

CNZTL 台冷

WANTING TO COOL DOWN, CHOOSING TAILENG

leading technology-excellent quality



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QR code



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QR code

Dedicated to providing comprehensive solutions for medium and large, industrial use commercial and high-end civil air conditioning products and their systems



WIN-WIN COOPERATION
INNOVATION-DRIVEN DEVELOPMENT



COMPREHENSIVE PRODUCT MANUAL

Dedicated to providing comprehensive solutions for medium and large, industrial use commercial and high-end civil air conditioning products and their systems

COMPANY PROFILE

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Shenzhen Taileng Air Conditioning Equipment Co., Ltd. >>

Taileng is a modernized enterprise jointly invested by Taiwan Zhongtai Group and Nantong Daofu Investment Co., Ltd. (South Korea), specializing in the production and sales of clean air conditioning products. Guided by technology, the company integrates R&D, design, manufacturing, marketing, installation and services, and is committed to providing overall solutions for medium and large-sized industrial, commercial and high-end civil air conditioning products and their systems.

Diversified business

The company established a manufacturing base in Foshan City, Guangdong Province in 2015, and in 2022, it established Taileng Air Conditioning Manufacturing Co., Ltd. in Huizhou. The company has passed the ISO international system certification, and mainly produces and sells cold water main engine and terminal air handling units, including: water-cooled scroll cold (hot) water units, air/water-cooled screw units, air-cooled modular units, air/water-cooled direct expansion units, and combined air handling units (constant temperature and humidity). All products have passed the independent evaluation of several international authoritative testing institutions, fully meet the strict standards of the European Union and many international standards, won the authoritative certification, and reached the international advanced level in terms of safety, quality and environmental protection.

Talent team

The company currently has more than 300 employees, including 37 management personnel. Among them, 55 technical personnel have a college degree or above, accounting for more than 17% of the total number of employees; 29 technical personnel have a bachelor's degree or above, including 5 postgraduates and 2 doctors. There are 2 senior engineers, 18 engineers and technicians, and 42 personnel directly engaged in R&D, accounting for more than 30% of the total number of employees.

Excellent Quality

Quality is the life of an enterprise, and quality is the lifeline of products. Taileng has created a new generation of Taileng central air conditioners with high-quality materials and advanced technology. The new style and superior performance, especially in intelligent control and energy conservation and environmental protection, show outstanding advancement, stability and safety and reliability. It has been selected as an ideal air conditioning system for large-scale engineering projects for many times.

High-Quality Services

The company has always adhered to the business policy of "Taking technology as the guide and survival by quality", putting people first, strengthening internal management and expanding external markets. Relying on advanced production equipment and exquisite manufacturing technology, the company repays society with products featuring high technology content and stable quality. Its products are sold in 26 provinces across the country as well as Southeast Asia and other regions. In many domestic key projects, the Taileng air conditioning platform has left a good impression on users. Striving for product refinement and perfection is our unwavering goal; providing comprehensive after-sales service and putting customers' needs first are our consistent tenets.

The company is committed to serving customers with "a first-class technological process, solid technical strength, excellent product quality and an efficient after-sales service system". The company will further rely on its own advantages and solid strength, give play to its good brand effect, adhere to the quality policy of "Providing customers with satisfactory products through continuous progress in management and technology", and strive to provide higher-quality products and services for new and old customers at home and abroad.

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COMBINATION AIR HANDLING UNIT

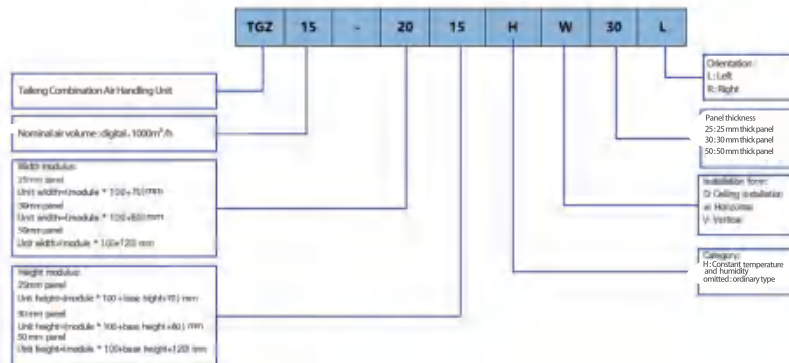
PRODUCT INTRODUCTION

Product Features

1. Maze style box structure patented design, certified by authoritative European authorities .
2. The unit has three plate thicknesses of 25mm, 30mm, and 50mm, with modular design .
3. The anti-cold bridge performance meets the Eurovent TB2 standard.
4. Patent design, air leakage rate reaches Eurovent L2 level .
5. The insulation performance of the box reaches the Eurovent T2 level .
6. The interior of the box is flat, suitable for purification occasions .
7. Professional selection software ensures consistency between theoretical and practical production performance .
8. The drainage of the water pan is smooth, and a drain valve is installed at the lowest point of the coil circuit. In winter, the accumulated water in the coil should be drained to avoid freezing and cracking of the coil .
9. The unit can be equipped with a control cabinet, which collects signals such as temperature, humidity, valve position and air valve opening from the air conditioning unit or terminal device via communication signal lines. Through the built-in logic program, it controls the valve and air valve opening, monitor the status of the fan and filter screen, and automatically triggers an alarm .



naming convention



Refrigeration parameter table of modular air handling unit



enter air volume m³/h	Fresh air condition						Return air condition					
	4 rows		6 rows		8 rows		4 rows		6 rows		8 rows	
	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW
2000	9	21	12	29	13	31	8	9	9	12	10	15
2300	11	24	14	33	15	36	9	11	10	14	11	17
2800	13	29	17	41	18	44	11	13	12	17	14	21
3200	15	33	19	46	21	50	12	15	14	19	16	24
3600	17	38	22	53	24	58	14	17	16	22	18	28
4000	19	43	25	60	27	65	16	20	18	25	21	31
4500	21	47	28	66	30	72	18	22	20	27	23	35
5000	24	53	31	75	34	81	20	24	22	31	26	39
5600	27	59	35	83	37	90	22	27	25	34	29	43
6200	29	66	38	92	41	99	24	30	27	38	31	48
6700	32	72	42	100	45	108	27	33	30	41	34	52
7500	35	77	45	108	49	117	29	35	32	45	37	56
8000	38	85	50	119	53	129	32	39	36	49	41	62
9500	45	101	59	141	63	153	37	46	42	58	48	73
10000	49	109	63	152	68	165	40	50	45	63	52	79
11000	52	116	68	163	73	176	43	53	49	67	56	85
12000	56	125	73	175	79	190	46	57	52	72	60	91
13000	60	134	78	188	84	204	50	61	56	78	64	98
13600	64	143	84	200	90	217	53	65	60	83	69	104
14000	69	153	89	214	96	232	57	70	64	88	73	111
15000	72	161	94	225	101	244	60	74	67	93	77	118
16000	77	172	100	241	108	261	64	79	72	99	82	125
17000	82	183	107	256	115	277	68	83	76	106	88	133
18000	87	193	113	270	121	293	72	88	81	111	93	141
19000	92	204	119	286	128	310	76	93	85	118	98	149
20000	96	213	124	298	134	324	79	97	89	123	102	156
22000	107	239	139	334	150	362	89	109	100	138	114	174
24000	112	250	146	350	157	379	93	114	104	144	120	182
25000	118	263	153	368	165	399	98	120	110	152	126	192
27000	130	290	169	405	182	439	107	132	121	167	139	211
30000	145	323	188	452	203	490	120	147	135	186	155	235
32000	152	339	198	474	213	514	126	155	142	196	163	247
35000	167	372	217	520	233	564	138	170	155	215	178	271
36000	173	385	225	539	242	585	143	176	161	222	185	281
38000	180	402	234	563	252	610	149	184	168	232	193	293
40000	193	431	251	603	270	654	160	197	180	249	207	314

※ The data will follow on the next page

continue

rated air volume m ³ /h	Fresh air condition						Return air condition					
	4 rows		6 rows		8 rows		4 rows		6 rows		8 rows	
	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW	Sensible Cooling Capacity kW	Total cooling capacity kW
42000	199	445	299	623	279	676	165	204	186	257	214	324
45000	212	474	276	663	297	719	176	216	198	274	227	346
49000	233	520	303	727	326	789	193	238	217	300	250	279
53000	251	560	327	784	352	850	208	256	234	324	269	409
59000	280	625	365	875	392	948	232	285	261	361	300	456
62000	308	690	402	965	433	1047	256	315	288	398	331	503
74000	352	786	458	1100	493	1192	292	359	328	454	377	573
84000	397	885	516	1237	555	1342	328	404	370	511	424	645
90000	429	957	558	1338	600	1451	355	437	400	552	459	698
92000	429	957	558	1338	600	1451	355	437	400	552	459	698
99000	467	1043	608	1458	654	1581	387	476	435	602	500	760
110000	527	1177	686	1645	738	1784	436	537	491	679	564	858
120000	598	1335	778	1867	838	2025	495	609	558	771	640	973
140000	692	1543	900	2158	968	2341	573	705	645	891	740	1123
170000	807	1801	1050	2518	1130	2731	668	822	752	1039	863	1313
200000	973	2171	1265	3035	1362	3292	805	991	906	1253	1040	1582
230000	1129	2519	1468	3523	1581	3821	935	1150	1052	1454	1207	1873

★ Remarks

1. Fresh air condition: Inlet air dry-bulb temperature 35°C, wet-bulb temperature 28°C;
2. Return air condition: Inlet air dry-bulb temperature 27°C, wet-bulb temperature 19.5°C;
3. Chilled water inlet/outlet temperature 7/12°C, coil face velocity 2.5M/S;
4. The above parameters are for reference only. Changes in working conditions and differences in coil circuit layout will lead to different cooling capacities. For specific data, please contact Taileng.

Performance Parameters Table of Combined Air Handling Unit Hot Water Coil Unit



Rated air volume m ³ /h	Fresh air condition (inlet air dry-bulb temperature 7 °C)				Return air condition (inlet air dry bulb temperature 15 °C)			
	1 rows	2 rows	3 rows	4 rows	1 rows	2 rows	3 rows	4 rows
	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)
2000	12	18	23	26	9	14	19	21
2300	14	20	26	30	10	16	21	24
2800	17	25	32	37	12	20	26	30
3200	20	29	37	42	14	23	30	34
3600	23	33	42	48	16	26	34	39
4000	26	37	47	54	18	29	39	44
4500	28	41	52	60	20	32	43	49
5000	32	46	59	68	23	36	49	55
5600	36	52	65	75	25	41	54	62
6200	39	57	72	83	28	45	59	68
6700	43	62	79	91	30	49	65	74
7500	46	68	85	98	33	53	70	80
8000	51	74	94	108	36	58	77	88
9500	60	87	111	128	42	69	91	105
10000	65	94	120	138	46	74	99	113
11000	70	101	128	147	49	79	106	121
12000	75	109	138	159	53	85	114	130
13000	81	116	148	170	57	91	122	139
13600	86	124	158	182	60	98	130	149
14000	92	133	168	194	64	104	139	159
15000	97	140	177	204	68	110	146	167
16000	103	149	189	218	72	117	156	178
17000	110	158	201	232	77	124	166	190
18000	116	167	212	245	81	131	175	200
19000	123	177	225	259	86	139	186	212
20000	128	185	235	270	90	145	194	221
22000	143	207	263	302	100	162	217	247
23000	150	217	275	317	105	170	227	259
25000	158	228	290	334	111	179	239	273
27000	174	254	319	367	122	197	263	300
30000	194	280	355	409	136	220	293	335

PRODUCT

continue

Rated air volume m ³ /h	Fresh air condition (inlet air dry-bulb temperature 7 °C)				Return air condition (inlet air dry-bulb temperature 7 °C)			
	1 rows	2 rows	3 rows	4 rows	1 rows	2 rows	3 rows	4 rows
	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)	Total heat (kW)
32000	204	294	373	430	143	231	308	352
35000	223	322	409	471	157	253	337	386
36000	231	334	424	488	162	262	350	400
40000	241	349	443	510	169	274	365	417
42000	259	374	474	546	182	293	391	447
45000	268	389	497	562	184	303	399	454
49000	284	411	522	601	200	323	430	492
53000	313	454	581	656	215	353	466	530
59000	336	486	617	710	236	382	509	581
62000	375	542	688	793	263	426	568	649
74000	414	598	760	875	291	470	627	716
84000	472	682	865	996	331	535	714	816
90000	531	767	974	1121	373	602	803	918
92000	574	829	1053	1213	403	652	869	993
99000	626	904	1148	1322	439	710	947	1082
110000	706	1020	1295	1491	496	801	1068	1220
120000	801	1157	1469	1692	562	909	1212	1385
140000	926	1338	1699	1956	650	1051	1401	1601
170000	1080	1561	1982	2282	758	1226	1635	1868
200000	1302	1881	2389	2751	914	1478	1970	2251
230000	1512	2773	2773	3193	1061	1715	2287	2613

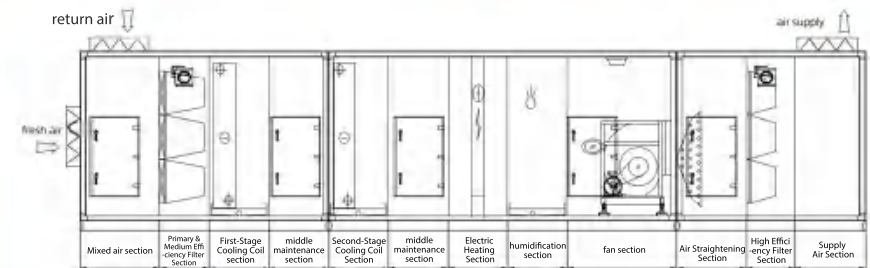
Combination air handling unit TGZ

★ Remarks

- Hot water inlet and outlet temperatures are 60 °C/50 °C, and the face velocity of the coil is 2.5m/s;
- The above parameters are for reference only. Variations in inlet air conditions or water inlet/outlet temperatures will result in different heat output. Please contact Taileng for specific data.



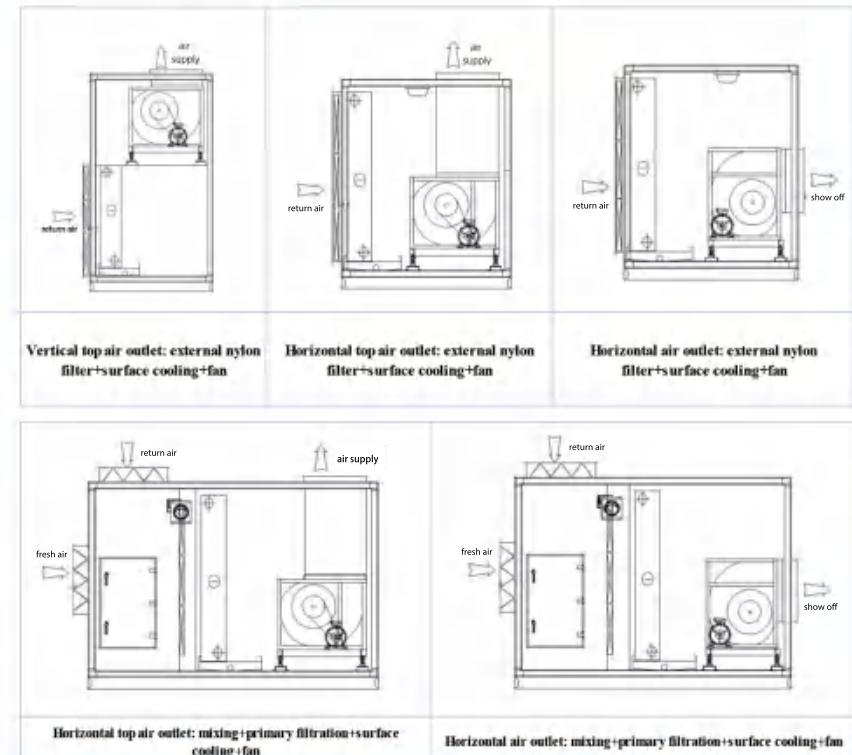
The structural form of the combined air handling unit is as follows: >>>>



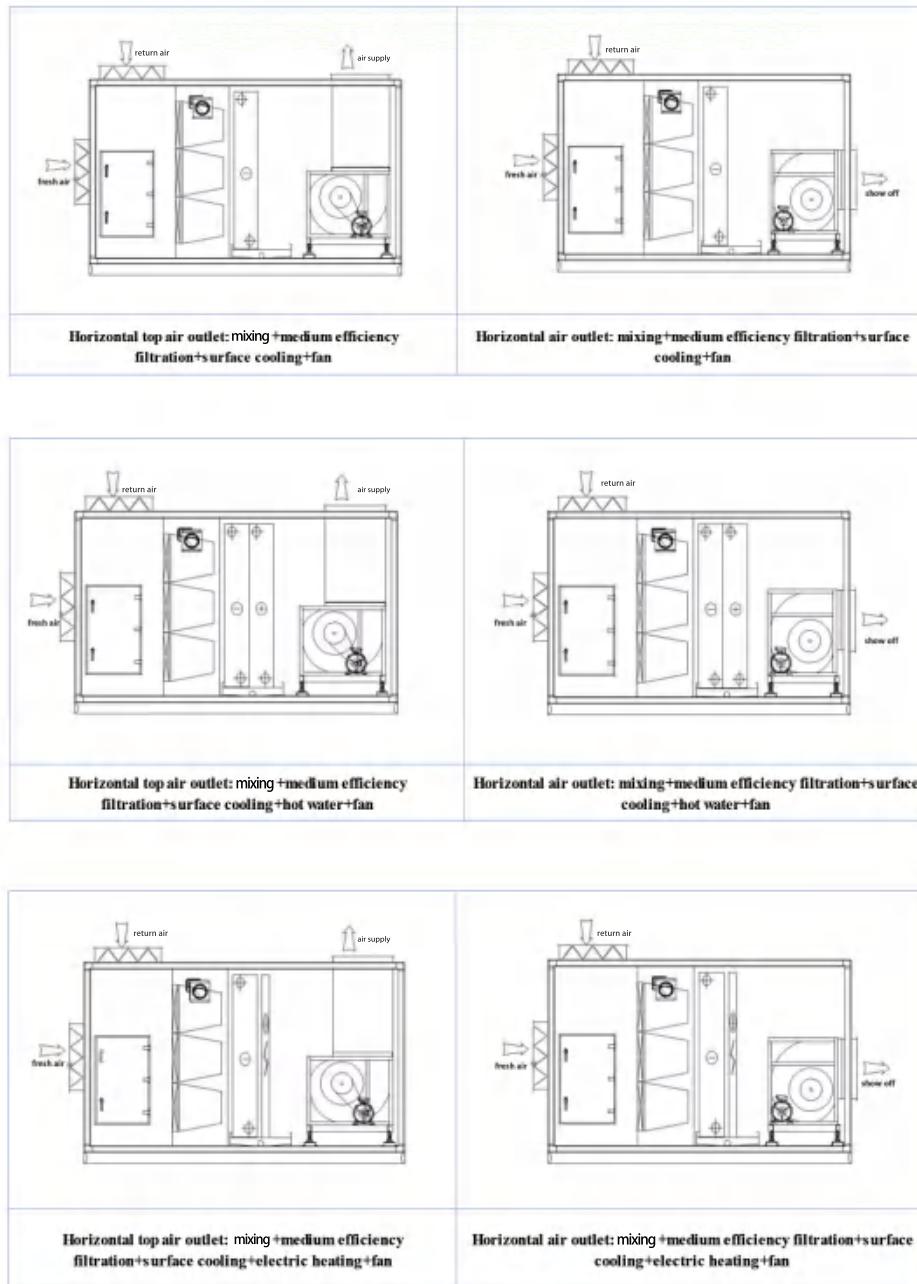
★ Remarks

- The above combination forms are for reference only. The combination form of the wind cabinet varies depending on the application scenario. Please contact Taileng Refrigeration for specific application situations and provide accurate application information so that Taileng Refrigeration technical engineers can match a reasonable wind cabinet combination form to meet your usage needs.

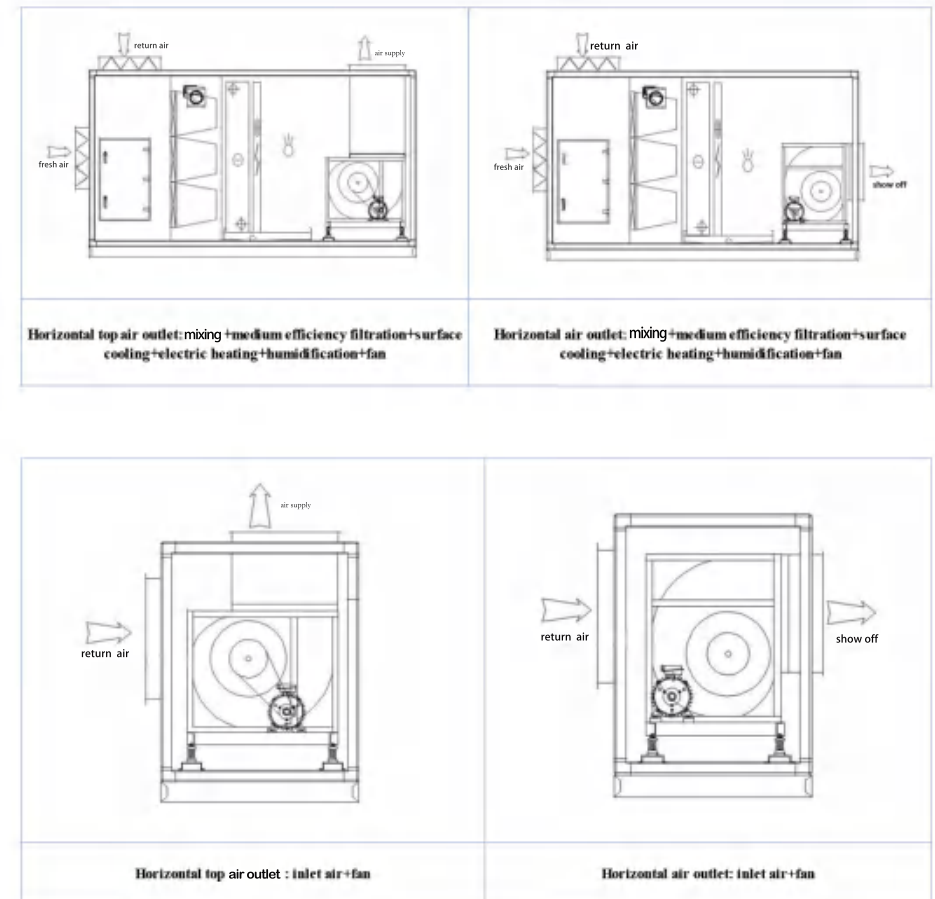
The common structural forms of air handling units are as follows:



❁ The common structural forms of air handling units are as follows:



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Remarks :

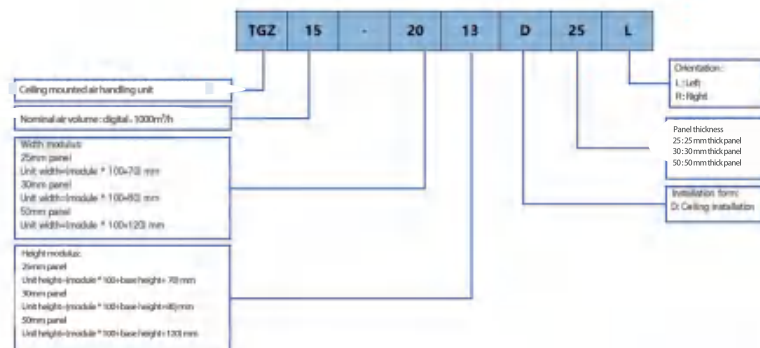
1. Standard nylon mesh filter, optional replacement with primary efficiency plate-type filter;
2. After the cooling coil, a wet film humidifier can be optionally equipped;
3. Heating coils can be optionally selected after the cooling coil;
4. The primary filter comes standard as G4 plate type, while the medium filter comes standard as F8 bag type.

