. Testing conditions for freeze-up mode: dry bulb temperature DB=27 ºC, wet bulb temperature WB=24 ºC, inlet water temperature 6 ºC and outlet water temperature 10 ºC
5. Sound pressure level tested in accordance with ISO 5151. Noise measured 1 m below air outlet in 1 m distance.

COOLING CAPACTIY TABLES

CASSTTE UNITS

Units: W

Model	Entering water temperature (ºC)	Entering air temperature															
		DB=23 ºC WB=16 ºC				DB=25 ºC WB=18 ºC				DB=27 ºC WB=19 ºC				DB=29 ºC WB=22 ºC			
		TH	SH	Water flow l/s	Pressure drop kPa	TH	SH	Water flow l/s	Pressure drop kPa	TH	SH	Water flow l/s	Pressure drop kPa	TH	SH	Water flow l/s	Pressure drop kPa
SF-08C	5	3462	2900	0.17	15	4524	3370	0.22	19	5291	3824	0.25	20	6676	4019	0.32	28
	6	3225	2807	0.15	12	4186	3238	0.20	15	4874	3661	0.23	17	6242	3856	0.30	22
	7	3003	2711	0.14	10	3935	3149	0.19	13	4640	3596	0.22	15	5792	3694	0.28	19
	8	2589	2477	0.12	7	3406	2879	0.16	9	4089	3352	0.20	12	5341	3547	0.25	14
	9	2330	2307	0.11	5	3083	2741	0.15	7	3755	3205	0.18	10	4907	3384	0.23	11
SF-12C	5	4999	4106	0.24	23	6532	4773	0.31	31	7640	5415	0.36	31	9640	5691	0.46	45
	6	4657	3974	0.22	18	6045	4585	0.29	24	7037	5184	0.34	26	9014	5461	0.43	36
	7	4336	3839	0.21	16	5682	4459	0.27	20	6700	5092	0.32	24	8363	5230	0.40	30
	8	3739	3508	0.18	11	4919	4076	0.23	14	5905	4746	0.28	19	7712	5023	0.37	22
	9	3365	3267	0.16	8	4452	3882	0.21	11	5423	4539	0.26	17	7086	4792	0.34	18
SF-16C	5	6491	5332	0.31	21	8482	6197	0.40	27	9921	7031	0.47	28	12518	7390	0.60	40
	6	6048	5161	0.29	16	7850	5953	0.37	21	9138	6732	0.44	23	11704	7091	0.56	31
	7	5631	4984	0.27	14	7378	5791	0.35	18	8700	6612	0.42	21	10859	6792	0.52	26
	8	4855	4555	0.23	9	6387	5293	0.30	12	7667	6163	0.37	17	10014	6522	0.48	19
	9	4369	4242	0.21	7	5781	5041	0.28	10	7041	5894	0.34	14	9201	6223	0.44	15

Notes
1. "TH" is total cooling capacity, "SH" is sensible cooling capacity.
2. "DB" is dry bulb temperature, "WB" is wet bulb temperature.
3. All values are for high fan speed.