CEILING MOUNTED AIR HANDLING UNIT >>>>

1. Ceiling mounted air handling unit: saves space in the computer room, can be directly hung on the top mezzanine of factories, office buildings, etc., reduces the floor height, and saves investment costs.
2. Ceiling mounted air handling unit with jet air outlet: using high-performance spherical nozzles as air outlets, it can achieve long-distance direct air supply without the need for air ducts, saving space, reducing floor height, and saving investment costs.



✿ naming convention >



Product Technical Features

1. Maze type box structure patented design, double wall structure, good insulation performance, high strength, low air leakage rate.
2. Adopting low-noise centrifugal fans, the unit has a small volume and low noise.
3. The unit can use an external rotor high-efficiency centrifugal fan, eliminating the process of belt maintenance.
4. The unit is equipped with maintenance panels for easy daily maintenance.
5. The drainage of the water pan is smooth, and a drain valve is installed at the lowest point of the coil circuit. In winter, the accumulated water in the coil should be drained to avoid freezing and cracking of the coil.
6. Jet unit, using high-performance spherical nozzles as air outlets, can achieve long-distance direct air supply without the need for air ducts, saving space, reducing floor height, and saving investment costs.
7. Optional accessories: starter cabinet, wet film humidifier, water baffle, steam coil, etc.

Table of Refrigeration Performance Parameters for Suspended Wind Cabinet (Including Jet Air Outlet Series) >>>>

model	air volume	4 rows						6 rows						External static pressure	Noise	Diameter of condenser pipe	Power Supply	Drive type
		Rated cooling capacity	Rated heating capacity	water flow rate	water resistance	motor power	Diameter of chilled water pipe	Rated cooling capacity	Rated heating capacity	water flow rate	water resistance	motor power	Diameter of chilled water pipe					
Return air condition TGZ-D	m³/h	kW	kW	m³/h	KPa	kW	DN	kW	kW	m³/h	KPa	kW	DN	Pa	dBA	DN		
	1000	5.1	10.2	0.88	3	0.18	32	7.2	12.4	1.34	8.8	0.18	32	80	53	32	external rotor fan	
	1500	8.1	15.2	1.43	9	0.32	32	11	18.5	1.89	19.5	0.32	32	80	53	32		
	2000	11.5	21.2	1.98	11	0.32	32	14.9	25.3	2.56	26	0.32	32	80	55	32		
	2500	14.4	26	2.48	18	0.55	32	18.2	30.8	3.13	38	0.55	32	120	56	32		
	3000	17.5	32	3.04	31	0.75	32	22	37.3	3.78	62	0.75	32	160	59	32		
	4000	23.4	41.5	4.02	60	1.1	40	30.1	49.1	5.18	49.5	1.1	40	200	60	32	belt drive	380V-3N-50 Hz
	5000	28.3	51.4	4.87	40	1.5	40	35.2	61.8	6.05	78	1.5	40	200	62	32		
	6000	34.5	61.7	5.93	47	1.5	40	43.7	73.9	7.32	44	2.2	40	200	63	32		
	7000	40.3	71.3	6.84	66	2.2	40	49.4	85.3	8.5	59	2.2	50	240	64	32		
	8000	46.2	83.1	7.93	58	2.2	40	57.6	98.3	9.91	56	3	50	240	64	32		
	9000	52.1	93.1	8.96	79	3	40	64.8	110.5	11.15	25.4	3	50	280	66	32		
	10000	59.9	106.1	10.3	51	3	50	75.1	135.3	12.82	39	4	50	280	67	32		
	12000	69.3	131.7	11.92	57	4	50	85.8	160.1	14.36	44	4	50	280	68	32		
	13000	76.8	146.8	13.21	56	4	50	100.3	178.4	17.6	42	4	65	320	68.5	32		
	15000	85.3	162.8	14.67	51	5.5	50	106.5	189.7	18.66	39	5.5	65	320	69	32		

★ Remarks

1. Cooling supply: inlet air dry-bulb temperature of 27°C, wet bulb temperature of 19.5 °C, inlet/outlet temperature of 7C/12 °C;
2. Heating: Inlet air dry-bulb temperature of 15°C, hot water inlet/outlet temperature of 60 °C/50 °C;
3. If the specifications and parameters are changed due to product improvements, no further notice will be given;
4. The water flow rate in the table refers to the cooling water flow rate; the heating water flow rate is smaller than the cooling one, and the water pump selection shall be based on the cooling water flow rate.

model	air volume	4 rows						6 rows						External static pressure	Noise	Diameter of condenser pipe	Power Supply	Drive type
		Rated cooling capacity	Rated heating capacity	water flow rate	water resistance	motor power	Diameter of chilled water pipe	Rated cooling capacity	Rated heating capacity	water flow rate	water resistance	motor power	Diameter of chilled water pipe					
Fresh air condition TGZ-D	m³/h	kW	kW	m³/h	KPa	kW	DN	kW	kW	m³/h	KPa	kW	DN	Pa	dBA	DN		
	1000	13.9	13.2	2.39	16	0.18	32	15.8	15.6	2.72	31	0.18	0.32	80	53	32	External Rotor Fan	
	1500	18.7	18.4	3.22	42	0.32	32	24.5	23.7	4.21	80	0.32	32	80	53	32		
	2000	23	27.5	4.64	49	0.32	32	31.2	31.3	5.37	35	0.32	32	80	55	32		
	2500	30.8	31.8	5.3	79	0.55	32	40.3	39.3	6.93	58	0.55	40	120	56	32		
	3000	39.9	40.9	6.86	48	0.75	40	45.8	45.1	7.88	80	0.75	40	160	59	32		
	4000	49.7	51.1	8.55	38	1.1	40	63.8	61.8	10.97	76	1.1	50	200	60	32	belt drive	380V-3N-50 Hz
	5000	64.5	64	11.09	65	1.5	50	75.4	70.3	12.97	51	1.5	50	200	62	32		
	6000	72.7	75.3	12.5	74	1.5	50	92.6	91.9	15.93	57	2.2	50	200	63	32		
	7000	84.1	87.1	14.47	17	2.2	50	105.6	104.8	18.16	80	2.2	65	240	64	32		
	8000	99	101.7	17.81	14.4	2.2	50	120.7	119.7	20.36	30	3	65	240	64	32		
	9000	111	113.8	19.89	19	3	65	137.3	135.3	23.62	41	3	65	280	66	32		
	10000	133	133.3	22.88	31	3	65	160.2	157.9	27.35	57.9	4	80	280	67	32		
	12000	149.4	155.1	25.7	35	4	65	185.2	180.4	31.85	68.8	4	80	280	68	32		
	13000	166.8	180.2	31.32	33	4	80	222.6	213.4	36.29	63	4	80	320	68.5	32		
	15000	184.2	200.2	31.88	31	5.5	80	244.7	237.1	42.09	56.6	5.5	80	320	69	32		

★ Remarks

1. Cooling supply: Inlet dry bulb temperature of 35 °C, wet bulb temperature of 28 °C, inlet/outlet temperature of 7°C/12 °C;
2. Heating: Inlet air dry-bulb temperature is 15 °C, and the temperature of the hot water inlet and outlet is 60 °C/50 °C;
3. The unit itself does not have external static pressure. If the return air duct needs to be connected , please specify this when ordering;
4. If the specifications and parameters are changed due to product improvements, no further notice will be given;
5. The water flow rate in the table refers to the cooling water flow rate; the heating water flow rate is smaller than the cooling one, and the water pump selection shall be based on the cooling water flow rate.

Heating Performance Parameters Table of Ceiling-Mounted Air Handling Unit (including Jet Air Outlet Series)



model	air volume	1 rows				2 rows			
		Rated heating capacity	water flow rate	water resistance	Pipe diameter	Rated heating capacity	water flow rate	water resistance	Pipe diameter
Return air condition (four tube heating coil) TGZ-D	m³/h	kW	m³/h	KPa	DN	kW	m³/h	KPa	DN
	1000	3	0.36	0.17	32	6.2	0.76	0.87	32
	1500	4.3	0.4	0.19	32	9.9	0.8	2.1	32
	2000	6.7	0.76	0.59	32	13.4	1.1	3	32
	2500	8.2	0.8	0.63	32	16.4	1.3	3.3	32
	3000	10.9	1.1	1.4	32	20.2	1.8	5.3	32
	4000	14.8	1.3	1.5	32	27.7	2.3	6.5	32
	5000	19.1	1.8	2.5	32	35.2	2.7	11.6	32
	6000	23.2	2.3	3	32	43	3.1	14.2	32
	7000	27.6	2.7	4.3	32	49.7	3.5	18.2	32
	8000	31.5	3.1	4	32	57.3	3.8	18.2	32
	9000	36	3.5	5.3	32	65	4.6	24.9	32
	10000	42.6	3.8	8.4	32	76.4	5.4	34	32
	12000	49.4	4.6	9.9	32	87.3	5.7	38.8	32
	13500	55.6	5.4	9.8	32	98.2	10.8	36.2	32
	15000	60.8	5.7	10	32	108.3	11.4	37.7	32

★ Remarks

1. Heating: Air drying bulb temperature of 15 °C, hot water inlet/outlet temperature of 60 °C/50 °C;
2. If the specifications and parameters are changed due to product improvements, no further notice will be given;
3. The resistance of the hot coil is 25Pa/row;
4. The external static pressure of the standard unit does not include the resistance of the heating coil. For example, the outlet static pressure of the hot water coil unit will be reduced by 25Pa per row.

model	air volume	1 rows				2 rows			
		Rated heating capacity	water flow rate	water resistance	Pipe diameter	Rated heating capacity	water flow rate	water resistance	Pipe diameter
Fresh air condition (four tube heating coil) TGZ-D	m³/h	kW	m³/h	KPa	DN	kW	m³/h	KPa	DN
	1000	4.3	0.76	0.64	32	7.3	0.76	0.87	32
	1500	6.3	0.8	0.69	32	11.6	0.8	2.1	32
	2000	8.9	1.1	1.3	32	16.5	1.1	4.5	32
	2500	10.9	1.3	1.4	32	20.2	1.3	4.9	32
	3000	13.7	1.8	2.5	32	25.3	1.8	9.9	32
	4000	18.3	2.3	2.3	32	33.7	2.3	10.3	32
	5000	24.2	2.7	4.7	32	42.9	2.7	16.7	32
	6000	29.1	3.1	5.1	32	51.4	3.1	19.2	32
	7000	33.9	3.5	6.9	32	61	3.5	27.1	32
	8000	39.3	3.8	7.2	32	69.7	3.8	25.7	32
	9000	44.3	4.6	9	32	78.4	4.6	33.8	32
	10000	52.4	5.4	13	32	93	5.4	52.5	32
	12000	60.7	5.7	14.5	32	106.2	5.7	56.7	32
	13000	67.3	10.8	13.6	32	119.5	10.8	54	32
	15000	73.8	11.4	13.7	32	130.7	11.4	54.7	32

★ Remarks

1. Heating: Inlet air dry-bulb temperature is 15 °C, hot water inlet/outlet temperature is 60 °C/50 °C;
2. If the specifications and parameters are changed due to product improvements, no further notice will be given;
3. The resistance of the heating coil is 25Pa per row; The external static pressure of the standard unit does not include the resistance of the heating coil, for example, the outlet static pressure of the hot water coil unit will be reduced by 25Pa per row.

FAN COIL UNIT



PRODUCT INTRODUCTION

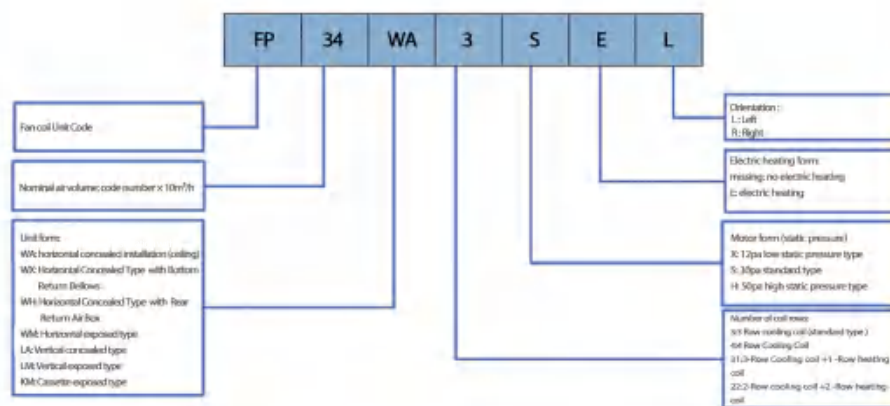
Overview

FP fan coil unit is a high-quality product developed by our company based on absorbing and introducing the latest domestic and foreign technologies. It is mainly suitable for centralized air conditioning systems and can be widely used in shopping malls, hotels, office buildings, hospitals and other places. Its ultra small volume design can save valuable space for you. In addition, it has the characteristics of high efficiency, low noise, and easy installation and maintenance.

Our company offers a variety of models for you to choose from, including horizontal concealed installation, horizontal exposed installation, vertical exposed installation, top mounted four outlet fan, and high wind capacity fan coil units. This series of fan coil units adopts a galvanized casing without welds or welding points. The insulation material that complies with fire safety regulations is bonded to the water pan. The coil heat exchanger adopts an efficient hydrophilic aluminum foil group and is made of water pressure expansion tube. The fan motors are all made of high-quality domestic and foreign products, with button type three speed switches that can adjust the indoor air volume and cooling capacity freely, meeting the needs of different users.



naming convention



Basic parameters of horizontal concealed fan coil unit (two tubes) >>>>

performance		model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Rated air volume m³/h	H		340	510	680	850	1020	1360	1700	2040	2380
	M		260	390	510	640	770	1020	1280	1530	1790
	L		170	260	340	430	510	680	850	1020	1190
Rated cooling capacity	W	H	1850	2760	3650	4725	5810	7510	9310	10850	12600
	Kcal/h	H	1591	2374	3139	4064	4997	6459	8007	9331	10836
Rated heat	W	H	2800	4150	5500	7180	8695	11190	13875	16300	18900
	Kcal/h	H	2408	3569	4730	6175	7478	9623	11933	14018	16254
input power W	12Pa	H	36	50	60	74	93	130	153	183	221
	30Pa	H	43	57	70	84	105	151	169	206	245
	50Pa	H	48	64	81	97	114	169	204	243	291
Noise dB (A)	12Pa	H	37	39	41	43	45	46	48	50	52
	30Pa	H	40	42	44	46	47	48	50	52	54
	50Pa	H	42	44	46	47	49	50	52	54	56
fan	form	Forward multi wing centrifugal double inlet fan									
	quantity		1	2	2	2	2	3	4	4	4
motor	form	Capacitor operated asynchronous motor (220V/50Hz, protection level IP20, insulation level B)									
	quantity		1	1	1	1	1	2	2	2	2
heat exchanger	structural form	Copper tube with aluminum fins (lower type), mechanical expansion tube									
Water volume kg/h			318	475	628	813	999	1291	1601	1866	2167
Water pressure loss kPa			<20	<30	<30	<30	<40	<40	<40	<40	<50
Gross weight kg	No return air box		11	12.5	13.5	15	16.5	21.5	28	35	39
	There is a return air box		14.2	16.3	17.5	19.5	21.5	27.2	35	43	47.6
inlet and outlet pipes			DN20								
Condensate pipe			DN20								
power supply			220V/50Hz								

★Note:

- Cooling supply: inlet and outlet water temperature is 7 °C/12 °C, inlet air dry bulb temperature is DB27.0 °C and temperature bulb temperature is WB19.5 °C;
- Heating: inlet and outlet water temperature 60 °C/50 °C, inlet air dry bulb temperature DB21.0 °C;
- The noise in the table was measured by the unit in a fully anechoic room with a background noise of 16.5dB(A) (according to GB/T 19232-2019);
- The static pressure at the outlet of the low-static-pressure unit with air inlet and filter is 0Pa; the static pressure at the outlet without air outlet and filter is 12Pa;
- The power consumed by the motor load is the input power (also known as the reference operating condition power consumption), and the power indicated on the motor nameplate is the nominal power, which is the output power of the motor when operating under rated conditions;
- If the actual operating conditions are different from the standard operating conditions, please refer to the correction factor table data in the sample for correction.

Correction method: Actual cooling (heating) capacity=rated cooling (heating) capacity x operating condition correction factor

- The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings.

Basic parameters of horizontal exposed fan coil unit (two tubes) >>>>

performance		model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Rated air volume m ³ /h		H	340	510	680	850	1020	1360	1700	2040	2380
		M	260	390	510	640	770	1020	1280	1530	1790
		L	170	260	340	430	510	680	850	1020	1190
Rated cooling capacity	w	H	1850	2760	3660	4725	5810	7510	9310	10850	12600
	Kcal/h	H	1591	2374	3139	4064	4997	6459	8007	9331	10836
Rated heat	w	H	2800	4150	5500	7180	8695	11190	13875	16300	18900
	Kcal/h	H	2408	3569	4730	6175	7478	9623	11933	14018	16254
input power	w	H	36	50	60	74	93	130	147	183	221
noise	dB(A)	H	37	39	41	43	45	46	48	50	52
fan	form	Forward multi wing centrifugal double inlet fan									
	quantity		1	2	2	2	2	3	4	4	4
motor	form	Capacitor operated asynchronous motor (220V/50Hz, protection level IP20, insulation level B)									
	quantity		1	1	1	1	1	2	2	2	2
heat exchanger	structural form	Copper tube with aluminum fins (louver type), mechanical expansion tube									
Water volume kg/h			318	475	628	813	999	1291	1601	1866	2167
Water pressure loss kPa			≤30	≤30	≤30	≤30	≤40	≤40	≤40	≤40	≤50
Gross weight kg			20.5	23.5	24.6	27.5	30	38	44.5	48.6	53.5
inlet and outlet pipes			DN20								
Condensate pipe			DN20								
power supply			220V/50Hz								

★ Note:

- Cooling supply: inlet and outlet water temperature of 7℃/12℃, inlet air dry bulb temperature of DB27.0℃, wet bulb temperature of WB19.5℃;
- Heating: Inlet and outlet water temperature is 60℃/50℃, and inlet air dry bulb temperature is DB21.0℃;
- The noise in the table was measured by the unit in a fully anechoic room with a background noise of 16.5dB (A) (according to GB/T19232-2019);
- The power consumed by the motor load is the input power (also known as the reference operating condition power consumption), and the power indicated on the motor nameplate is the nominal power, which is the output power of the motor when operating under rated conditions;
- If the actual operating conditions are different from the standard operating conditions, please refer to the correction factor table data in the sample for correction;
Correction method: Actual cooling (heating) capacity=rated cooling (heating) capacity × operating condition correction factor
- The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings.

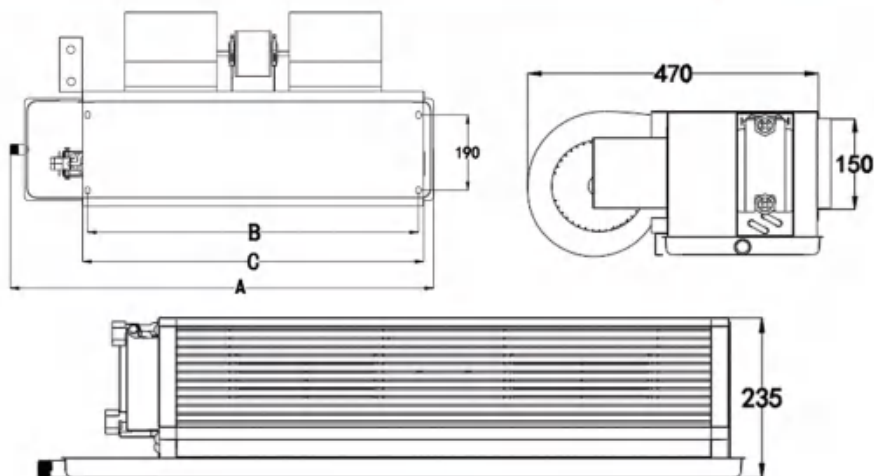
Basic parameters of card mounted fan coil unit (with condensate lift pump, two pipes) >>>>

performance		model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Rated air volume m ³ /h		H	340	510	680	850	1020	1360	1700	2040	2380
		M	260	390	510	640	770	1020	1280	1530	1790
		L	170	260	340	430	510	680	850	1020	1190
Rated cooling capacity	w	H	2000	2700	3700	4500	5600	7000	9100	10800	12600
	Kcal/h	H	1720	2322	3182	3870	4816	6020	7826	9288	10836
Rated heat	w	H	2800	4200	5600	7000	8400	11200	13900	16700	19500
	Kcal/h	H	2408	3612	4816	6020	7224	9632	11954	14362	16770
input power	w		46	50	55	66	75	123	138	189	215
noise	dB(A)		37	38	41	43	45	46	48	50	52
fan	form	Centrifugal fan wheel									
	quantity		1	1	1	1	1	1	1	1	1
motor	form	Capacitor operated asynchronous motor (220V/50Hz, protection level IP20, insulation level B)									
	quantity		1	1	1	1	1	1	1	1	1
heat exchanger	structural form	Copper tube with aluminum fins (louver type), mechanical expansion tube									
lift pump	head	700mm									
Control method			Remote control (wire control)								
Water volume kg/h			344	464	636	774	963	1204	1565	1857	2167
Water pressure loss kPa			≤30	≤30	≤30	≤30	≤40	≤40	≤40	≤40	≤50
Gross weight kg			20	20	20	27.5	28	28	35.5	365	36.5
inlet and outlet pipes			DN20								
Condensate pipe			DN20								
power supply			220V/50Hz								

★ Note:

- Cooling supply: inlet and outlet water temperature of 7℃/12℃, inlet air dry bulb temperature of DB27.0℃, wet bulb temperature of WB19.5℃;
- Heating: Inlet and outlet water temperature is 60℃/50℃, and inlet air dry bulb temperature is DB21.0℃;
- The noise in the table was measured by the unit in a fully anechoic room with a background noise of 16.5dB (A) (according to GB/T19232-2019);
- The power consumed by the motor load is the input power (also known as the reference operating condition power consumption), and the power indicated on the motor nameplate is the nominal power, which is the output power of the motor when operating under rated conditions;
- If the actual operating conditions are different from the standard operating conditions, please refer to the correction factor table data in the sample for correction;
Correction method: Actual cooling (heating) capacity=rated cooling (heating) capacity × operating condition correction factor
- The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings.

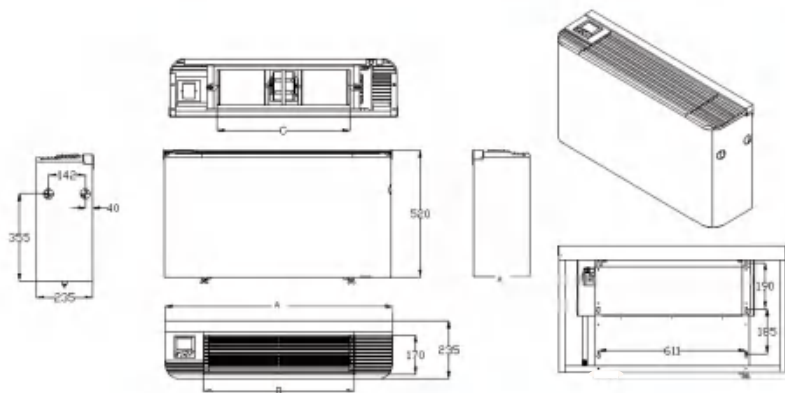
Outline dimension drawing of horizontal concealed fan coil unit (two tubes) >>>>



model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Total length A	760	860	960	1060	1160	1360	1660	1860	2060
The distance between the center of the hanging hole and the length B	455	585	655	775	895	1075	1385	1585	1785
Length of air outlet C	480	610	680	800	920	1100	1410	1610	1810

※ If the dimensions of the above fan coil unit change due to technical upgrades, no separate change notice will be issued. Please contact Taileng Business for the final confirmed drawings.

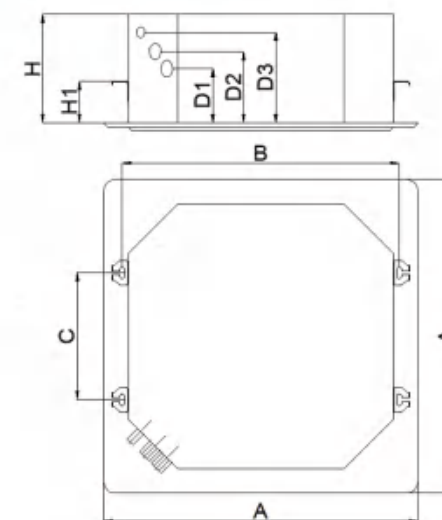
Horizontal exposed fan coil unit - outline dimension drawing >>>>



model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Total length A	790	940	980	1100	1260	1410	1680	1880	2080
Air outlet length B	460	580	650	780	900	1100	1360	1560	1760
Inlet length C	460	580	650	780	900	1100	1360	1560	1760
Lifting hole length D	490	610	680	810	930	1130	1390	1590	1790

※ If the dimensions of the above fan coil unit are change due to technical upgrades, no separate change notice will be issued. Please contact Taileng Business for the final confirmed drawings.

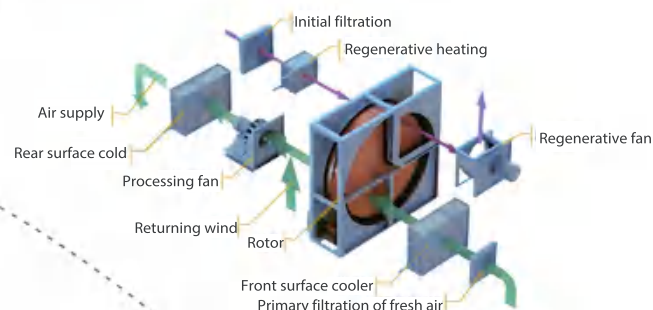
Cassette - type fan coil unit - outline dimension drawing >>>>



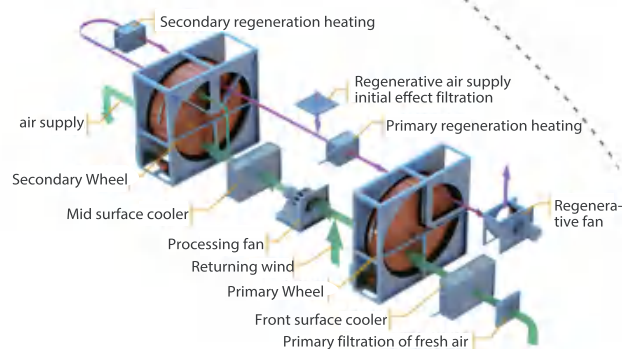
model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238
Length and width dimension A	680	680	680	835	835	835	980	980	980
Lifting dimension B	582	582	582	737	737	737	865	865	865
Lifting dimension C	423	423	423	338	338	338	416	416	416
Takeover height D1	212	212	212	242	242	242	242	242	242
Takeover height D2	138	138	138	191	191	191	187	187	187
Takeover height D3	90	90	90	145	145	145	140	140	140
Height H1	112	112	112	112	112	112	112	112	112
Height H	250	250	250	290	290	290	290	290	290

※ If the dimensions of the above fan coil unit are change due to technical upgrades, no separate change notice will be issued. Please contact Taileng Business for the final confirmed drawings.

COMBINATION ROTARY DEHUMIDIFIER UNIT»»»»



Schematic diagram of single wheel dehumidifier unit



Schematic diagram of dual rotary wheel dehumidifier unit

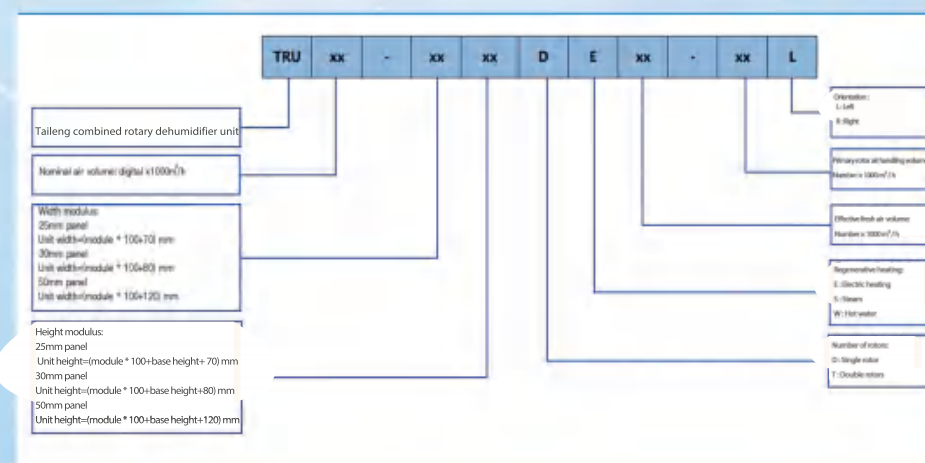
Configuration Introduction

- Using high-efficiency silicone material wheels or high-efficiency molecular sieve material wheels.
- Aluminum alloy frame structure design, double-layer structure panel PU high-pressure foaming, high strength, good insulation effect, and effective prevention of cold bridging.
- There are multiple options for regenerative heating, including electric heating, steam heating, hot water heating, and direct expansion condensation heating.
- The heat exchanger uses hydrophilic aluminum fins, high-efficiency heat transfer copper tubes, reduces dust and water accumulation, low flow rate, small temperature difference, high efficiency and low resistance, ensuring the long-term stable heat transfer capacity of the heat exchanger.
- Adopting a snail free direct drive fan, there is no belt transmission or loss, resulting in less maintenance and higher efficiency. Adopting high-efficiency motors and frequency converters, with high efficiency, low vibration, good heat dissipation, stable and reliable performance.
- Equipped with well-known brand air filters, adopting a drawer style structural design for convenient filter maintenance. Set pressure difference alarm and local display before and after the filter.

Intelligent Control

- Third generation microcomputer control system, large screen LCD display control
- PCB centralized control system
- PLC programming control
- PID control
- Standard smart control screen
- Standard RS485, supports ModBus RTU protocol

Naming of Combined Rotary Dehumidifier Unit



Combination single rotor dehumidifier unit: controls 10% humidity, 50% effective fresh air volume - parameter table

Dehumidifier unit equipment parameters	Dehumidifier unit model	TRU-10-1414DS(E)-5-8	TRU-20-1919DS(E)-10-16	TRU-30-2121DS(E)-15-24
	Effective fresh air volume of the system (m ³ /h)	5000	10000	15000
Dehumidifier unit equipment parameters	Rotor air handling volume (m ³ /h)	8000	16000	24000
	Air supply volume (m ³ /h)	10000	20000	30000
	Supply air temperature (°C)	15	15	15
	Supply air dew point (CD, P.)	-11	-11	-11
	Unit external static pressure (Pa)	800	800	800
	Unit external static pressure (Pa)	800	800	800
Fresh air surface cooler	Air handling volume(m ³ /h)	5000	10000	15000
	Cooling capacity (kW)	119	237	356
	Pipe diameter (DN)	DN50	DN65	DN65
Intermediate surface cooler	Air handling volume (m ³ /h)	8000	16000	24000
	Cooling capacity(kW)	11	22	33
	Pipe diameter (DN)	DN20	DN25	DN32
Rear surface cooler	Air handling volume (m ³ /h)	10000	20000	30000
	Cooling capacity (kW)	47	93	142
	Pipe diameter (DN)	DN32	DN50	DN50
Motor power	Processing fan motor power (kW)	11	22	30
	Regenerative fan motor power (kW)	2.2	4	7.5
Regenerative Heating - Electricity	Electric heating power (kW)	93	187	280
Regenerative Heating - Steam	Regenerated heat (kW)	93	187	280
	Regenerated steam consumption (kg/h)	161	322	483
	Regenerative heater pipe diameter (DN)	DN32	DN40	DN50
Dehumidification Rotor	Wheel Type	Silica gel	Silica gel	Silica gel
	Drive motor power (kW)	0.06	0.09	0.09
Air supply filter	Medium efficiency filtration type	bag-type	bag-type	bag-type
	filtration level	F8	F8	F8
	Air supply and return mode	Top Supply and Top Return	Top Supply and Top Return	Top Supply and Top Return
Electric heating type	Maximum total installed power of the unit (kW)	106.6	212.8	317.6
Steam heating type	Maximum total installed power of the unit (kW)	13.3	26.1	37.6
Maximum cooling capacity requirement of the unit (kW)		177	352	531
Maximum steam demand of the unit (kg/h)		161	322	483

continue:

Dehumidifier unit equipment parameters	Dehumidifier unit model	TRU-40-2323DS(E)-20-32	TRU-50-2525DS(E)-25-40	TRU-60-2828DS(E)-30-48
	Effective fresh air volume of the system (m ³ /h)	20000	25000	30000
Dehumidifier unit equipment parameters	Rotor air handling volume (m ³ /h)	32000	40000	48000
	Air supply volume (m ³ /h)	40000	50000	60000
	Supply air temperature (°C)	15	15	15
	Supply air dew point (CD, P.)	-11	-11	-11
	Unit external static pressure (Pa)	800	800	800
	Unit external static pressure (Pa)	800	800	800
Fresh air surface cooler	Air handling volume(m ³ /h)	20000	25000	30000
	Cooling capacity (kW)	475	593	712
	Pipe diameter (DN)	DN100	DN100	DN100
Intermediate surface cooler	Air handling volume (m ³ /h)	32000	40000	48000
	Cooling capacity(kW)	44	55	66
	Pipe diameter (DN)	DN40	DN40	DN40
Rear surface cooler	Air handling volume (m ³ /h)	40000	50000	60000
	Cooling capacity (kW)	187	234	279
	Pipe diameter (DN)	DN65	DN65	DN65
Motor power	Processing fan motor power (kW)	37	45	55
	Regenerative fan motor power (kW)	11	11	11
Regenerative Heating - Electricity	Electric heating power (kW)	373	467	560
Regenerative Heating - Steam	Regenerated heat (kW)	373	467	560
	Regenerated steam consumption (kg/h)	644	805	967
	Regenerative heater pipe diameter (DN)	DN50	DN65	DN65
Dehumidification Rotor	Wheel type	Silica gel	Silica gel	Silica gel
	Drive motor power (kW)	0.2	0.2	0.2
Air supply filter	Medium efficiency filtration type	bag-type	bag-type	bag-type
	filtration level	F8	F8	F8
	Air supply and return mode	Top Supply and Top Return	Top Supply and Top Return	Top Supply and Top Return
Electric heating type	Maximum total installed power of the unit (kW)	421.5	522.9	626.2
Steam heating type	Maximum total installed power of the unit (kW)	48.2	56.2	66.2
Maximum cooling capacity requirement of the unit (kW)		706	882	1057
Maximum steam demand of the unit (kg/h)		644	805	967

Operating condition description:

1. Rated operating conditions: fresh air operating condition at 35 °C/75%, regeneration heating temperature at 130 °C, and regeneration inlet air at fresh air operating condition at 35 °C/75%.
 2. Steam flow rate is based on steam gauge pressure: 0.4-0.6Mpa.
 3. Unit power supply: 3N-380V 50Hz.
- The above parameters are only the standard parameter configuration for the single wheel dehumidifier of Taileng Refrigeration. For non parameter range equipment, please contact Taileng Refrigeration for specialized matching design.

Combination dual Rotor dehumidifier unit supply air dew point -65CD.P., 20% effective fresh air volume - parameter table

Dehumidifier unit equipment parameters	Dehumidifier unit model	TRU-10-1616DS(E)-2-3	TRU-20-2121DS(E)-4-6	TRU-30-2323DS(E)-6-9
	Total fresh air volume (m ³ /h)	3000	6000	9000
Fresh air surface cooler	Effective fresh air volume of the system (m ³ /h)	2000	4000	6000
	Air supply volume (m ³ /h)	10000	20000	30000
Intermediate surface cooler	Supply air temperature (°C)	15	15	15
	Supply air dew point (CD.P.)	-65	-65	-65
Motor power	Unit external static pressure (pa)	800	800	800
	Air handling volume (m ³ /h)	3000	6000	9000
Regenerative Heating - Electricity	Cooling capacity (kW)	71	142	214
	Pipe diameter (DN)	DN50	DN65	DN65
Regenerative Heating - Steam	Air handling volume (m ³ /h)	10000	20000	30000
	Cooling capacity(kW)	63	125	186
Primary dehumidification wheel	Pipe diameter (DN)	DN50	DN65	DN65
	Processing air volume (m ³ /h)	11000	22000	33000
Secondary dehumidification wheel	Processing fan motor power (kW)	15	30	45
	Regenerative fan motor power (kW)	1.5	1.5	4
Air supply filter	Primary electric heating power (kW)	18	36	58
	Secondary electric heating power (kW)	25	50	71
Electric heating type	Primary regeneration heat (kW)	18	36	58
	Primary regeneration steam consumption (kg/h)	31.1	62.1	100.1
Steam heating type	Primary regeneration heater pipe diameter (DN)	DN20	DN25	DN25
	Secondary regeneration heat (kW)	25	50	71
Primary dehumidification wheel	Secondary regeneration steam consumption (kg/h)	43.1	86.3	122.5
	Secondary regeneration heater pipe diameter (DN)	DN20	DN25	DN32
Secondary dehumidification wheel	Wheel type	Silica gel	Silica gel	Silica gel
	Drive motor power (kW)	0.06	0.09	0.09
Air supply filter	Wheel type	Silica Gel or Molecular Sieve	Silica Gel or Molecular Sieve	Silica Gel or Molecular Sieve
	Drive motor power (kW)	0.09	0.09	0.2
Electric heating type	Medium efficiency filtration type	bag-type	bag-type	bag-type
	Filtration level	F8	F8	F8
Steam heating type	Air supply and return mode	Top Supply and Top Return	Top Supply and Top Return	Top Supply and Top Return
	Maximum total installed power of the unit (kW)	61.8	121.98	184.74
Maximum cooling capacity requirement of the unit (kW)	Maximum total installed power of the unit (kW)	16.65	31.68	49.29
	Maximum steam demand of the unit (kg/h)	74	148	223

continue:

Dehumidifier unit equipment parameters	Dehumidifier unit model	TRU-40-2525DS(E)-8-12	TRU-50-3030DS(E)-10-15	TRU-60-3333DS(E)-12-18
	Total fresh air volume (m ³ /h)	12000	15000	18000
Fresh air surface cooler	Effective fresh air volume of the system (m ³ /h)	8000	10000	12000
	Air supply volume (m ³ /h)	40000	50000	60000
Intermediate surface cooler	Supply air temperature (°C)	15	15	15
	Supply air dew point (CD.P.)	-65	-65	-65
Motor power	Unit external static pressure (pa)	800	800	800
	Air handling volume (m ³ /h)	12000	15000	18000
Regenerative Heating - Electricity	Cooling capacity (kW)	285	356	427
	Pipe diameter (DN)	DN80	DN100	DN100
Regenerative Heating - Steam	Air handling volume (m ³ /h)	40000	50000	60000
	Cooling capacity(kW)	249	310	374
Primary dehumidification wheel	Pipe diameter (DN)	DN80	DN80	DN100
	Air handling volume (m ³ /h)	44000	55000	66000
Secondary dehumidification wheel	Processing fan motor power (kW)	55	75	75
	Regenerative fan motor power (kW)	4	5.5	5.5
Air supply filter	Primary electric heating power (kW)	74	93	107
	Secondary electric heating power (kW)	97	121	150
Electric heating type	Primary regeneration heat (kW)	74	93	107
	Primary regeneration steam consumption (kg/h)	127.7	160.5	184.7
Steam heating type	Primary regeneration heater pipe diameter (DN)	DN32	DN32	DN32
	Secondary regeneration heat (kW)	97	121	150
Primary dehumidification wheel	Secondary regeneration steam consumption (kg/h)	167.4	208.8	258.9
	Secondary regeneration heater pipe diameter (DN)	DN32	DN32	DN40
Secondary dehumidification wheel	Wheel type	Silica gel	Silica gel	Silica gel
	Drive motor power (kW)	0.09	0.09	0.09
Air supply filter	Wheel type	Silica Gel or Molecular Sieve	Silica Gel or Molecular Sieve	Silica Gel or Molecular Sieve
	Drive motor power (kW)	0.2	0.2	0.3
Electric heating type	Medium efficiency filtration type	bag-type	bag-type	bag-type
	Filtration level	F8	F8	F8
Steam heating type	Air supply and return mode	Top Supply and Top Return	Top Supply and Top Return	Top Supply and Top Return
	Maximum total installed power of the unit (kW)	238.84	305.49	350.74
Maximum cooling capacity requirement of the unit (kW)	Maximum total installed power of the unit (kW)	59.29	80.79	80.89
	Maximum steam demand of the unit (kg/h)	533	666	801
Maximum steam demand of the unit (kg/h)	Maximum steam demand of the unit (kg/h)	295	369	444

Operating condition description:

1. Rated operating conditions: The inlet air condition for the rotor (air handling side) is 12 °C/95% or 20 °C/60%, with a first stage regeneration heating temperature of 130 °C and a second stage regeneration heating temperature of 140 °C;
2. The steam flow rate is based on steam gauge pressure: 0.4-0.6Mpa;
3. The power supply form of the unit is: 3N~380V/50Hz;

The above parameters are only the standard parameter configuration for the dual rotor dehumidifier of Taileng Refrigeration. For non parameter range equipment, please contact Taileng Refrigeration for specialized matching design.

AIR-COOLED DIRECT EXPANSION COMBINED AIR HANDLING UNIT



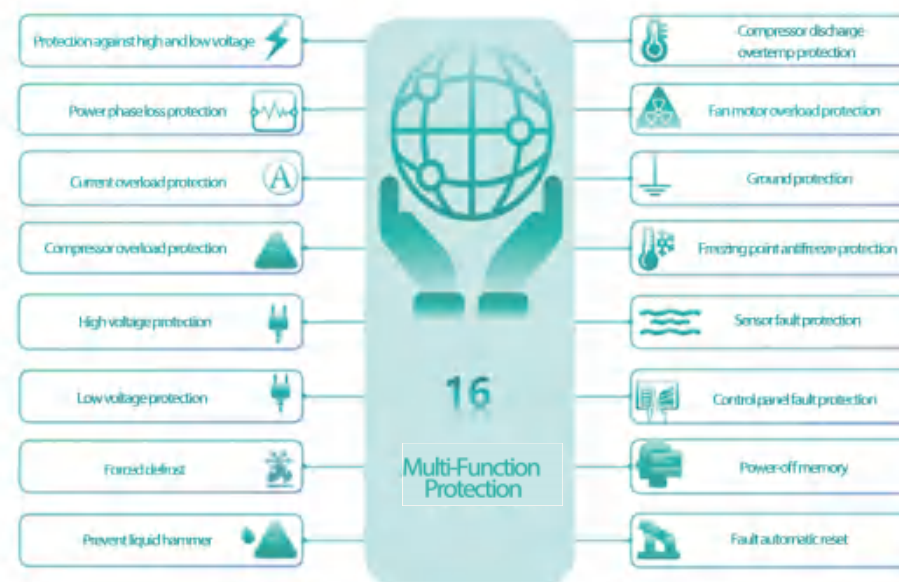
Product Features

- Maze style box structure patented design, efficient anti cold design.
- The unit has two plate thicknesses of 30mm and 50mm, with modular design.
- Using efficient high tooth internally threaded copper pipes and corrosion-resistant hydrophilic fins for direct evaporative coils, only the indoor and outdoor units need to be connected with copper pipes on site, saving installation troubles such as water pipes and pumps.
- The core component of the direct expansion unit - the compressor adopts famous brands such as Copeland, Danfoss, Daikin, Sanyo, etc., with stable operation, long service life, and low noise.
- The independently developed control system uses industrial grade high-precision controllers, which have the characteristics of high reliability, fast computing speed, and strong anti-interference ability. Combined with high-quality sensors, actuators, etc., it ensures the control accuracy and stability of the user's air conditioning system.
- A single indoor unit can be combined with multiple outdoor units based on cooling demand to achieve energy-saving goals through graded control.