WALL MOUNTED UNITS

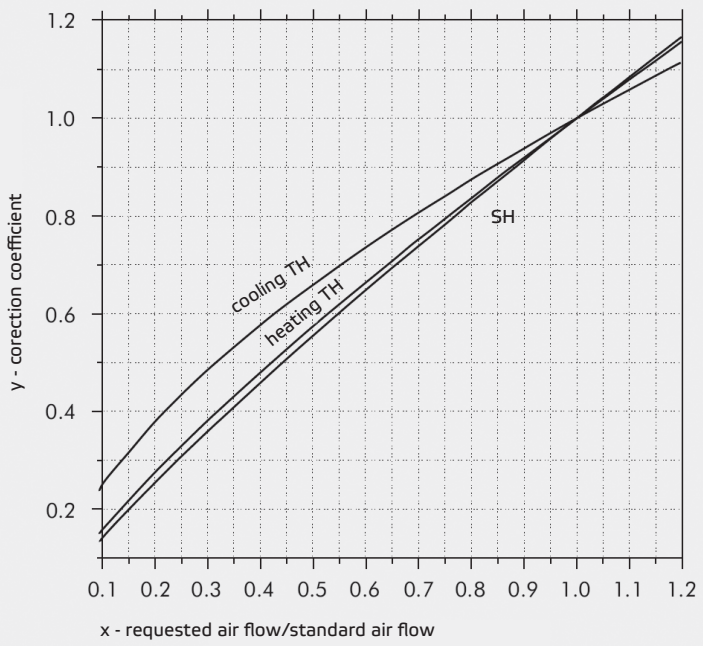
Units: W

Model	Entering water temperature (ºC)	Entering air temperature																	
		DB=24 ºC WB=17 ºC			DB=25 ºC WB=18 ºC			DB=26 ºC WB=19 ºC			DB=27 ºC WB=19,5 ºC			DB=28 ºC WB=21 ºC			DB=30 ºC WB=22 ºC		
		TH	Water flow l/s	Pressure drop kPa	TH	Water flow l/s	Pressure drop kPa	TH	Water flow l/s	Pressure drop kPa	TH	Water flow l/s	Pressure drop kPa	TH	Water flow l/s	Pressure drop kPa	TH	Water flow l/s	Pressure drop kPa
SF-51H	5	2270	0.109	21.21	2587	0.124	27.55	2981	0.140	35.03	3087	0.148	39.22	3619	0.173	53.29	3990	0.190	65.53
	6	2073	0.099	17.69	2390	0.114	23.51	2720	0.130	30.46	2889	0.138	34.26	3422	0.164	48.20	3793	0.181	59.21
	7	1876	0.090	14.48	2193	0.105	19.79	2523	0.121	26.20	2700	0.129	30.00	3225	0.154	42.80	3596	0.172	53.20
	8	1678	0.080	11.59	1995	0.095	16.38	2326	0.111	22.26	2495	0.119	25.61	3027	0.145	37.72	3398	0.163	47.52
	9	1481	0.071	9.30	1798	0.086	13.30	2128	0.102	18.64	2298	0.110	21.72	2830	0.135	32.96	3201	0.153	42.16
SF-68H	5	3027	0.145	21.12	3450	0.165	27.55	3890	0.186	35.03	4116	0.197	39.22	4826	0.231	53.92	5320	0.255	65.53
	6	2764	0.132	17.69	3187	0.152	23.51	3627	0.174	30.46	3853	0.184	34.36	4562	0.218	48.19	5057	0.242	59.20
	7	2501	0.120	14.48	2923	0.140	19.79	3364	0.161	26.20	3600	0.172	29.83	4299	0.206	42.79	4794	0.229	53.20
	8	2238	0.107	11.57	2660	0.127	16.38	3101	0.148	22.26	3327	0.159	25.61	4036	0.193	37.72	4531	0.217	47.52
	9	1975	0.094	9.30	2379	0.115	13.30	2838	0.136	18.64	3063	0.147	21.72	3773	0.181	32.96	4267	0.204	42.16
SF-85H	5	3532	0.169	24.74	4024	0.193	32.14	4538	0.217	40.87	4801	0.230	45.75	5630	0.269	62.90	6207	0.297	76.45
	6	3225	0.154	20.63	3718	0.178	27.43	4231	0.202	35.53	4495	0.215	40.08	5323	0.255	56.23	5900	0.282	69.07
	7	2918	0.139	16.89	3410	0.163	23.80	3925	0.188	30.56	4200	0.200	34.8	5016	0.240	49.93	5593	0.268	62.07
	8	2611	0.125	13.52	3104	0.149	19.11	3618	0.173	25.97	3881	0.186	29.88	4709	0.225	44.01	5286	0.253	55.45
	9	2303	0.110	10.53	2797	0.134	15.52	3310	0.158	21.75	3574	0.171	25.34	4402	0.211	38.45	4979	0.238	49.19

Notes:
1. "TH" is total cooling capacity.
2. "DB" is dry bulb temperature, "WB" is wet bulb temperature.
3. All values are for high fan speed.

CAPACITY CORRECTION COEFFICIENT

If it is necessary to determine the cooling or heating capacity for other than the maximum speed it is possible to use a capacity correction coefficient. This coefficient can be determined from the graph:



EXAMPLE OF CONVERSION

On page 6 we can see that the cooling capacity of the SF-85H is 3225 watts at DB 24 °C and WB 17 °C with water entering at 6 °C and the fan running at its full speed delivering an air flow of 850 m³/hr.
We need to determine what the cooling capacity will be at the minimum fan speed which delivers an air flow of 616 m³/hr. This figure is found on page 5.

Divide the required fan speed by the maximum fan speed:

$$x = \frac{\text{air flow at requested fan speed}}{\text{air flow at maximum fan speed}} = \frac{616}{850} = 0{,}72$$

Then using the graph above, follow axis X and plot a line from 0.7 up to where it crosses the TH line. Plot a further line from this point to the left and axis Y which reads 0.82. This is then the correction factor we require for the final calculation to give the actual capacity.

Multiply the capacity at full fan speed by the factor:

correction coefficient x capacity at maximum fan speed = capacity at selected fan speed

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