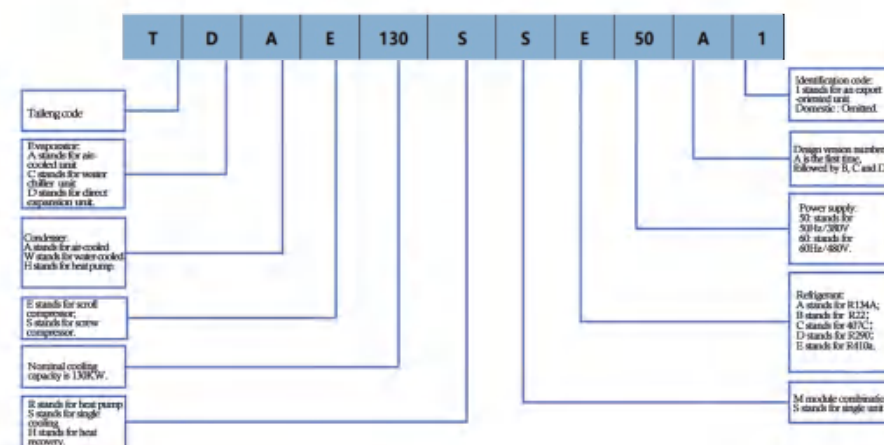
Configuration of air-cooled direct expansion outdoor unit



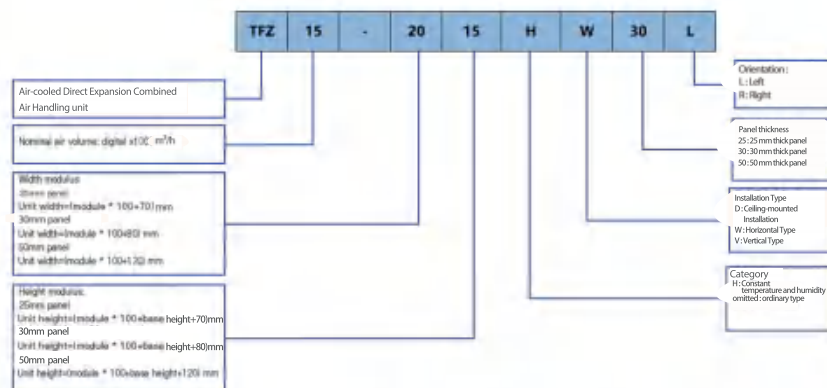
Function protection of Air-cooled Direct Expansion Combined Air Handling Unit



Naming of air-cooled direct expansion outdoor unit



Naming of Air-cooled Direct Expansion Combined Air Handling Unit (Indoor Unit)



Outdoor unit parameter table of direct expansion combined air conditioning unit with air cooling

Product Model	TDAB08	TDAB13	TDAB16	TDAB26	TDAB32	TDAB39
Rated cooling capacity (kW)	8	13	16	26	32	39
Rated heat capacity (kW)	8	13	16	30	37	44
Rated cooling input power (kW)	2.6	4.2	5.2	8.4	10.3	12.6
Rated heating input power (kW)	2.3	3.7	4.6	8.5	10.5	12.7
Maximum input power (kW)	3.9	6.3	7.7	12.6	15.5	18.9
Maximum input current (A)	7.7	12.6	15.5	25.2	31	37.7
Rated voltage/frequency	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz
Maximum working pressure (MPa)	4.2	4.2	4.2	4.2	4.2	4.2
compressor	form	scroll compressor	scroll compressor	scroll compressor	scroll compressor	scroll compressor
	energy regulation	fixed frequency	fixed frequency	fixed frequency	fixed frequency	fixed frequency
	quantity	1	1	1	2	2
refrigerant	R410a	R410a	R410a	R410a	R410a	R410a
Refrigerant Charge	2.4	3.9	4.8	7.8	9.6	11.7
Throttle method	throttle valve			Electronic expansion valve/thermal expansion valve		
condenser	form	High-efficiency copper tube with hydrophilic aluminum fin heat exchanger				
	heat exchange tube	High-efficiency red copper		internal pipe		
	Condensation heat dissipation air volume (m³/h)	3000	5000	6000	12000	14000
	Motor power (kW)	0.04	0.09	0.09	0.3*2	0.3*2
Evaporator (indoor unit)	form	High-efficiency copper tube with hydrophilic aluminum fin heat exchanger				
	heat exchange tube	High-efficiency red copper		internal pipe		
Indoor and outdoor takeover	liquid tube	φ9.52	φ9.52	φ9.52	φ12.7*2	φ12.7*2
	Gas pipe	φ16	φ19.05	φ19.05	φ22*2	φ22*2
Whole machine weight (kg)	120	180	190	270	300	350
Machine size (mm)	500*306*660	940*340*1240	940*340*1240	1470*750*1080	1470*750*1080	1470*750*1080
Instructions	Including built-in protection for compressor, overload protection for compressor, temperature protection for compressor discharge, high voltage protection, low voltage protection, anti freezing protection, power supply voltage protection, phase sequence protection, etc					

Product Model	TDAB08	TDAB13	TDAB16	TDAB26	TDAB32	TDAB39
Rated cooling capacity (kW)	8	13	16	26	32	39
Rated heat capacity (kW)	8	13	16	30	37	44
Rated cooling input power (kW)	2.6	4.2	5.2	8.4	10.3	12.6
Rated heating input power (kW)	2.3	3.7	4.6	8.5	10.5	12.7
Maximum input power (kW)	3.9	6.3	7.7	12.6	15.5	18.9
Maximum input current (A)	7.7	12.6	15.5	25.2	31	37.7
Rated voltage/frequency	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz	380V/3N-50Hz
Maximum working pressure (MPa)	4.2	4.2	4.2	4.2	4.2	4.2
compressor	form	scroll compressor	scroll compressor	scroll compressor	scroll compressor	scroll compressor
	energy regulation	fixed frequency	fixed frequency	fixed frequency	fixed frequency	fixed frequency
	quantity	1	1	1	2	2
refrigerant	R410a	R410a	R410a	R410a	R410a	R410a
Refrigerant Charge	2.4	3.9	4.8	7.8	9.6	11.7
Throttle method	Electronic expansion valve/thermal expansion valve					
condenser	form	High-efficiency copper tube with hydrophilic aluminum fin heat exchanger				
	heat exchange tube	High-efficiency red copper		internal threaded pipe		
	Condensation heat dissipation air volume (m ³ /h)	3000	5000	6000	12000	14000
	Motor power (kW)	0.04	0.09	0.09	0.3*2	0.3*2
Evaporator (indoor unit)	form	High-efficiency copper tube with hydrophilic aluminum fin heat exchanger				
	heat exchange tube	High-efficiency red copper		internal threaded pipe		
Indoor and outdoor takeover	liquid tube	φ19*2	φ19*2	φ19*2	φ22*2	φ22*2
	Gas pipe	φ28*2	φ28*2	φ28*2	φ35*2	φ35*2
Whole machine weight (kg)	120	180	190	270	300	350
Machine size (mm)	1750*1050*1850	1950*1050*1850	2250*1050*1850	2250*1050*1850	2145*1075*2396	2145*1075*2396
Instructions	Including built-in protection for compressor, overload protection for compressor, temperature protection for compressor discharge, high voltage protection, low voltage protection, anti freezing protection, power supply voltage protection, phase sequence protection, etc					

Operating condition description:

- The nominal operating conditions for refrigeration are: indoor dry/wet bulb temperature of 27 °C/19 °C; The outdoor ambient temperature is dry bulb/temperature 35 °C/28 °C;
- The nominal operating conditions for heating are: indoor dry bulb temperature of 20°C; Wet bulb temperature ≤ 15 °C; The ambient temperature is 7 °C/6 °C dry/wet bulb temperature.
- Indoor units are matched according to application scenarios and structural forms.
- The overall dimensions of the unit are for reference only. Due to technological upgrades and updates, changes in dimensions will not be explained. Please contact the manufacturer for detailed design confirmation of specific dimensions.

Technical parameters Table of Air-cooled Direct Expansion Combined Constant Temperature and Humidity Air Handling Unit

system parameters	10% fresh air handling unit - standard cooling capacity	kW	13	16	20	26	32	39	52
	20% fresh air unit - customized cooling capacity	kW	16	20	26	32	39	52	65
indoor unit	Supply air volume	m ³ /h	2500	3000	4000	5000	6000	8000	10000
	Reference surface cooling section length	mm	500	500	500	500	500	600	600
	Temperature setting range and accuracy	—	22°C±2°C						
	Humidity setting range and accuracy	—	55%±10%RH						
	power supply	—	380V/3N-50Hz						

indoor unit	electric heating	power	mm	5	6	8	10	12	16	20
	humidifier	type	—	Electrode humidifier						
		10% fresh air - humidification capacity	kg/h	2	3	4	5	6	8	10
		10% fresh air humidification power	kW	1.8	2.2	2.9	3.7	4.4	5.9	7.3
		20% fresh air - humidification capacity	kg/h	4	5	6	8	10	13	16
		20% fresh air humidification power	kW	3	3.6	4.9	6.1	7.3	9.7	12.2
	power supply	—	380V-3N-50Hz							
refrigerant	model	—	R410a							
10% fresh air indoor unit matching - outdoor unit	Outdoor unit model		—	TDAE013	TDAE08	TDAE013+TDAE08	TDAE026	TDAE032	TDAE039	TDAE052
	Number of outdoor units			1	2	1+1	1	1	1	1
	input power		kW	4.2	2.6*2	2.6+4.2	8.4	10.3	12.6	16.8
	size	liquid tube	mm	φ9.52	φ9.52*2	φ9.52*2	φ12.7*2	φ12.7*2	φ12.7*2	φ19*2
		gas pipe	mm	φ19	φ16*2	φ19+φ16	φ22*2	φ22*2	φ22*2	φ28*2
20% fresh air indoor unit matching - outdoor unit	Outdoor unit model		—	TDAE08	TDAE013+TDAE08	TDAE026	TDAE032	TDAE039	TDAE052	TDAE065
	Number of outdoor units			2	1+1	1	1	1	1	1
	input power		kW	2.6*2	2.6+4.2	8.4	10.3	12.6	16.8	21
	size	liquid tube	mm	φ9.52*2	φ9.52*2	φ12.7*2	φ12.7*2	φ12.7*2	φ19*2	φ19*2
		gas pipe	mm	φ16*2	φ19+φ16	φ22*2	φ22*2	φ22*2	φ28*2	φ28*2

continue

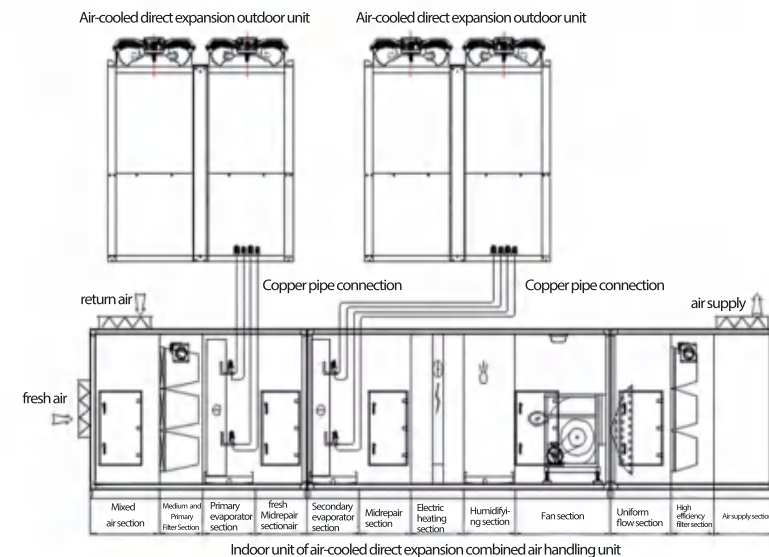
system parameters	10% fresh air unit - customized cooling capacity		kW	65	78	119	140	164	219	274
	20% fresh air unit - customized cooling capacity		kW	78	100	130	164	197	262	328
indoor unit	air volume		m³/h	12000	15000	20000	25000	30000	40000	50000
	Reference Cooling Coil Length		mm	600	600	600	600	600	600	600
	Temperature setting range and accuracy		—	22°C±2°C						
	Humidity setting range and accuracy		—	55%±10%RH						
	power supply		—	380V-3N-50Hz						
	electric heating	power	mm	24	30	40	50	61	81	101
		type	—	Electrode humidifier						
	humidifier	10% fresh air - humidification capacity	kg/h	12	15	20	24	29	39	49
		10% fresh air humidification power	kW	8.8	11	14.6	18.3	21.9	29.3	36.6
		20% fresh air - humidification capacity	kg/h	19	24	32	41	49	65	81
		20% fresh air humidification power	kW	14.6	18.2	24.3	30.4	36.5	48.6	60.8
power supply		—	380V-3N-50Hz							
refrigerant	model		—	R410a						
10% fresh air indoor unit matching - outdoor unit	Outdoor unit model		—	TDAE065	TDAE078	TDAE115	TDAE140	TDAE090+TDAE078	TDAE115	TDAE140
	Number of outdoor units			1	1	1	1	1+1	2	2
	input power		kW	21	24.8	37.1	45.2	29+24.8	37.1*2	45.2*2
	size	liquid tube	mm	φ19*2	φ19*2	φ22*2	φ22*2	φ19*4	φ22*4	φ22*4
		gas pipe	mm	φ28*2	φ28*2	φ35*2	φ35*2	φ28*4	φ35*4	φ35*4

20% fresh air indoor unit matching - outdoor unit	Outdoor unit model	—	TDAE078	TDAE052	TDAE140	TDAE090+TDAE078	TDAE115+TDAE090	TDAE140	TDAE115
	Number of outdoor units		1	2	1	1+1		2	3
	input power	kW	24.8	16.8	45.2	29+24.8	37.1*2+29	45.2*2	37.1*3
	size	liquid tube	mm	φ19*2	φ19*2	φ22*2	φ19*4	φ22*2+φ19*2	φ22*4
		gas pipe	mm	φ28*2	φ28*2	φ35*2	φ28*4	φ35*2+φ28*2	φ35*4

★Remarks

- Rated cooling capacity: measured under the conditions of nominal air volume, indoor return air dry / wet bulb temperature of 25/17.5°C, and outdoor dry / wet bulb temperature of 35 °C/28°C;
- Select heat pump units based on project requirements for heating capacity;
- The cooling capacity does not take into account the heat loss of the fan motor, and the nominal air volume refers to the operating air volume under standard operating conditions;
- The standard configuration of the unit is electric heating, and hot water or steam heating can also be used according to customer requirements;
- The standard electric heating for the sample is auxiliary electric heating, and the amount of secondary heating in winter needs to be calculated separately;
- The sample comes standard with electrode humidification, and can be optionally equipped with high-pressure micro fog, electric heating humidification, steam humidification, wet film humidification, and other forms according to customer project requirements;
- Unit performance testing piping conditions: equivalent refrigerant length of 7.5m (horizontal);
- The external unit has been filled with R410a, with the filling amount referring to the nameplate;
- All models are not suitable for winter cooling. The outdoor ambient temperature limit for refrigeration operation is 18 °C≤T≤45 °C, and the heating temperature limit for heat pump is -9 °C≤T≤25 °C;
- The selection of the above units is for specific air flow conditions and is for reference only. The final selection should be based on the confirmed drawing parameters.

Application combination forms of air-cooled direct expansion combined air handling unit are as follows



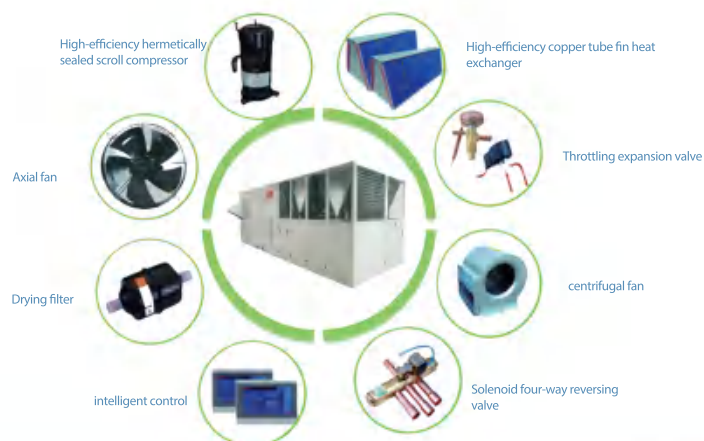
AIR - COOLED ROOFTOP AIR CONDITIONING UNIT >>>>



Unit characteristics

The TFWD series roof air conditioners are of the air-cooled cold air type, air-cooled cold warm electric heating type, air-cooled heat pump type, and constant temperature and humidity type. They adopt a combined design, including a built-in cold source, air conditioning regulation, and electronic control. The unit is designed for outdoor installation on the roof, saving air conditioning rooms and land resources. The main functions of the unit include refrigeration, heating, constant temperature and humidity air purification circulation, and intelligent electrical control. It is widely used in air conditioning systems in dry office buildings, supermarkets, hotels, entertainment centers, sports halls, electronics, textiles, machinery manufacturing, metallurgy and chemical engineering, medical and pharmaceutical industries, etc.

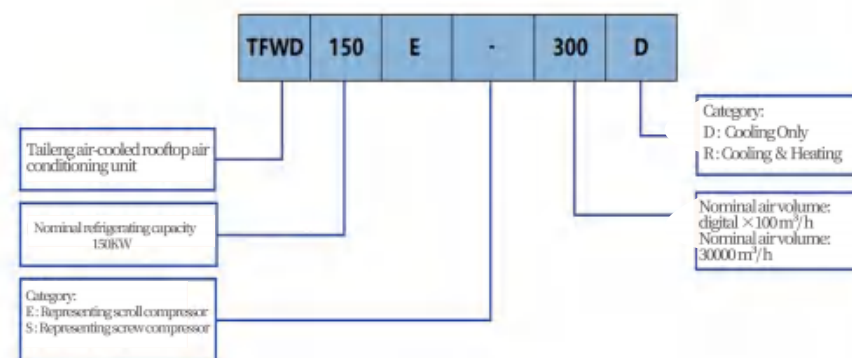
Configuration of air-cooled rooftop air conditioning unit >



Function protection of air-cooled rooftop air conditioning unit



naming convention



Parameter table of air-cooled roof air conditioning unit

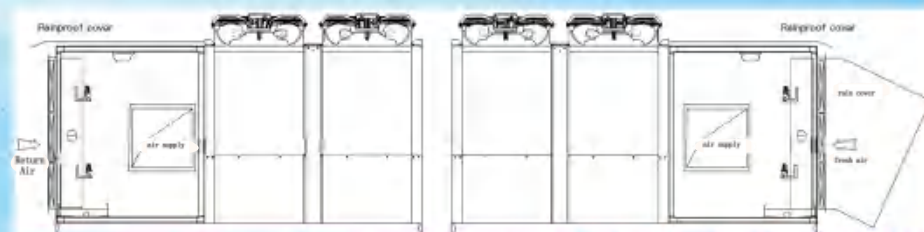
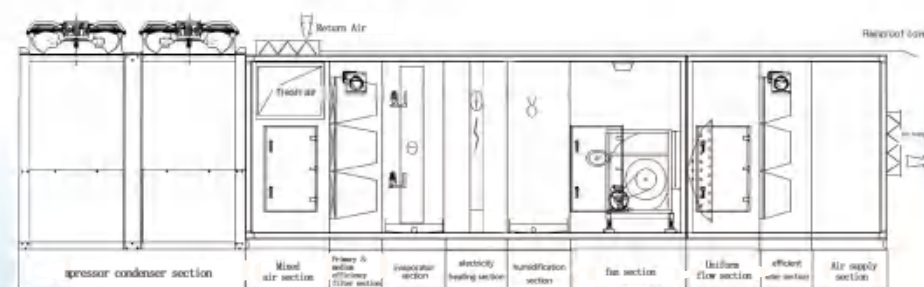


air supply volume	m ³ /h	5000	8000	10000	12000	15000	20000	30000	40000	50000
external static pressure	Pa	300	300	300	300	300	300	300	300	300
Return air type - customized cooling capacity	kW	29	46	57	69	86	115	172	229	287
New Wind Type - Customized Cooling Capacity	kW	55	88	110	133	166	221	331	442	552
Return air type - customized heat capacity	kW	30	48	60	72	90	120	181	241	301
New Wind Type - Customized Heat Capacity	kW	58	93	116	139	174	232	348	464	580
Return air type - rated input power of refrigeration compressor	kW	9.6	15.3	19.1	22.9	28.7	38.2	57.4	76.5	95.6
Brand new wind type - rated input power of refrigeration compressor	kW	18.4	29.5	36.8	44.2	55.2	73.6	110.5	147.3	184.1
Return air type - rated heating compressor input power	kW	9.7	15.5	19.4	23.3	29.1	38.9	58.3	77.7	97.1
Brand new wind type - rated heating compressor input power	kW	18.7	29.9	37.4	44.9	56.1	74.8	112.2	149.7	187.1
Fan motor power	kW	2.2	3	4	5.5	7.5	11	15	22	30
Return air type - condensing fan power	kW	0.5*2	0.7*2	0.8*2	0.8*2	0.8*4	0.8*4	1.8*4	2.3*4	2.3*6
New wind type - condensing fan power	kW	0.7*2	0.7*4	0.8*4	0.8*4	1.8*4	1.8*4	2.3*6	2.3*8	2.3*10
Cooling supply air temperature	°C	Return air type 16 °C/fresh air 20 °C								
Heating supply air temperature	°C	30								
power supply	—	380V-3N-50Hz								
refrigerant	—	R410a								
Compressor form	—	Fully enclosed vortex type								
Throttle form	—	Electronic expansion valve/thermal expansion valve								
evaporator	—	Efficient internally threaded copper tube with hydrophilic aluminum foil fins								
condenser	—	Efficient internally threaded copper tube with hydrophilic aluminum foil fins								
Filter section	—	Optional: Initial/Medium/High Efficiency								
Preheating heating section	—	Optional: Electric heating/Hot water heating/Steam heating								
humidification section	—	Optional: Electro humidification/Steam humidification/High pressure mist humidification/Wet film humidification								
Silencing section	—	optional								
Control instructions	—	Including built-in protection for compressor, overload protection for compressor, temperature protection for compressor discharge, high voltage protection, low voltage protection, anti freezing protection, power supply voltage protection, phase sequence protection, etc								

Operating condition description:

1. The nominal operating conditions for refrigeration are: indoor dry/wet bulb temperature of 27 °C/19 °C; The outdoor ambient dry/wet bulb temperature 35 °C/28 °C;
2. The nominal operating conditions for heating are: indoor dry bulb temperature of 20 °C; Wet bulb temperature ≤ 15 °C; The ambient dry/wet bulb temperature of 7 °C/6 °C;
3. The unit parameters can be selected according to the application scenario and structural form.

Schematic diagram of functional section distribution of Air-cooled rooftop air conditioning unit >



WATER COOLED COMBINED AIR CONDITIONING UNIT >>>>

Overview

Taileng TSL series water-cooled integrated machine is very suitable for a series of purification air conditioning systems and comfort air conditioning systems in the electronics industry, biopharmaceuticals, medical laboratories, etc. It comes with a cold source and purification filtration device, and can be produced in sections according to customer requirements for easy transportation and on-site installation.

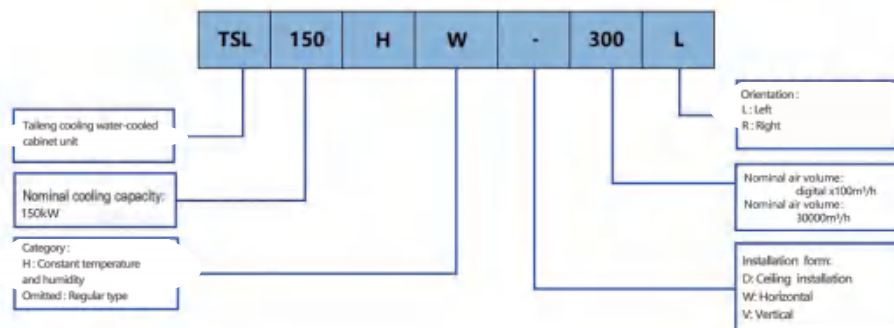
The unit heater can use stainless steel wound fin electric heater, and the humidifier is an imported branded electrode humidifier. It is controlled by a PLC microcomputer human-machine interface and automatically adjusts cooling, heating, humidification, and dehumidification functions according to the temperature and humidity set by the user. The unit is equipped with multiple self-protection functions to ensure worry free use for customers.



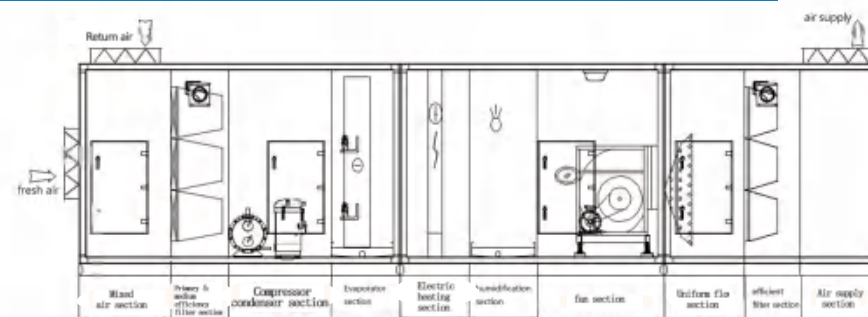
Standard configuration of water-cooled combined air conditioning unit >>>>



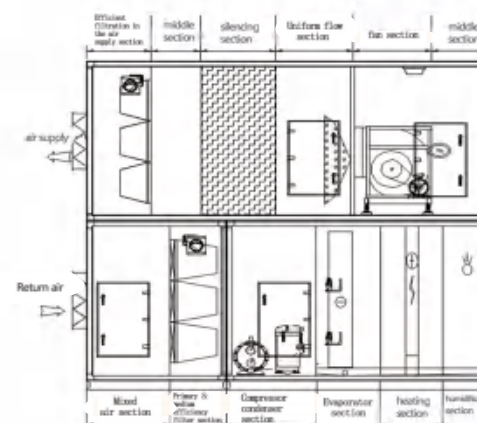
naming convention



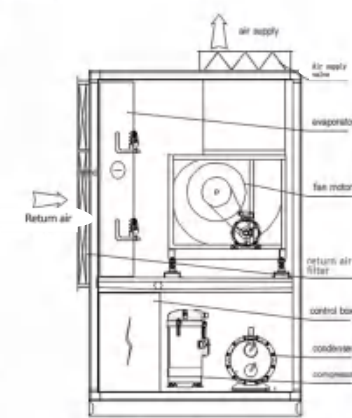
The structural layout of the water-cooled cabinet unit is as follows:



Schematic diagram of horizontal water-cooled cabinet machine structure



Schematic diagram of the structure of a horizontal double-layer water-cooled cabinet machine



Schematic diagram of the structure of a vertical water-cooled cabinet machine

★Note

1. The above combination form is for reference only. Different application scenarios have different combination forms of water-cooled cabinets. For specific application, please contact Taileng to provide accurate applications so that Taileng's technical engineers can provide reasonable water-cooled cabinet combination forms to meet your use needs.

Parameter table of water-cooled combined air conditioning unit >>>>

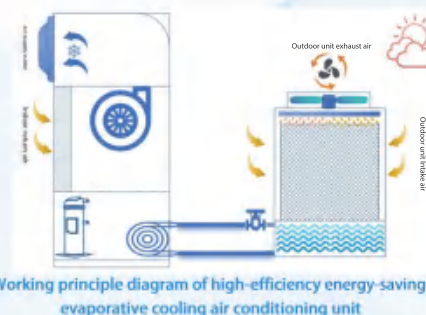
model			project		TSL-55HW100	TSL-83HW150	TSL-110HW200	TSL-165HW300	TSL-219HW400
Unit Characteristics	refrigeration capacity		kW	55	83	110	165	219	
	heating capacity		kW	20	30	40	60	80	
	Circulating air flow		m³/h	10000	15000	20000	30000	40000	
	external static pressure		Pa	300	300	300	300	300	
	energy regulation		%	0, 50, 100	0, 50, 100	0, 50, 100	0, 50, 100	0, 33, 67, 100	
	Humidification capacity		kg/h	10	15	20	30	39	
	Temperature control range		°C	Winter 18~23℃± 1 °C, summer 22~28 °C± 1°C					
	Moisture control range		%	50~70%±5%					
	Power supply			380V-3N-50Hz					
	Cooling input power		kW	14.5	21.8	28.9	43.4	57.6	
Electric heating input power		kW	20	30	40	60	80		
Electrode humidification input power		kW	7.5	11.25	15	22.5	29.25		
refrigeration system	refrigerant	Name of working fluid	R410a						
		Throttle method	thermal expansion valve						
	compressor	type	Hermetically sealed scroll type						
	evaporator	type	Copper tube with hydrophilic aluminum foil fins						
		type	Sleeve type/Shell tube type						
	Water-cooled condenser	water volume	m³/h	12	18	23.9	35.8	47.6	
		water resistance	Kpa	≤38					
	Inlet and outlet pipe	DN	DN50	DN50	DN65	DN80	DN100		
Air supply system	fan	type	Low noise dual inlet centrifugal type						
		Drive Type	belt drive						
		Motor power	kW	4	5.5	11	15	22	
	air filter			Optional : Primary...iciency (G4)/Medium efficiency (F8)/High efficiency (H8)					
Total input power			kW	46	68.55	94.9	140.9	188.85	

★ REMARKS

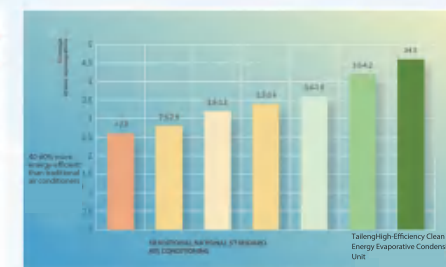
1. Customized cooling capacity: measured under the conditions of nominal air volume, indoor return air dry wet bulb temperature of 25/17.5 °C, and water source cooling water inlet and outlet temperature of 30 °C/35 °C;
2. Heating capacity can be selected based on project requirements, including electric heating, hot water coils, or steam coils;
3. The cooling capacity does not take into account the heat loss of the fan motor, and the nominal air volume refers to the operating air volume under standard conditions;
4. The standard configuration of the unit is electric heating, and hot water or steam heating can also be used according to customer requirements;
5. The sample comes standard with electrode humidification, and can be optionally equipped with high-pressure micro fog, electric heating humidification, steam humidification, wet film humidification, and other forms according to customer project requirements;
6. The unit has been shipped and filled with R410a, with the filling amount referring to the name plate;
7. The water-cooled cabinet machine needs a direct expansion system for heating in winter, and it is necessary to contact the cooling technology of the platform to evaluate its reliability, in order to avoid unauthorized rectification and system ice explosion.
8. The unit parameters can be selected according to the application scenario and structural form.

EFFICIENT AND ENERGY-SAVING EVAPORATIVE COOLING AIR CONDITIONING UNIT >>>>

Efficient and energy-saving evaporative cooling air conditioning unit is an energy-saving air conditioning unit that uses air as the cold and heat source and water as the intercooler. Inheriting more than 20 years of experience in central air conditioning design, manufacturing, operation, and service from Taileng Refrigeration, we continuously introduce new types of high-efficiency units, comprehensively upgrade the structure, system, and program, and strive to create units that are efficient, energy-saving, stable, reliable, intelligent controlled, low-carbon, environmentally friendly, and easy to install for comfort and process applications, providing customers with a luxurious user experience. Efficient and clean energy evaporative cooling air conditioning units have multiple advantages, such as simple pipeline installation, flexible installation, moderate investment, short construction period, and the ability to be invested in stages. They are widely used in industrial plants, industrial and civil buildings, restaurants, supermarkets, cinemas and other commercial areas, meeting more application needs of customers.

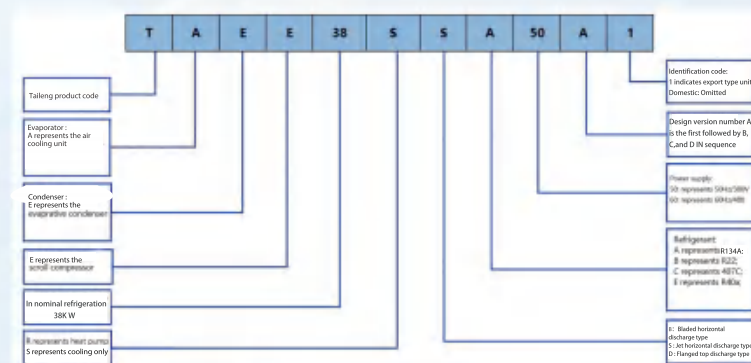


Working principle diagram of high-efficiency energy-saving evaporative cooling air conditioning unit



Comprehensive energy efficiency chart of high-efficiency energy-saving evaporative cooling air conditioning unit

Naming rules for high-efficiency energy-saving evaporative cooling air conditioning units



High efficient energy saving evaporative cooling air conditioning unit product configuration



High efficient energy saving evaporative cooling air conditioning unit indoor unit



Floor standing cabinet indoor unit
Horizontal lower air supply type



Floor standing cabinet indoor unit
Jet horizontal air supply type



Floor standing cabinet indoor unit
Range top air supply type

Taileng Mobile high-efficiency energy-saving evaporative cooling air conditioning unit indoor unit

High efficient energy-saving evaporative cooling air conditioning unit outdoor unit



Mobile floor standing cabinet indoor unit
horizontal lower air supply type



Mobile floor standing cabinet indoor unit
Jet horizontal air supply type



High efficiency energy saving evaporative cooling air conditioning unit function protection



Parameter table of high-efficiency energy saving evaporative cooling air conditioning unit

Product Model	TAEE20S	TAEE38S	TAEE75S
Rated cooling capacity (kW)	19.5	38	75
Rated power (kW)	4.3	8	15.8
Circulating air flow (m³/h)	4000	8000	16000
Maximum input power (kW)	6	11.2	22.1
Maximum input current (A)	12	22.4	44.3
refrigerant	R410a	R410a	R410a
Rated voltage/frequency	380V 3N~50Hz	380V 3N~50Hz	380V 3N~50Hz
Maximum working pressure (MPa)	4.2	4.2	4.2
Unit noise dB(A)	≤ 60	≤ 63	≤ 65
Environmental temperature range (°C)	16-45	16-45	16-45
Pipe connection size	DN25	DN40	DN50
Pump power (W)	375	750	1.5
Circulating water flow rate (m³/h)	5.39	10.38	20.35
Pump head (m)	13	14	14
Indoor unit weight (kg)	250	350	550
Outdoor unit weight (kg)	120	150	250
Floor standing cabinet front air outlet indoor unit size L×W×H (mm)	800×500×1700	900×550×1950	1500×600×2000
Floor standing cabinet jet air outlet indoor unit size L×W×H (mm)	800×620×1400	1180×660×1480	1760×860×1750
Floor standing cabinet top air outlet indoor unit size L×W×H (mm)	800×620×1900	1180×660×1950	1760×860×2300
TAEE-W outdoor unit size L×W×H (mm)	910×910×1250	1250×910×1250	1850×1060×1550
Applicable area (m²)	100-200	200-400	400-800

Operating condition description:

1. Nominal operating conditions: indoor air intake operating conditions: dry bulb 27 °C, wet bulb 19 °C, indoor inlet water temperature 30 °C;
2. Unit power supply: 3N~380V 50Hz;
3. The external dimensions of the unit are for reference only. Due to technological upgrades and updates, changes in dimensions will not be explained. Please contact the manufacturer for detailed design confirmation of specific dimensions.

WATER COOLED SCROLL CHILLER UNIT

PRODUCT INTRODUCTION

Taileng water cooled scroll chiller is a central air conditioning unit that uses water provided by a cooling tower as the cold and heat source, and water as the refrigerant. It can be combined with various end devices such as fan coil units and air conditioning units to form a centralized air conditioning system.

Taileng water cooled scroll chiller unit uses R410a green and environmentally friendly refrigerant, with various specifications and complete functions. In scenarios where the water consumption at the end is relatively low, Screw chillers are more costly and has a large performance margin. Therefore, choosing a cold water vortex chiller unit has multiple advantages such as high cost-effectiveness, flexible installation, moderate investment, short construction period, and the ability to invest in stages. It is widely used in commercial, industrial, and civil buildings such as villas, hotels, hospitals, office buildings, restaurants, supermarkets, cinemas, etc., to meet more application needs of customers.



Technical characteristics of the unit

Efficient fully enclosed vortex compressor

Adopting a new generation of high-efficiency fully enclosed vortex compressors from international brands, with internationally leading radial and axial flexible vortex compression technologies, a low-pressure chamber structure design, and a crankcase located in a relatively low temperature area, the motor is effectively cooled by low-temperature return refrigerant to prevent excessive viscosity of lubricating oil from causing high aerodynamic resistance in the compressor and extending the service life of the motor. Equipped with multiple safety overload protection functions to ensure stable and reliable operation.



Efficient new shell and tube heat exchanger

The water side heat exchanger is an efficient new shell and tube heat exchanger, designed using the latest simulation technology to improve the design of the tube side. A distributor is used to distribute the refrigerant evenly in the tube side, maximizing the use of the heat transfer area and significantly improving the heat transfer performance; At the same time, the new shell and tube heat exchanger adopts an integrated welding process, greatly reducing the risk of leakage. It has a series of advantages such as dirt resistance, blockage resistance, pressure resistance, frost resistance, vibration resistance, low water resistance, and low requirements for water quality.



High precision throttling device

The throttling components of the unit adopt high-quality branded precision adjustment electronic expansion valves or thermal expansion valves; The valve opening can be precisely adjusted according to the load requirements during system operation to achieve dynamic matching of the refrigerant system, ensuring accurate refrigerant flow and optimal system operating pressure and temperature. Its reaction mechanism is rapid and accurate, and the energy efficiency of the unit operation has been significantly improved.



Free switching between hot and cold

Adopting a four-way directional valve to change the flow direction of refrigerant in the system, achieving free switching between one-button switching between cooling and heating, and achieving comfortable temperature control throughout the year.



Filter

Filters are designed in the refrigeration system piping to prevent blockage of throttling components caused by impurities in the piping during both cooling and heating cycles, ensuring stable operation of the equipment.



Control and Communication

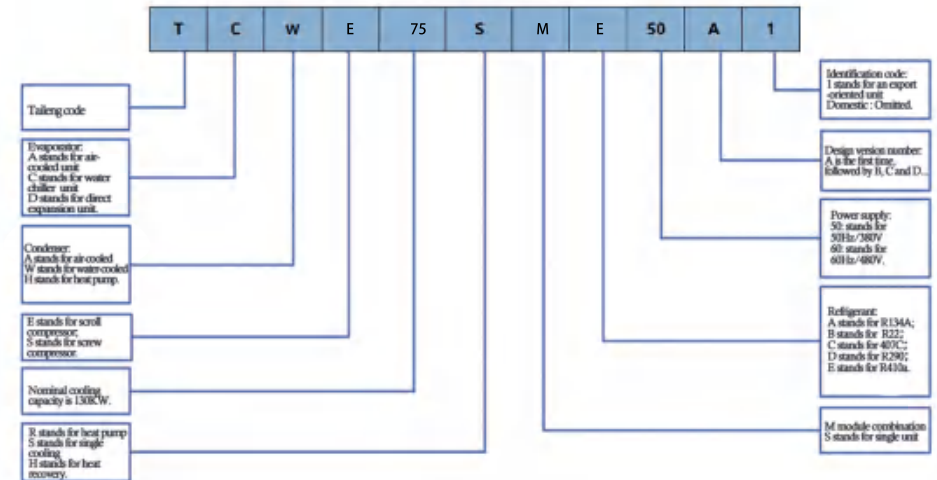
The standard line controller is a 4.3" touch controller, which is simple and beautiful, with a LCD touch screen design and can be connected to WIFI for remote control.

Optional 7" touch LCD controller, full touch 7" color page LCD display screen, more comprehensive parameter display.

The unit is equipped with RS485 signal control ports that can be connected to the building control system, and can be integrated into the building control system through the MODBUS-RTU protocol.



Naming convention for water-cooled scroll chillers



Parameter table for water-cooled scroll chiller unit

Unit model			TC WE60S ME50A	TC WE75S ME50A	TC WE120S ME50A	TC WE150S ME50A
Refrigeration performance	refrigeration capacity	kW	60	75	120	150
	Electric power consumption	kW	12.2	15.2	24.4	30.4
	Operating current	A	22	27	44	54
	Performance coefficient COP	W/W	4.92	4.93	4.92	4.93
compressor	type		Fully hermetic scroll type			
	Startup method		IR			
	rated power	kW	12.2	15.2	24.4	30.4
	refrigeration oil		DAPHNE FVC680			
Applicable power supply		v-N-Hz	380v/3N/50Hz			
refrigerant			R410a			
Refrigerant filling amount		kg	8	10	8*2	10*2
Refrigerant control method			Electronic expansion valve/thermal expansion valve			
Operation control mode			microcomputer type			
protective device	compressor		Built in temperature protection and overload thermal protection			
	high-voltage switch	MPa(G)	4.2			
	low-voltage switch	MPa(G)	0.15			
condenser	type		high-efficiency shell-and-tube			
	water volume	m³/h	12.9	16.1	25.8	32.3
	head loss	KPa	25	25	32	40
	connection method		thread			
	Inlet and outlet pipe diameter	DN	DN40	DN50	DN50	DN65

Functional protection of water cooled scroll chiller unit



evaporator	type		high-efficiency shell-and-tube			
	water volume	m ³ /h	10.3	12.9	20.6	25.8
	head loss	kPa	25	25	32	40
	connection method		thread			
Overall dimensions	inlet and outlet pipe diameter	DN	DN40	DN50	DN50	DN65
	long	mm	1100	1200	1800	2000
	wide	mm	800	800	800	800
	tall	mm	1000	1000	1000	1000
Net weight		kg	400	450	750	850

Unit model			TCWE180SME50A	TCWE225SME50A	TCWE240SME50A	TCWE300SME50A
Refrigeration performance	refrigeration capacity	kW	180	225	240	300
	Electric power consumption	kW	36.6	45.6	48.8	60.8
	Operating current	A	81	81	88	108
	Performance coefficient COP	W/W	4.92	4.93	4.92	4.93
compressor	type		Fully hermetic scroll type			
	Startup method		IR			
	rated power	kW	36.6	45.6	48.8	60.8
	refrigeration oil		DAPHNE FVC680			
Applicable power supply		v-N-Hz	380v/3N/50Hz			
refrigerant			R410a			
Refrigerant filling amount		kg	8*3	10*3	8*4	10*4
Refrigerant control method			Electronic expansion valve/thermal expansion valve			
Operation control mode			microcomputer type			
protective device	compressor		Built in temperature protection and overload thermal protection			
	high-voltage switch	MPa(G)	4.2			
	low-voltage switch	MPa(G)	0.15			
	type		high-efficiency shell-and-tube			
condenser	water volume	m ³ /h	38.7	48.4	51.6	64.5
	head loss	kPa	40	40	40	40
	connection method		thread			
	inlet and outlet pipe diameter	DN	DN65	DN80	DN80	DN100
evaporator	type		high-efficiency shell-and-tube			
	water volume	m ³ /h	31	38.7	41.3	51.6
	head loss	kPa	40	40	40	40
	connection method		thread			
Overall dimensions	inlet and outlet pipe diameter	DN	DN65	DN80	DN80	DN100
	long	mm	2500	2800	3200	3300
	wide	mm	800	800	800	800
	tall	mm	1000	1000	1000	1000
Net weight		kg	1100	1250	1450	1650

Note:

1. The above specifications are tested under the conditions of ice water inlet and outlet temperature of 12/7 °C, cooling water temperature of 30/35 °C, evaporator fouling coefficient of 0.000018m²°C/W, and condenser fouling coefficient of 0.000044m²°C/W.
2. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings;
3. If there are special requirements, please specify the requirements before placing an order.

WATER COOLED SCREW CHILLER UNIT

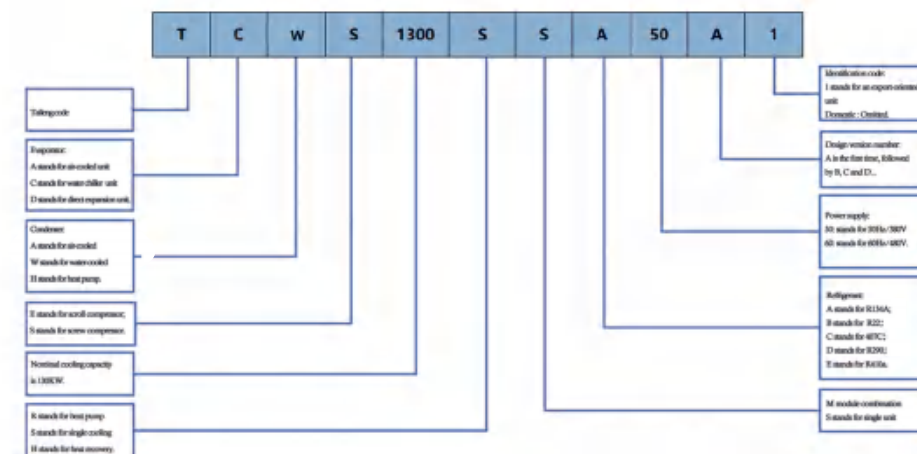
PRODUCT INTRODUCTION

The Taileng chilled water screw chiller unit is a central air conditioning unit that uses cooling tower water supply as the cold and heat source, and water as the refrigerant. It can be combined with various end devices such as fan coil units and air conditioning units to form a centralized air conditioning system.

The Taileng water cooled screw chiller unit adopts an efficient screw compressor, which can achieve stepless variable capacity adjustment and is highly efficient and energy-saving; Humanized microcomputer control system with remote control function; The self-protection function ensures safety and reliability, ensuring worry free operation; The water-cooled screw chiller unit has complete specifications and can be customized for customers; Advanced environmentally friendly refrigerant R134a replaceable design; It has the advantages of compact structure, small volume, low noise, high energy efficiency ratio, long service life, and simple operation and maintenance. It is widely used in hotels, restaurants, office buildings, shops, hospitals and other places, as well as in air conditioning places in metallurgy, chemical, mechanical, and electronic industries.



Naming rules for water-cooled screw chillers unit



Technical characteristics of water-cooled screw chiller unit >

Efficient screw compressor

We use first-line brands such as Fusheng or Hanzhong screw compressors, variable frequency screw compressors, etc. The compressor motor casing is specially designed with a motor cooling channel, and low-temperature refrigerant passes through the motor to ensure the safe operation of the compressor. Ultra long life bearings with sealed bearing chambers effectively ensure the viscosity of lubricating oil inside the bearings. Integrated high-efficiency oil separation, optimized oil circuit, and use high-quality compressor lubricating oil to ensure lubrication efficiency and further improve the operating efficiency of the compressor.



Efficient new shell and tube heat exchanger

The water side heat exchanger is an efficient new shell and tube heat exchanger, designed using the latest simulation technology to improve the design of the tube side. A distributor is used to distribute the refrigerant evenly in the tube side, maximizing the use of the heat transfer area and significantly improving the heat transfer performance. At the same time, the new shell and tube heat exchanger adopts an integrated welding process, greatly reducing the risk of leakage. It has a series of advantages such as dirt resistance, blockage resistance, pressure resistance, frost resistance, vibration resistance, low water resistance, and low requirements for water quality.



Oil separation unit

The special external oil separation design effectively blocks lubricating oil from entering the refrigerant circulation system, allowing it to return to the compressor lubrication system in a timely manner, thereby ensuring the stable operation of the system and maintaining high efficiency.



High precision throttling device

By using electronic expansion valves or thermal expansion valves for throttling, intelligent automatic flow regulation is achieved to meet the needs of different loads, optimizing the dynamic allocation of refrigerant systems, making them more responsive and reliable, thereby improving the overall performance of the equipment.



Detachable drying filter

There is a detachable dry filter designed in the refrigeration system pipeline, which can prevent the blockage of throttling components caused by water intrusion in the pipeline during both refrigeration and heating cycles. The detachable setting allows for easy replacement of the filter element, ensuring stable operation of the equipment.



Control and Communication

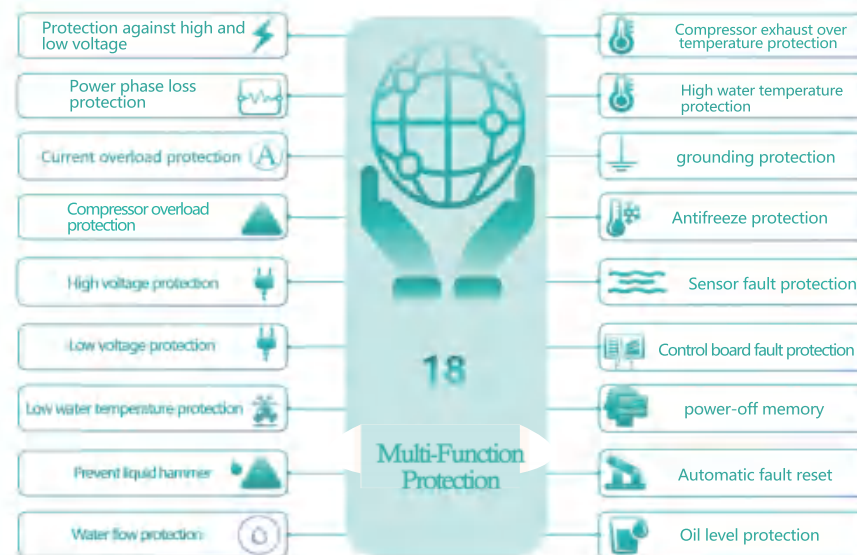
The standard line controller is a 7" touch controller, which is simple and beautiful, with a LCD touch screen design and can be connected to WIFI for remote control.

Optional 10" touch LCD controller, full touch 10" color page LCD display screen, more comprehensive parameter display.

Provide MODBUS communication protocol, supporting remote monitoring and group control.



Functional protection of water-cooled screw chiller unit >



Performance parameter table of water-cooled screw chiller unit (R22) >

Model: TCWS-SLEAF		38H	350	400	430	440	550	680	850	780	110	
refrigeration capacity	RT	85	97	112	122	131	156	168	185	199	206	
	kW	298	340	395	430	460	550	590	650	700	725	
input power	kW	54	62	70.5	76.5	84.3	101	108.3	118.4	122.6	134	
COP	W/W	5.52	5.48	5.6	5.62	5.46	5.45	5.6	5.49	5.28	5.41	
IPLV	W/W	6.8	6.83	6.87	6.84	6.76	6.75	6.78	6.78	6.83	6.83	
energy efficiency rating	-	1	1	1	1	1	1	1	1	1	1	
rated current	A	93.45	107.29	122	132.38	145.88	174.78	182.22	204.89	229.47	231.89	
power supply	3N/380V/50Hz											
controller	Chinese 7"LCD color touch screen											
Safety protection device	Compressor built-in protection: high voltage protection, low voltage protection, compressor overheating and overload protection, overvoltage, undervoltage, phase sequence protection, exhaust temperature protection, oil level switch, antifreeze protection, evaporator water flow protection, condenser water flow protection, cooling water temperature high protection, safety valve, etc. Optional oil pressure difference switch.											
	type	-	semi hermetic twin-screw type									
compressor	quantity	-	1	1	1	1	1	1	1	1	1	
	energy regulation	%	Four stage capacity adjustment or stepless capacity adjustment									
	Startup method	-	Y-Δ									
	category	-	R22									
refrigerant	Throttle method	-	electronic expansion valve									
	charge amount	kg	68	77	90	98	105	125	134	148	159	165
	type	-	Efficient full liquid shell and tube evaporator									
evaporator	water flow rate	m³/h	51	58	68	74	79	95	101	112	120	125
	Water pressure drop	KPa	60	60	60	64	64	65	65	65	65	65
	Pipe connection diameter	-	DN100	DN100	DN100	DN100	DN125	DN125	DN150	DN150	DN150	DN150
	Pipe connection method	-	flanged									
	type	-	Horizontal shell and tube condenser									
condenser	water flow rate	m³/h	64	73	85	92	99	118	127	140	151	156
	Water pressure drop	KPa	80	80	80	80	80	80	80	80	80	80
	pipe diameter	-	DN100	DN100	DN100	DN100	DN125	DN125	DN150	DN150	DN150	DN150
	Pipe connection method	-	flanged									

Model: TCWS-S1EA0		300	350	400	450	500	550	600	650	700	750
Overall dimensions	long	mm	3175	3175	3175	3175	3250	3250	3250	3250	3250
	wide	mm	1180	1180	1200	1200	1200	1200	1200	1200	1200
	tail	mm	1680	1800	1800	1850	1850	1850	1850	1850	1850
Net weight of the unit		kg	2350	2430	2480	2530	2580	2630	2680	2730	2780
opening weight		kg	2530	2640	2720	2800	2850	2900	2950	3000	3050

continue

Model: TCWS-S1EA0		350	400	450	500	550	600	650	700	750	800
refrigeration capacity	RT	242	264	316	334	367	397	412	479	526	569
	kW	850	930	1110	1175	1290	1385	1450	1685	1850	2000
input power	kW	153	168.6	202	210.6	236	256	268.4	305	338.1	365
COP	W/W	5.56	5.52	5.5	5.58	5.47	5.45	5.4	5.52	5.47	5.48
IPLV	W/W	6.9	6.76	6.91	6.93	7.07	6.98	6.91	6.95	7.08	7.09
energy efficiency rating	-	1	1	1	1	1	1	1	1	1	1
rated current	A	264.8	291.8	349.6	364.4	408.4	443	464.5	527.8	585.1	631.6
power supply	3N/380V/50Hz										
controller	Chinese 7" LCD color touch screen										
Safety protection device		Compressor built-in protection: high voltage protection, low voltage protection, compressor overheating and overload protection, overvoltage, undervoltage, phase sequence protection, exhaust temperature protection, oil level switch, antifreeze protection, evaporator water flow protection, condenser water flow protection, cooling water temperature high protection, safety valve, etc. Optional oil pressure difference switch.									
compressor	type	-	Semi hermetic twin-screw type								
	quantity	-	2	2	2	2	2	2	2	2	2
	energy regulation	%	Four stage capacity adjustment or stepless capacity adjustment								
refrigerant	Startup method	-	Y-Δ								
	category	-	R22								
	Throttle method	-	electronic expansion valve								
evaporator	charge amount	kg	193	212	252	267	293	317	330	383	421
	type	-	Efficient full liquid shell and tube evaporator								
	water flow rate	m³/h	146.2	160	190.9	202.1	221.9	239.9	249.4	289.8	318.2
condenser	Water pressure drop	KPa	65	65	65	84	84	84	84	84	84
	Pipe connection diameter	-	DN150	DN150	DN200	DN200	DN200	DN200	DN200	DN250	DN250
	Pipe connection method	-	flanged								
Overall dimensions	type	-	Horizontal shell and tube condenser								
	water flow rate	m³/h	182.8	200	238.7	252.6	271.4	290.9	311.8	362.3	397.8
	Water pressure drop	KPa	75	75	75	75	95	95	95	95	95
Net weight of the unit	pipe diameter	-	DN150	DN150	DN200	DN200	DN200	DN200	DN200	DN250	DN250
	Pipe connection method	-	flanged								
	long	mm	3485	3600	3600	3600	3650	3650	4000	4200	4300
Opening weight	wide	mm	1600	1600	1600	1600	1600	1600	1600	1600	1600
	high	mm	1800	1850	1850	1850	1850	1850	1850	1850	1850
	tail weight	kg	5380	6300	6400	7800	7850	7900	7950	8150	8300
Operating weight	kg	5800	6800	7000	8500	8600	8750	8850	9200	9250	9680
	kg	5800	6800	7000	8500	8600	8750	8850	9200	9250	9680
	kg	5800	6800	7000	8500	8600	8750	8850	9200	9250	9680

Remarks:

1. The above specifications are tested under the conditions of ice water inlet and outlet temperature of 12/7 °C, cooling water temperature of 30/35 °C, evaporator fouling coefficient of 0.000018m² °C/W, and condenser fouling coefficient of 0.000044m² °C/W;
2. Hot water inlet and outlet temperature 40 °C/45 °C;
3. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings;
4. If there are special requirements, please specify the requirements before placing an order.

Performance parameter table of water-cooled screw chiller unit (R134a) >

Model: TCWS-S1EA0		300	350	380	430	460	500	550	600	660	700	780
refrigeration capacity	RT	85	98	106	122	131	139	156	171	188	199	214
	kW	298	345	372	430	460	490	550	600	660	700	752
input power	kW	49.8	57	61	71	76	80.5	91	99	109	116	124
COP	W/W	5.98	6.05	6.1	6.06	6.05	6.09	6.04	6.06	6.06	6.03	6.06
IPLV	W/W	6.8	6.83	6.87	6.84	6.76	6.86	6.75	6.78	6.78	6.76	6.83
energy efficiency rating	-	1	1	1	1	1	1	1	1	1	1	1
rated current	A	86.2	98.6	105.6	122.9	131.5	139.3	157.5	171.3	188.6	200.7	214.6
power supply	3N/380V/50Hz											
controller	Chinese 7" LCD color touch screen											
Safety protection device		Compressor built-in protection: high voltage protection, low voltage protection, compressor overheating and overload protection, overvoltage, undervoltage, phase sequence protection, exhaust temperature protection, oil level switch, antifreeze protection, evaporator water flow protection, condenser water flow protection, cooling water temperature high protection, safety valve, etc. Optional oil pressure difference switch.										
compressor	type	-	Semi closed twin-screw type									
	quantity	-	1	1	1	1	1	1	1	1	1	1
	energy regulation	%	Four stage capacity adjustment or stepless capacity adjustment									
refrigerant	Startup method	-	Y-Δ									
	category	-	R134a									
	Throttle method	-	electronic expansion valve									
evaporator	charge amount	kg	68	78	85	98	105	111	125	136	150	171
	type	-	Efficient full liquid shell and tube evaporator									
	water flow rate	m³/h	51	59	64	74	79	84	95	103	114	129
condenser	Water pressure drop	KPa	52	54	56	58	49	54	54	58	58	64
	Pipe connection diameter	-	DN100	DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150
	Pipe connection method	-	flanged									
Overall dimensions	type	-	Horizontal shell and tube condenser									
	water flow rate	m³/h	64	74	80	92	99	105	118	129	142	162
	Water pressure drop	KPa	56	56	58	58	62	64	68	54	56	64
Net weight of the unit	pipe diameter	-	DN100	DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150
	Pipe connection method	-	flanged									
	long	mm	3175	3175	3175	3175	3250	3250	3250	3250	3250	3250
Opening weight	wide	mm	1180	1180	1200	1200	1200	1365	1365	1365	1365	1508
	tail	mm	1680	1800	1800	1850	1850	1950	1950	1950	1950	2100
	tail weight	kg	2350	2430	2490	2530	2580	2630	2680	2730	2780	2830
Operating weight	kg	2530	2640	2730	2800	2850	2900	2950	3000	3050	3100	3150
	kg	2530	2640	2730	2800	2850	2900	2950	3000	3050	3100	3150
	kg	2530	2640	2730	2800	2850	2900	2950	3000	3050	3100	3150

Model: TCWS-SLEAP		930	920	980	1100	1200	1300	1400	1500	1650	1900	2100
refrigeration capacity	RT	242	262	279	313	341	370	398	421	469	539	620
	kW	850	920	980	1100	1200	1300	1400	1480	1650	1895	2180
input power	kW	139	152	161	178	194	207	224	238	268	308	351
COP	W/W	6.12	6.05	6.09	6.18	6.19	6.28	6.25	6.22	6.16	6.15	6.18
IPLV	W/W	6.9	6.76	6.86	6.91	6.93	7.07	6.98	6.91	6.95	7.03	7.09
energy efficiency rating	-	1	1	1	1	1	1	1	1	1	1	1
rated current	A	240.5	263	278.6	308	335.7	358.2	387.6	411.9	463.8	531	610.9
power supply	3N/380V/50Hz											
controller	Chinese 7" LCD color touch screen											
Safety protection device	Compressor built-in protection: high voltage protection, low voltage protection, compressor overheating and overload protection, overvoltage, undervoltage, phase sequence protection, coolant temperature protection, oil level switch, antifreeze protection, evaporator water flow protection, condenser water flow protection, cooling water temperature high protection, safety valve, etc. Optional oil pressure difference switch.											
compressor	type	Semi closed twin-screw type										
	quantity	-	2	2	2	2	2	2	2	2	2	2
	energy regulation	Four stage capacity adjustment or stepless capacity adjustment										
refrigerant	Startup method	V-A										
	category	R134a										
	Throttle method	electronic expansion valve										
evaporator	charge amount	kg	183	209	223	250	273	296	318	357	431	496
	type	Efficient full liquid shell and tube evaporator										
	water flow rate	m ³ /h	146.2	158.2	168.6	189.2	206.4	223.6	240.8	283.8	325.9	375
	Water pressure drop	KPa	65	65	65	65	64	64	64	64	50	50
	Pipe connection method	-	DN150	DN150	DN150	DN200	DN200	DN200	DN200	DN200	DN250	DN250
condenser	Pipe connection method	flanged										
	type	Horizontal shell and tube condenser										
	water flow rate	m ³ /h	162.8	197.3	210.7	226.5	258	279.5	301	318.2	354.8	407.4
	Water pressure drop	KPa	75	75	75	75	75	95	95	95	55	55
	pipe diameter	-	DN150	DN150	DN150	DN200	DN200	DN200	DN200	DN200	DN250	DN250
Overall dimensions	Pipe connection method	flanged										
	long	mm	3485	4020	4020	4020	4550	4550	4550	5150	5150	5550
	wide	mm	1600	1600	1600	1900	1900	1900	1900	2100	2100	2150
	high	mm	2100	2100	2100	2100	2200	2200	2200	2250	2250	2600
	net weight	kg	5380	6350	6380	6420	7500	7850	7900	7050	8320	9320
Operating weight		kg	5900	6990	6990	7100	8500	8600	8780	8890	9200	10660

Remarks:

1. The above specifications are tested under the conditions of ice water inlet and outlet temperature of 12/7 °C, cooling water temperature of 30/35 °C, evaporator fouling coefficient of 0.000018m² °C/W, and condenser fouling coefficient of 0.000044m² °C/W;
2. Hot water inlet and outlet temperature 40 °C/45 °C;
3. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings;
4. If there are special requirements, please specify the requirements before placing an order.

Correction coefficient for performance variation of water-cooled screw chiller under refrigeration conditions

Temperature of chilled water outlet (°C)	Cooling water outlet temperature °C							
	25		30		35		40	
	refrigeration capacity	input power	refrigeration capacity	input power	refrigeration capacity	input power	refrigeration capacity	input power
-2	0.836	0.778	0.789	0.834	-	-	-	-
-1	0.862	0.786	0.821	0.846	-	-	-	-
0	0.894	0.803	0.848	0.863	0.807	0.943	0.758	1.021
1	0.917	0.812	0.858	0.869	0.817	0.951	0.768	1.032
2	0.938	0.819	0.883	0.879	0.836	0.96	0.786	1.044
3	0.96	0.829	0.908	0.888	0.867	0.97	0.82	1.053
4	0.986	0.842	0.94	0.892	0.905	0.978	0.86	1.069
5	1.023	0.861	0.972	0.908	0.934	0.987	0.893	1.085
6	1.062	0.876	1.013	0.918	0.966	0.996	0.924	1.095
7	1.1	0.889	1.053	0.934	1	1	0.956	1.105
8	1.129	0.906	1.095	0.95	1.037	1.015	0.988	1.115
9	1.17	0.923	1.118	0.966	1.076	1.026	1.023	1.126
10	1.202	0.943	1.158	0.986	1.115	1.042	1.06	1.14
11	1.234	0.97	1.198	1.012	1.139	1.067	1.104	1.154
12	1.258	0.998	1.218	1.04	1.167	1.098	1.131	1.17
13	1.274	1.025	1.242	1.068	1.191	1.128	1.157	1.189
14	1.289	1.054	1.257	1.094	1.216	1.157	1.179	1.219
15	1.302	1.09	1.269	1.128	1.232	1.186	1.202	1.242

Remarks:

1. When the chilled water temperature is below 4°C, it differs from the standard air conditioning water chiller, so specific instructions are required.
2. When the outlet temperature of chilled water is below 4°C, ethylene glycol solution (antifreeze) needs to be added.
3. When the temperature of the chilled water outlet is higher than 12°C, please explain to the sales personnel.
4. For any other special requirements, please contact our sales personnel for clarification.

MODULAR AIR-COOLED CHILLER (HEAT) WATER UNIT

PRODUCT INTRODUCTION



The modular air-cooled cold (hot) water unit of Taileng Refrigeration is a central air conditioning unit that uses air as the cold and heat source and water as the refrigerant. It can be combined with various end devices such as fan coil units and air conditioning boxes to form a centralized air conditioning system.

The Taileng Cooling Modular Air Cooled (Hot) Water Unit is a versatile and fully functional unit, with benchmark modules including 65kW, 100kW, and 130kW. It can achieve any combination of different models, with up to 16 modules in parallel, forming a combination product within the range of 66kW to 2080kW. Modular air-cooled cooling (heating) water units have multiple advantages such as no cooling water system, simple pipelines, flexible installation, moderate investment, short construction period, and the ability to be invested in stages. They are widely used in commercial, industrial, and civil buildings such as villas, hotels, hospitals, office buildings, restaurants, supermarkets, cinemas, etc., meeting more application needs of customers.

Technical Features of Modular Air-Cooled Chiller (Heat) Water Unit

Efficient fully enclosed scroll compressor

Adopting a new generation of high-efficiency fully enclosed vortex compressors from international brands, with internationally leading radial and axial flexible vortex compression technologies, a low-pressure chamber structure design, and a crankcase located in a relatively low temperature area, the motor is effectively cooled by low-temperature return refrigerant to prevent excessive viscosity of lubricating oil from causing high aerodynamic resistance in the compressor and extending the service life of the motor. Equipped with multiple safety overload protection functions to ensure stable and reliable circular operation.



Efficient new shell and tube heat exchanger

The water side heat exchanger is an efficient new shell and tube heat exchanger, designed using the latest simulation technology to improve the design of the tube side. A distributor is used to distribute the refrigerant evenly in the tube side, maximizing the use of the heat transfer area and significantly improving the heat transfer performance; At the same time, the new shell and tube heat exchanger adopts an integrated welding process, greatly reducing the risk of leakage. It has a series of advantages such as dirt resistance, blockage resistance, pressure resistance, frost resistance, vibration resistance, low water resistance, and low requirements for water quality.



Efficient air side heat exchanger

The 360° surround structure composed of uniquely designed "U"-shaped heat exchangers optimizes the wind field design, with no dead corners in the inlet air, low air resistance, and high air volume, which is conducive to improving heat transfer efficiency. The main materials of the heat exchanger are louvered hydrophilic fins and high-efficiency high tooth internally threaded copper tubes. Anti corrosion hydrophilic aluminum foil has the characteristics of high efficiency and long service life, strong corrosion resistance, and can delay corrosion. The spiral high tooth internally threaded copper tube increases the internal heat transfer area compared to the bare tube, thereby improving heat transfer efficiency.



High precision throttling device

By using electronic expansion valves or thermal expansion valves for throttling, intelligent automatic flow regulation is achieved to meet the needs of different loads, optimizing the dynamic allocation of refrigerant systems, making them more responsive and reliable, thereby improving the overall performance of the equipment.



Filter

Filters are designed in the refrigeration system piping to prevent blockage of throttling components caused by impurities in the piping during both cooling and heating cycles, ensuring stable operation of the equipment.



Customized fan components

The high-efficiency and low-noise airfoil axial flow fan adopts metal blades, with large-diameter rounded axial flow blades, integrated design of air guide ring and air guide cover, and aerodynamic optimization design of the fan blades, effectively reducing noise and making operation quieter and more efficient. IP55 fully efficient motor with metal mesh cover protection, providing stronger protection for outdoor installation.



Control and Communication

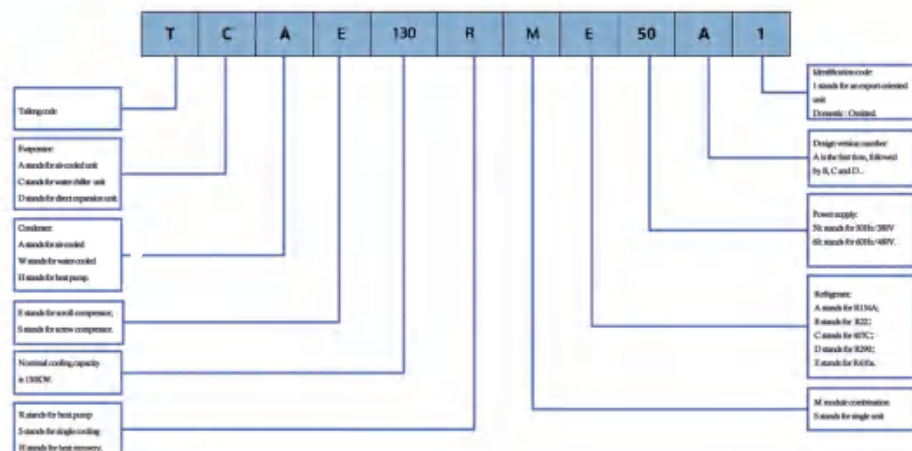
The standard line controller is a 4.3" touch controller, which is simple and beautiful, with a LCD touch screen design and can be connected to WIFI for remote control.

Optional 7" touch LCD controller, full touch 7" color page LCD display screen, more comprehensive parameter display.

The unit is equipped with RS485 signal control ports that can be connected to the building control system, and can be integrated into the building control system through the ModBus RTU protocol.



Naming rules for modular air-cooled chiller (heat) water units



Parameter table of modular air-cooled chiller (heat) water unit

Unit model		TCAE65RME50B	TCAE100RME50B	TCAE130RME50B
Applicable power supply		380V~3N~50Hz		
starting current		A	160	236
Refrigeration performance	refrigeration capacity	kW	65	95
	Electric power consumption	kW	19.4	28.6
	Operating current	A	33.5	50.3
	Performance coefficient COP	W/W	3.35	3.32
	Comprehensive Performance Coefficient IPLV	W/W	3.78	3.75
Heating performance	heating capacity	kW	75	105
	Electric power consumption	kW	19.2	28.4
	Operating current	A	33.6	50.6
	Performance coefficient COP	W/W	3.91	3.69
compressor	type	Fully enclosed vortex type		
	Startup method	Direct startup		
	rated power	kW	7.5*2	11.2*2
	refrigeration oil	FV68S		
	oil volume	ml	2500*2	3500*2

Unit model			TCAE65RME50B	TCAE100RME50B	TCAE130RME50B
refrigerant			R410a		
Refrigerant filling amount		kg	5.0*2	7.5*2	9.5*2
Refrigerant control method			electronic expansion valve		
Operation control mode			microcomputer type		
fan	type		axial flow fan		
	quantity		2	2	2
	output	kW	0.75*2	0.75*2	1.5*2
	air volume	m³/h	30000	35000	47000
condenser			Window opening copper tube finned heat exchanger		
evaporator	type		high-efficiency shell-and-tube		
	water volume	m³/h	11.2	16.3	22.4
	head loss	KPa	25	32	40
	connection method		thread		
	Inlet and outlet pipe diameter	mm	DN50	DN65	
Overall dimensions	height	mm	2180	2236	2396
	width	mm	2000	2145	2145
	depth	mm	1000	1075	1075
Net weight		kg	680	850	1000
protective device	compressor		Built in temperature protection and overload thermal protection		
	fan motor		Built in temperature protection and overload thermal protection		
	high- pressure switch	MPa(G)	4.2		
	low- pressure switch	MPa(G)	0.12		
	control loop		5A fuse		
Unit operating range	When cooling: the outlet temperature of cold water is 5-15 °C, and the outdoor temperature is 21-43 °C (dry bulb); The measured cooling capacity varies depending on the specific operating conditions				
	During heating: the outlet temperature of hot water is 40-50 °C, and the outdoor temperature is -10-21 °C (dry bulb); The measured heating capacity varies depending on the specific operating conditions				

Note:

- The parameters of the module combination unit should be added according to the internal module machine parameters, but the head loss should be taken as the maximum value in the module machine;
- The cooling capacity was measured at an outdoor temperature of 35 °C DB and 24 °C WB, with a cold water outlet temperature of 7 °C;
- The heating capacity is measured at an outdoor temperature of 7 °C DB and 6 °C WB, with a hot water outlet temperature of 45 °C;

AIR COOLED SCREW CHILLER (HEAT) WATER UNIT >>>>

Tailing air-cooled screw chiller cold (heat) water unit is a central air conditioning unit that uses air as the cold and heat source and water as the refrigerant. It can be combined with various end devices such as fan coil units and air conditioning units to form a centralized air conditioning system.

Tailing air-cooled screw chiller cold (heat) water unit adopts an efficient screw compressor, which can achieve stepless capacity adjustment and high efficiency and energy saving; Humanized microcomputer control system with remote control function; Ten self-protection functions ensure safety and reliability, ensuring worry free operation; The Air cooled screw chiller (heat) water unit has complete specifications and can be customized for customers; Advanced environmentally friendly refrigerant R134a replaceable design; Diverse specifications, complete functions, with no cooling water system, simple pipelines, flexible installation, moderate investment, short construction period, and the ability to invest in stages. It is widely used in hotels, restaurants, office buildings, shops, hospitals and other places, as well as in air conditioning places in the metallurgical, chemical, mechanical, and electronic industries.



Efficient screw compressor

We use first-line brands such as Fusheng or Hanzhong screw compressors, variable frequency screw compressors, etc. The compressor motor housing is specially designed with a motor cooling channel, and low-temperature refrigerant passes through the motor to ensure the safe operation of the compressor. Ultra long life bearings with sealed bearing chambers effectively ensure the viscosity of lubricating oil inside the bearings. Integrated high-efficiency oil separation, optimized oil circuit, and use high-quality compressor lubricating oil to ensure lubrication efficiency and further improve the operating efficiency of the compressor.



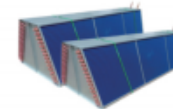
Efficient new shell and tube heat exchanger

The water side heat exchanger is an efficient new shell and tube heat exchanger, designed using the latest simulation technology to improve the design of the tube side. A distributor is used to distribute the refrigerant evenly in the tube side, maximizing the use of the heat transfer area and significantly improving the heat transfer performance; At the same time, the new shell and tube heat exchanger adopts an integrated welding process, greatly reducing the risk of leakage. It has a series of advantages such as dirt resistance, blockage resistance, pressure resistance, frost resistance, vibration resistance, low water resistance, and low requirements for water quality.



Efficient air side heat exchanger

The uniquely designed "M" - shaped heat exchanger structure optimizes the wind field design, with no dead corners in the inlet air, low air resistance, and high air volume, which is conducive to improving heat transfer efficiency. The main materials of the heat exchanger are lowered hydrophilic fins and high-efficiency high tooth internally threaded copper tubes. Anti corrosion hydrophilic aluminum foil has the characteristics of high efficiency and long service life, strong corrosion resistance, and can delay corrosion. Spiral high tooth internally threaded copper tube increases the internal heat transfer area compared to light tube, thereby improving heat transfer efficiency.



High precision throttling device

By using electronic expansion valves or thermal expansion valves for throttling, intelligent automatic flow regulation is achieved to meet the needs of different loads, optimizing the dynamic allocation of refrigerant systems, making them more responsive and reliable, thereby improving the overall performance of the equipment.



Free switching between hot and cold

Adopting a four-way directional valve to change the flow direction of refrigerant in the system, achieving free switching between one-button switching between cooling and heating, and achieving comfortable temperature control throughout the year.



Detachable drying filter

There is a detachable dry filter designed in the refrigeration system pipeline, which can prevent the blockage of throttling components caused by water intrusion in the pipeline during both refrigeration and heating cycles. The detachable setting allows for easy replacement of the filter element, ensuring stable operation of the equipment.



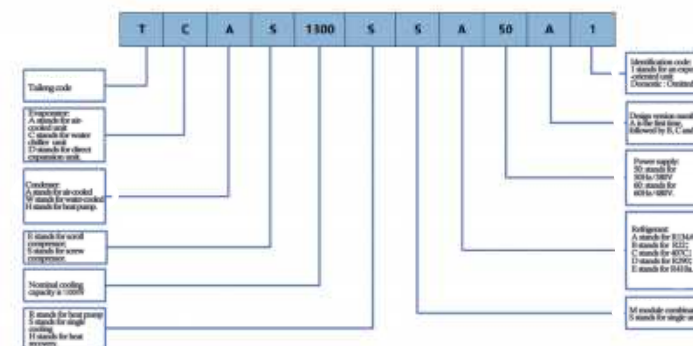
Control and Communication

The standard line controller is a 7" touch controller, which is simple and beautiful, with a LCD touch screen design and can be connected to WIFI for remote control.

Optional 10" touch LCD controller, full touch 10" color LCD display screen, more comprehensive parameter display.



Naming rules for air-cooled screw chiller (heat) water units



Technical Performance Table of Air-cooled Screw chiller (heat) water unit (R22)

model		TCAS35RSB50A	TCAS48RSB50A	TCAS55RSB50A	TCAS64RSB50A	TCAS75RSB50A
Nominal refrigeration	refrigeration capacity	kW	385	485	550	645
		kcal/h	331100	417100	473000	554700
	input power	kW	126	156	179	204
	rated current	A	219	271	311	355
Nominal heating	heating capacity	kW	404	509	578	677
		kcal/h	347440	437740	497080	582220
	input power	kW	121	149	172	196
	rated current	A	210	259	299	341
Maximum starting current		A	390	617	684	845
Maximum operating current		A	284	379	429	481
Power supply		380V/3N-50Hz				
refrigerant	type	R22				
	Number of working fluid systems	1				
	Cooling-only refrigerant charge	kg	80	90	110	120
	Heat pump refrigerant charge	kg	120	150	170	190
compressor	type	Semi closed screw type				
	Energy regulation range	25% ~ 100% 4 - stage regulation				
	Startup type	Y-Δ				
fan	air volume	m³/h	132000	176000	220000	264000
	quantity	units	6	8	10	12
Water side heat exchanger	type	high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	66	83	95	111
	Inlet and outlet pipe diameter	DN	150	150	150	150
	Water pressure drop	KPa	71	87	81	75
Heat recovery side heat exchanger	type	high-efficiency shell-and-tube				
	water flow rate	m³/h	13	17	19	22
	Inlet and outlet pipe diameter	DN	65	65	65	65
	Water pressure drop	KPa	6	7	7	6
Overall dimensions	long	mm	3787	4792	5797	6803
	wide	mm	2250			
	tall	mm	2470			
unit weight	Single cold transportation	kg	4270	5020	5720	5950
	Single cold operation	kg	4470	5220	5920	6150
	Heat pump transportation	kg	4450	5410	6090	6390
	Heat pump operation	kg	4650	5610	6290	6590

continue

model		TCAS870RSB50A	TCAS970RSB50A	TCAS1040RSB50A	TCAS1100RSB50A	TCAS1180RSB50A
Nominal refrigeration	refrigeration capacity	kW	870	970	1040	1100
		kcal/h	748200	834200	894600	946000
	input power	kW	282	312	335	358
	rated current	A	490	542	582	622

model		TCAS870RSB50A	TCAS970RSB50A	TCAS1040RSB50A	TCAS1100RSB50A	TCAS1180RSB50A
Nominal heating	heating capacity	kW	914	1019	1092	1155
		kcal/h	786040	876340	939120	993300
	input power	kW	270	298	321	344
	rated current	A	469	518	558	598
Maximum starting current		A	909	996	1071	1113
Maximum operating current		A	663	758	808	858
Power supply		380V/3N-50Hz				
refrigerant	type	R22				
	Number of working fluid systems	2				
	Cooling-only refrigerant charge	kg	170	180	200	220
	Heat pump refrigerant charge	kg	270	300	320	340
compressor	type	Semi closed screw type				
	Energy regulation range	12.5% ~ 100% 8 - stage regulation				
	Startup type	Y-Δ				
fan	air volume	m³/h	308000	352000	369000	440000
	quantity	units	14	16	18	20
Water side heat exchanger	type	high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	149	166	178	190
	Inlet and outlet pipe diameter	DN	200	200	200	200
	Water pressure drop	KPa	60	80	54	64
Heat recovery side heat exchanger	type	high-efficiency shell-and-tube				
	water flow rate	m³/h	30	33	36	38
	Inlet and outlet pipe diameter	DN	65	65	65	65
	Water pressure drop	KPa	32	34	33	34
Overall dimensions	long	mm	8707	9712	10717	11700
	wide	mm	2250			
	tall	mm	2530			
unit weight	Single cold transportation	kg	9650	10370	11050	11510
	Single cold operation	kg	10050	10770	11450	11910
	Heat pump transportation	kg	10390	11120	11800	12260
	Heat pump operation	kg	10790	11520	12200	12660

REMARKS:

1. Refrigeration nominal operating conditions: chilled water inlet and outlet temperatures of 12 °C/7 °C, ambient dry bulb temperature of 35 °C;
Heating nominal operating conditions: hot water inlet and outlet temperature of 40 °C/45 °C, ambient dry/wet bulb temperature of 7 °C/6 °C;
2. This is the heating parameter for heat pump units, while standard single cooling units do not have heating parameters;
3. Allow voltage fluctuation of ± 10%;
4. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings.

Technical Performance Table of Air-cooled Screw chiller (heat) water unit (Dry R407c)

model			TCAS356RSC50A	TCAS449RSC50A	TCAS599RSC50A	TCAS897RSC50A	TCAS1092RSC50A
Nominal refrigeration	refrigeration capacity	kW	356	449	509	597	694
		kcal/h	306160	386140	437740	513420	596840
	input power	kW	126	156	179	204	235
		rated current	A	219	271	311	355
Nominal heating	heating capacity	kW	374	471	534	627	729
		kcal/h	321640	405060	459240	539220	626940
	input power	kW	121	149	172	196	224
		rated current	A	210	259	299	341
Maximum starting current		A	300	617	684	845	845
Maximum operating current		A	284	379	429	481	521
◀ Power supply ▶			380V/3N-50Hz				
refrigerant	type		R407C				
	Number of working fluid systems		1				
	Cooling-only refrigerant charge	kg	80	90	110	120	130
	Heat pump refrigerant charge	kg	120	150	170	190	210
compressor	type		Semi closed screw type				
	Energy regulation range		25% ~ 100% 4 - stage regulation ▶				
	Startup type		Y-Δ				
fan	air volume	m³/h	132000	176000	220000	220000	264000
	quantity	units	6	8	10	10	12
Water side heat exchanger	type		high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	66	83	95	111	128
	Inlet and outlet pipe diameter	DN	150	150	150	150	150
	Water pressure drop	KPa	71	87	81	75	77
	Water side pressure	MPa	1				
Heat recovery side heat exchanger	type		high-efficiency shell-and-tube				
	water flow rate	m³/h	13	17	19	22	26
	Inlet and outlet pipe diameter	DN	65	65	65	65	65
	Water pressure drop	KPa	6	7	7	6	7
	Water side pressure	MPa	1				
Overall dimensions	long	mm	3787	4792	5797	5797	6803
	wide	mm	2250				
	tall	mm	2470				
unit weight	Single cold transportation	kg	4270	5020	5720	5950	6630
	Single cold operation	kg	4470	5220	5920	6150	6830
	Heat pump transportation	kg	4450	5410	6090	6390	7090
	Heat pump operation	kg	4650	5610	6290	6590	7290

model			TCAS805RSC50A	TCAS897RSC50A	TCAS962RSC50A	TCAS1018RSC50A	TCAS1092RSC50A
Nominal refrigeration	refrigeration capacity	kW	805	897	962	1018	1092
		kcal/h	692300	771420	827320	875480	939120
	input power	kW	282	312	335	358	383
		rated current	A	490	542	582	622
Nominal heating	heating capacity	kW	845	942	1010	1069	1147
		kcal/h	726700	810120	868600	919340	986420
	input power	kW	270	298	321	344	368
		rated current	A	469	518	558	598
Maximum starting current		A	909	996	1071	1113	1274
Maximum operating current		A	663	758	808	858	910
Power supply			380V/3N-50Hz				
refrigerant	type		R407C				
	Number of working fluid systems		2				
	Cooling-only refrigerant charge	kg	170	180	200	220	230
	Heat pump refrigerant charge	kg	270	300	320	340	360
compressor	type		Semi closed screw type				
	Energy regulation range		12.5% ~ 100% 8 - stage regulation				
	Startup type		Y-Δ				
fan	air volume	m³/h	308000	352000	369000	440000	440000
	quantity	units	14	16	18	20	20
Water side heat exchanger	type		high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	149	166	178	190	202
	Inlet and outlet pipe diameter	DN	200	200	200	200	200
	Water pressure drop	KPa	60	80	54	64	79
	Water side pressure	MPa	1				
Heat recovery side heat exchanger	type		high-efficiency shell-and-tube				
	water flow rate	m³/h	30	33	36	38	40
	Inlet and outlet pipe diameter	DN	65	65	65	65	65
	Water pressure drop	KPa	32	34	33	34	28
	Water side pressure	MPa	1				
Overall dimensions	long	mm	8707	9712	10717	11700	11700
	wide	mm	2250				
	tall	mm	2530				
unit weight	Single cold transportation	kg	9650	10370	11050	11510	11850
	Single cold operation	kg	10050	10770	11450	11910	12250
	Heat pump transportation	kg	10390	11120	11800	12260	12670
	Heat pump operation	kg	10790	11520	12200	12660	13070

Remark:

1. Refrigeration nominal operating conditions: chilled water inlet and outlet temperatures of 12 °C/7 °C, ambient dry bulb temperature of 35 °C;
Heating nominal operating conditions: hot water inlet and outlet temperature of 40 °C/45 °C, ambient dry/wet bulb temperature of 7 °C/6 °C;
2. This is the heating parameter for heat pump units, while standard single cooling units do not have heating parameters;
3. Allow voltage fluctuation of ± 10%;
4. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings.

Technical Performance Table of Air-cooled Screw Chiller Unit (Full Liquid R134a)

model			TCAS3855SA50A	TCAS4855SA50A	TCAS5505SA50A	TCAS6455SA50A	TCAS7505SA50A
Nominal refrigeration	refrigeration capacity	kW	385	485	550	645	750
		kcal/h	331100	417100	473000	554700	645000
	input power	kW	101	128	145	170	197
	rated current	A	219	271	311	355	409
Maximum starting current		A	390	617	684	845	845
Maximum operating current		A	284	379	429	481	521
Power supply			380V/3N-50Hz				
refrigerant	type		R134a				
	Number of working fluid systems		1				
	Cooling-only refrigerant charge	kg	96	121	138	161	188
compressor	type		Semi closed screw type				
	Energy regulation range		25% -100% 4 - stage regulation				
	Startup type		Y-△				
fan	air volume	m³/h	132000	176000	220000	220000	264000
	quantity	units	6	8	10	10	12
Water side heat exchanger	type		high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	66	83	95	111	128
	Inlet and outlet pipe diameter	DN	150	150	150	150	150
	Water pressure drop	KPa	71	87	81	75	77
	Water side pressure	MPa	1				
Heat recovery side heat exchanger	type		high-efficiency shell-and-tube				
	water flow rate	m³/h	13	17	19	22	26
	Inlet and outlet pipe diameter	DN	65	65	65	65	65
	Water pressure drop	KPa	6	7	7	6	7
	Water side pressure	MPa	1				
Overall dimensions	long	mm	3787	4792	5797	5797	6803
	wide	mm	2250				
	tall	mm	2470				
unit weight	Single cold transportation	kg	4270	5020	5720	5950	6630
	Single cold operation	kg	4470	5220	5920	6150	6830
	Heat pump transportation	kg	4450	5410	6090	6390	7090
	Heat pump operation	kg	4650	5610	6290	6590	7290

model			TCAS8705SA50A	TCAS9705SA50A	TCAS10405SA50A	TCAS11005SA50A	TCAS11805SA50A
Nominal refrigeration	refrigeration capacity	kW	870	970	1040	1100	1180
		kcal/h	748200	834200	894000	946000	1014800
	input power	kW	229	255	274	289	311
		A	490	542	582	622	666
	rated current	A	490	542	582	622	666
Maximum starting current			A	909	996	1071	1113
Maximum operating current			A	663	758	808	858
Power supply			380V/3N-50Hz				
refrigerant	type		R134a				
	Number of working fluid systems		2				
	Cooling-only refrigerant charge	kg	218	243	260	275	295
compressor	type		Semi closed screw type				
	Energy regulation range		12.5% -100% 8 - stage regulation				
	Startup type		Y-Δ				
fan	air volume	m³/h	308000	352000	369000	440000	440000
	quantity	units	14	16	18	20	20
Water side heat exchanger	type		high-efficiency shell-and-tube				
	Cooling water flow rate	m³/h	149	166	178	190	202
	Inlet and outlet pipe diameter	DN	200	200	200	200	200
	Water pressure drop	KPa	60	80	54	64	79
	Water side pressure	MPa	1				
Heat recovery side heat exchanger	type		high-efficiency shell-and-tube				
	water flow rate	m³/h	30	33	36	38	40
	Inlet and outlet pipe diameter	DN	65	65	65	65	65
	Water pressure drop	KPa	32	34	33	34	28
	Water side pressure	MPa	1				
Overall dimensions	long	mm	8707	9712	10717	11700	11700
	wide	mm	2250				
	tall	mm	2530				
unit weight	Single cold transportation	kg	9650	10370	11050	11510	11850
	Single cold operation	kg	10050	10770	11450	11910	12250
	Heat pump transportation	kg	10390	11120	11800	12260	12670
	Heat pump operation	kg	10790	11520	12200	12660	13070

Note:

1. Refrigeration nominal operating conditions: chilled water inlet and outlet temperatures of 12 °C/7 °C, ambient dry bulb temperature of 35 °C;
2. This is the heating parameter for heat pump units, while standard single cooling units do not have heating parameters;
3. Allow voltage fluctuations of $\pm 10\%$.
4. The above specifications are subject to change without prior notice, and the final parameter dimensions shall be based on the confirmed drawings;

METEOROLOGICAL PARAMETERS OF SOME CITIES IN CHINA

✓ Load estimation index

area	Station location			Annual average temperature °C	Outdoor calculated (dry bulb) temperature (°C)										Summer air conditioner outdoor environment Calculate wet bulb temperature °C	Average temperature of the hottest month °C	Outdoor calculated relative humidity (%)		
					winter					summer									
	north latitude	East Longitude	Altitude m		heating	air adjust	minimum Daily average	improve air circulation	improve air circulation	air adjust	Air conditioning Daily average	calculate Daily comparison point	Average of the coldest month	Average of the hottest month			Average temperature at 1400 of the hottest month		
Beijing	39°48'	116°28'	51.2	11.4	-9	-12	-15.9	-5	39	33.2	28.6	8.8	26.4	25.8	45	78	84		
Tianjin	39°08'	117°10'	3.5	12.2	-9	-11	-15.1	-4	29	33.4	28.2	8.1	26.9	26.4	53	78	85		
Tangshan	39°38'	118°10'	25.9	11.1	-10	-12	-15	-5	29	32.7	28	9	26.2	25.5	52	79	84		
Shijiazhuang	38°32'	114°25'	88.5	12.9	-8	-11	-17	-3	31	35.1	28.7	10.4	26.6	26.3	52	75	54		
Taiyuan	37°47'	112°23'	777.9	9.5	-12	-15	-17.8	-7	28	31.2	26.1	9.8	25.4	25.5	51	72	54		
Harbin	45°48'	126°41'	108.5	5.8	-19	-22	-25.1	-13	28	29.9	25	8.4	20.8	21.9	58	64	49		
Shenyang	41°40'	123°26'	41.6	7.8	-19	-22	-24.9	-12	28	31.4	27.2	8.1	25.4	24.6	44	73	56		
Jilin	43°57'	126°58'	183.4	4.4	-25	-28	-33.8	-18	27	30.3	26.1	8.1	24.5	22.9	72	79	64		
Chengdu	45°54'	125°13'	236.8	4.9	-23	-26	-29.8	-16	27	30.5	25.9	8.8	24.2	23	68	78	64		
Qinghai	47°23'	123°55'	145.9	3.2	-25	-28	-32	-20	27	30.6	26.1	8.7	22.9	22.8	71	73	54		
Haikou	45°40'	126°37'	171.7	3.6	-26	-29	-33	-20	27	30.3	26	8.3	25.4	22.8	74	77	61		
Shanghai	39°10'	121°26'	4.5	15.7	-2	-4	-6.9	3	32	34	30.4	6.9	28.2	27.8	75	83	87		
Lianyungang	39°36'	119°10'	3	14	-5	-8	-11.4	0	31	33.5	31	4.8	27.9	26.5	66	81	87		
Nanjing	32°00'	118°48'	8.9	15.3	-3	-6	-9	2	32	35	31.4	6.9	28.3	28	73	81	84		
Hangzhou	30°14'	120°10'	41.7	16.2	-1	-4	-6	4	32	35.7	31.5	8.3	28.5	28.6	77	80	82		
Ningbo	29°52'	121°34'	4.2	16.2	0	-3	-6.3	4	32	34.5	30.2	7.6	28.5	28.1	78	81	88		
Wenzhou	28°01'	120°41'	8	15.9	3	-1	-1.8	8	31	32.8	29.6	6.9	28.7	27.9	75	84	75		
Beihai	32°57'	117°22'	21	15.1	4	-7	-12.3	1	32	35.6	32	6.9	28.1	28.1	74	80	80		
Hefei	31°52'	117°14'	29.8	15.7	-3	-7	-12.5	2	32	35	31.7	6.5	28.2	28.3	75	81	85		
Fuzhou	39°05'	119°17'	84	19.6	6	-4	-1.4	10	33	35.2	30.4	9.2	28	28.8	74	78	61		
Xiamen	24°27'	118°04'	61.2	28.9	8	6	-9.9	13	31	33.4	29.9	6.7	27.6	28.4	73	81	70		
Jiayuguan	29°44'	116°00'	32.2	17	0	-5	-6.8	4	33	36.4	32	7.7	28.3	29.4	75	76	80		
Nanchang	28°36'	115°55'	46.7	17.5	0	-3	-5.6	5	33	35.6	32.1	6.7	27.9	29.6	74	75	58		
Yantai	37°32'	121°24'	46.7	12.4	-3	-9	-11.9	-2	27	30.7	28.2	4.8	25.8	25.2	60	80	74		
Jinan	36°43'	116°59'	51.6	14.2	-7	-10	-13.7	-2	31	34.8	31.3	6.7	28.7	27.4	54	73	54		
Qingdao	36°04'	120°30'	39	12.2	-6	-9	-12.5	-1	27	29	27.2	3.5	26	25.1	64	85	72		
Laoyang	34°48'	122°25'	154.5	14.6	-5	-7	-11.4	0	32	35.9	30.9	8.6	27.4	27.5	57	75	45		
Zhongshan	34°43'	113°39'	110.4	14.2	-5	-7	-11.4	0	32	35.6	30.8	9.2	27.4	27.3	60	76	45		
Wulumuqi	36°37'	114°08'	23.1	14.3	-2	-5	-11.3	3	33	35.5	31.9	6.3	28.2	28.8	73	79	63		
Chongqing	29°52'	113°15'	44.9	17.2	0	-3	-6.9	5	33	35.8	32	7.3	27.7	29.3	81	73	59		
Shenzhen	22°54'	114°41'	1.2	23.3	9	6	-5.1	13	31	32.8	29.8	5.8	27.7	28.2	79	84	75		
Guangzhou	23°08'	113°19'	6.6	21.8	7	5	-2.9	13	31	33.5	30.1	6.5	27.8	28.4	79	83	87		
Zhaoqing	21°13'	113°24'	25.3	23.1	10	7	-4.2	16	31	33.7	30.5	6.2	27.8	28.9	79	81	70		
Haikou	20°02'	110°21'	14.1	23.8	12	10	-6.9	17	32	34.5	29.9	8.8	27.9	28.4	85	83	87		
Guilin	25°20'	110°18'	161.8	18.8	3	0	-2.9	8	32	33.9	30.5	6.5	27	28.3	71	78	61		
Nanning	22°46'	108°21'	72.3	21.6	7	5	-2.4	13	32	34.2	30.3	7.5	27.5	28.3	75	82	86		
Beihai	21°29'	109°36'	14.6	22.6	8	6	-2.6	14	31	32.4	30.1	4.4	27.9	28.7	77	83	74		
Chengdu	30°41'	104°01'	505.9	16.2	2	1	-1.1	6	29	31.6	28	6.9	26.7	25.6	80	85	70		
Chongqing	29°35'	108°28'	258.1	18.3	4	2	-0.9	7	33	36.5	32.5	7.7	27.3	25.8	82	75	56		
Guizhou	26°35'	106°43'	897.5	15.3	-1	-3	-5.9	5	28	30	26.6	7.1	25	24	78	77	64		
Kunming	25°01'	102°41'	1891.4	14.7	3	1	-3.5	8	29	25.8	22.2	6.9	19.9	19.8	68	83	84		
Lhasa	29°40'	91°08'	3658	7.5	-6	-8	-10.3	-2	19	22.8	18.1	9	15.5	15.1	38	54	44		
Xi'an	34°18'	108°56'	396.9	13.3	-5	-8	-12.3	-1	31	35.2	30.7	8.7	26	26.8	67	72	55		
Lanzhou	36°03'	103°53'	1517.2	9.1	-11	-13	-15.8	-7	26	30.5	25.8	9	20.2	22.2	58	65	44		
Xining	36°37'	104°46'	2261.2	5.7	-13	-15	-20.3	-9	22	25.9	20.7	10	16.4	17.2	48	65	47		
Yinchuan	34°01'	106°13'	1111.5	8.5	-15	-18	-23.4	-9	27	30.6	25.9	9	22	23.4	58	64	47		
Urumqi	38°29'	87°37'	917.9	5.7	-22	-27	-35.3	-15	29	34.4	29	9.8	18.5	25.5	80	44	31		
Taipei	25°02'	121°31'	9	22.1	11	9	7	15	31	33.6	30.5	6.9	27.3	28.6	82	77	—		
Haikou	20°01'	112°57'	34	22.9	15	11	9.8	17	30	32	28.5	4.8	26.8	28.5	82	88	—		
Hong Kong	22°18'	114°10'	32	22.8	19	8	6	18	31	32.4	30	4.6	27.3	28.6	71	81	75		

building		Cooling load w/m ²		Occupant density person/m ²	Lighting w/m ²	Air supply volume m ³ /m ²
		Sensible cooling load	Total cooling load			
office	Central Region	65	95	10	60	5
	periphery	110	160	10	60	6
	personal office	160	240	15	60	8
	meeting room	185	270	3	60	9
school	classroom	130	190	2.5	40	9
	library	130	190	6	30	9
	cafeteria	150	260	1.5	30	10
apartment	High-rise,south-facing	110	160	10	20	10
	High-rise,north-facing	80	130	10	20	9
Theater, Great Hall		110	260	1	20	12
laboratory		150	230	10	50	10
Libraries and museums		95	150	10	40	8
hospital	operating room	110	380	6	20	8
	public place	50	150	10	30	8
Health clinics and clinics		130	200	10	40	10
Hair salon, beauty salon		110	200	10	40	10
department store	underground	150	250	1.5	40	12
	middle layer	130	225	2	60	10
	upper level	110	200	3	40	8
pharmacy		110	210	3	30	10
retail store		110	160	5	30	10
boutique		110	160	5	30	10
bar		130	260	2	15	10
restaurant		110	320	2	17	12
restaurant	room	80	130	10	15	7
	public place	110	160	10	15	8
factory	Assembly Room	150	260	3.5	45	9
	light industry	160	260	15	30	10

METEOROLOGICAL PARAMETERS

Estimation of
chiller unit
and ancillary
equipment
($\Delta t=5^{\circ}\text{C}$)

Types of chillers	Water chiller unit		Chilled water pump		Cooling water pump		Cooling tower
	ton	Kw	L/s	Kw	L/s	Kw	
Scroll type	25	23	4	2.2	5	2.2	0.75
	50	44	8	3.7	10	5.5	1.5
	60	52	10	5.5	13	7.5	1.5
Screw-type	80	58	13	7.5	17	7.5	2.2
	100	88	17	7.5	21	11	2.2
	150	125	25	11	32	11	3.7
	200	160	34	15	42	15	5.5
	250	200	42	19	52	30	7.5
	300	225	51	22	66	30	7.5
	400	280	67	30	82	37	11
	500	350	84	37	101	45	15

Estimation of
air-cooled
chiller unit

refrigeration capacity		compressor power	chilled water pump				exhaust fan	
ton	kW		Water volume L/S	Pressure head kpa	Pipe diameter mm	Electric power kW	Power kW	Air volume m ³ /h
3	10.5	4	0.5	120	25	0.4	0.2	1.11
5	17.6	6	0.9	120	32	0.6	0.3	1.83
8	28.1	9	1.4	120	32	0.8	0.4	2.88
10	35.2	11	1.7	150	40	1.1	0.5	3.56
15	52.7	16	2.6	150	45	1.1	0	5.28
20	70.3	22	3.4	150	50	1.5	0.8	6.94
25	87.9	27	4.3	150	65	2.2	1	8.56
30	105.5	33	5.1	150	65	2.2	1	10.27
40	140.6	43	6.8	200	80	3	1.5	13.7
50	175.8	54	8.5	200	80	3.7	1.5	17.12

Measurement
Unit
Conversion
Table

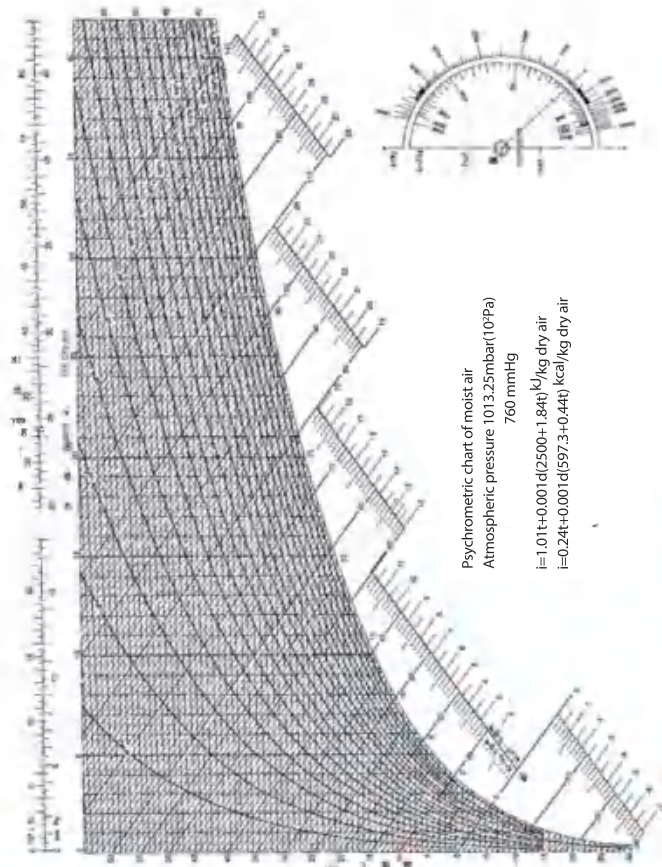
length	Meter m	Millimeter mm	Inches in	Foot ft	Mile mi
	1	1*10 ³	39.37	3.2808	3.214*10 ⁻⁴
	1*10 ³	1	3.937*10 ²	3.281*10 ³	6.214*10 ⁷
	2.54*10 ⁻²	25.4	1	8.333*10 ⁻²	1.578*10 ⁻⁵
	3.048*10 ⁻¹	304.8	12	1	1.894*10 ⁻⁴
	1.069*10 ¹	1.069*10	63.36	5280	1
area	Square meters m ²	Hectare hm ²	Square inches in ²	Square feet ft ²	Square mile mi ²
	1	1*10 ⁻⁴	1.55*10 ³	10.764	3.864*10 ⁻⁷
	10000	1	1.55*10 ⁷	1076.4	3.861*10 ⁻³
	6.4516*10 ⁻⁴	6.4516*10 ⁻³	1	6.944*10 ⁻³	2.491*10 ⁻¹⁰
	9.29*10 ⁻²	9.29*10 ⁻⁶	144	1	3.587*10 ⁻³
	2.59*10 ⁶	258.999	4.0145*10 ⁹	2.7878*10 ⁷	1

Measurement Unit Conversion Table

volume	Cubic meter m ³	Liter L	US gal	UK gal	Cubic feet ft ³
	1	1000	264.17	219.98	35.315
	1*10 ⁻³	1	2.624*10 ⁻¹	2.20*10 ⁻¹	3.532*10 ⁻²
	3.785*10 ⁻³	3.7853	1	8.327*10 ⁻¹	1.337*10 ⁻¹
	4.546*10 ⁻³	4.546	1.20095	1	1.605*10 ⁻¹
quality	Gram g	Kilogram (kg)	Ton t	Pound lb	Slegg
	1	1*10 ⁻³	1*10 ⁻⁶	2.205*10 ⁻³	6.85*10 ⁻⁵
	1*10 ³	1	1*10 ³	2.20462	6.85*10 ⁻²
	1*10 ⁶	1*10 ³	1	2204.6	68.5
	453.59	1.5359*10 ⁻¹	4.536*10 ⁻⁴	1	3.11*10 ⁻²
pressure	Pa Pa	Millimeter water column mm H ₂ O	Atmospheric pressure (atm)	Pound per square foot lb ft ²	Inches of mercury in - Hg
	1	1.0197*10 ⁻¹	9.8692*10 ⁻⁶	1.4504*10 ⁻⁴	2.953*10 ⁻⁴
	9.806	1	9.675*10 ⁻⁶	1.422*10 ⁻³	2.89*10 ⁻³
	101325	10332	1	14.696	29.921
	6894.8	703.06	6.805*10 ⁻²	1	2.036
energy	Joule J	Kilojoule kJ	Kilowatt-hour kWh	Kilocalorie kcal	British thermal unit Btu
	1	1*10 ⁻³	2.778*10 ⁻⁷	2.388*10 ⁻⁴	9.478*10 ⁻⁴
	1*10 ³	1	2.778*10 ⁻⁴	2.388*10 ⁻¹	9.478*10 ⁻¹
	3.6*10 ⁶	3600	1	860.1	3413
	4186.8	4.1868	1.163*10 ⁻³	1	3.968
power	Watt W	Dry watt kW	Dry card/hour kcal/h	British thermal unit/hour Btu/h	Refrigeration ton RT
	1	1*10 ⁻³	8.60*10 ⁻¹	3.413	2.844*10 ⁻⁴
	1*10 ³	1	860.1	3413	2.844*10 ⁻¹
	1.1622	1.1622*10 ³	1	3.968	3.30*10 ⁻⁴
	2.93*10 ⁻¹	2.93*10 ⁻⁴	2.52*10 ⁻¹	1	8.33*10 ⁻⁵
Flow rate	Liter/second L/S	Cubic meter/second m ³ /s	Cubic meter/hour m ³ /h	Cubic feet per second ft ³ /s	Imperial gallon per second UK gal/s
	1	1*10 ⁻³	3.6	3.553*10 ⁻²	2.199*10 ⁻¹
	1*10 ³	1	3600	35.3147	2.1997*10 ²
	2.778*10 ⁻¹	2.778*10 ⁻⁴	1	9.81*10 ⁻³	6.11*10 ⁻²
	4.719*10 ⁻¹	4.719*10 ⁻⁴	1.6986	1	6.2288
temperature	Celsius (°C)		Fahrenheit (°F)		
	1		5(F-32)/9		
	(9*°C/5)+32		1		
	Dry grams per cubic meter (kg/m ³)		Pound per square inch (lb/in ²)		
	1		0.06242		
density	16.02		1		
	Watt per square meter Kelvin		Kcal per square meter hour Kelvin		
	W/(m ² ·K)		British thermal unit per square foot hour degree Fahrenheit BTU/(ft ² ·h·°F)		
	1		8.60*10 ⁻¹		
	1.163		2.048*10 ⁻¹		
heat transfer coefficient	5.6783		1		
	4.882				

Thermal conduction coefficient	Watt per square meter Kelvin	Kilocalories per square meter per hour Kelvin	British thermal unit per square foot hour degree Fahrenheit BTU/(ft ² .h.F)	
	W/(m ² .K)	kcal/(m ² .h.K)		
	1	8.598*10 ⁻¹	6.935	
Specific heat coefficient	Joules per dry gram Kelvin	Kilocalorie per kilogram kelvin	British thermal unit per pound Fahrenheit Btu/(lb°F)	
	J/(kg.K)	kcal/(kg.K)		
	1	2.388*10 ⁻¹	2.388*10 ⁻¹	
Common units	4.1868*10 ³	1	1	
	CFM(ft ³ /min)=0.4719L/S	Gallon=3.79L	1Btu/lb.F=4.18KJ/kg.K	
	=1.699m ³ /h(CMH)			
	CFS(ft ³ /min)=28.35L/S	GRM=0.0631L/S	1Btu/h.S°F=1.7307W/mk	
	FRP(ft/min)=0.00508m/s	1PSI=0.069Bar	1Btu/h.S°F=5.678W/mk	
	FRP (ft ³ /min)=0.3048m/s	1kWh=3.60MJ	1SFh°F=176m ⁻² °C/kW	

✓ Damp air enthalpy humidity diagram



✓ Low pressure duct size selection table

Branch	duct	Main duct		Diameter of circular air duct mm	Equivalent rectangular duct size mm					
		Air Velocity m/s	Air volume L/s							
2.5	30	3	37	125	200*75	125*100	125*125			
			60	150	250*75	200*100	150*125			
			100	180	275*100	200*125	175*150			
3	100	4	130	200	375*100	275*125	225*150	200*175		
			180	230	500*100	375*125	300*150	250*175	200*200	
4	200	5	240	250	625*100	475*125	375*150	300*175	275*200	225*225
			315	280	575*125	450*150	375*175	325*200	275*225	250*250
			380	300	550*150	450*175	400*200	350*225	300*250	275*275
50	400	6	490	330	675*150	550*175	450*200	400*225	350*250	300*300
			600	360	650*175	550*200	475*225	425*250	350*300	325*325
			720	380	775*175	650*200	550*225	475*250	400*225	350*350
6	660	7.5	840	400	900*175	750*200	625*225	550*250	450*300	375*350
			1090	430	850*200	725*225	725*250	575*300	425*350	400*375
			1200	460	975*200	825*225	725*250	575*300	500*350	425*400
7.5	1060	9	1340	480	950*225	825*250	650*300	550*350	475*400	450*425
			1590	500	1075*225	925*250	725*300	625*350	525*400	475*400
			1750	530	1050*250	800*300	675*350	575*400	525*450	475*475
9	1600	10	2000	560	1175*280	900*300	750*350	650*400	575*450	500*500
			2220	580	1000*300	825*350	700*400	625*450	550*500	525*525
			2500	610	1100*300	900*350	775*400	675*450	600*500	550*550
11	2830	11	2830	640	1225*300	100*350	850*400	725*450	650*500	600*550
			3100	660	1100*350	925*400	800*450	725*500	650*550	625*575
			3400	680	1175*350	1000*400	875*450	775*500	700*550	650*600
13	3700	12	3700	720	1300*350	1075*400	950*450	825*500	750*550	700*600
			4100	740	1425*350	1175*400	1025*450	750*500	800*550	750*600
			4600	760	1275*400	1100*450	975*500	875*550	800*600	725*650
15	4900	13	4900	780	1375*400	1175*450	1025*500	925*550	850*600	775*650
			5300	810	1475*400	1275*450	1100*500	1000*550	900*600	825*650
			5750	830	16900*400	1350*450	1200*500	1075*550	975*600	900*650
17	6300	14	6300	860	1725*400	1450*450	1275*500	1125*550	1025*600	950*650
			6900	880	1828*400	1550*450	1350*500	1225*550	1125*600	1000*650
			7500	910	1950*4700	1675*450	1450*500	1300*550	1200*600	1050*650
19	8000	15	8000	940	2075*400	1775*450	1550*500	1375*550	1250*600	1125*650
			8800	960	2200*400	1875*450	1650*500	1450*550	1350*600	1200*650
			9300	990	2375*4000	2000*450	1750*500	1525*550	1400*600	1250*650
21	10200	16	10200	1020	2150*450	1850*500	1625*550	1475*600	1350*650	1250*700
			10900	1040	2250*450	2000*500	1725*550	1600*600	1400*650	1300*750

Branch air duct		Main duct		Diameter of circular air duct mm	Equivalent rectangular duct size mm					
Air velocity m/s	Air volume L/s	Air velocity m/s	Air volume L/s							
10.0	9200	11.0	11700	1070	2400*450	2100*500	1825*550	1650*600	1475*650	1250*750
	9800		12400	1090	2550*450	2200*500	1925*550	1750*600	1550*650	1300*750
	10500		13200	1120	2350*500	2025*550	1825*600	1650*650	1500*700	1375*750
	11100		13900	1140	2450*500	2150*550	1900*600	1725*650	1575*700	1450*750
	11600		14700	1170	2575*500	2275*550	2000*600	1800*650	1650*700	1525*750
	12300		15400	1190	2700*500	2375*550	2100*600	1900*650	1750*700	1575*750
11.0	12900	12.0	16200	1220	2900*500	2525*550	2200*600	2000*650	1825*700	1675*750
	13500		16900	1240	3000*500	2750*550	2350*600	2075*650	1900*700	1750*800
	14200		17700	1270	2750*550	2450*600	2200*650	2000*700	1800*750	1600*800
	14800		18300	1300	3000*550	2700*600	2400*650	2200*700	2000*750	1900*800
	15500		19000	1340	2900*600	2600*650	2300*700	2100*750	2000*800	1700*900
	16200		19700	1380	3000*600	2800*650	2500*700	2300*750	2100*800	1800*900
	17000		20500	1420	2700*700	2500*750	2250*800	1950*900	1700*1000	1550*1100
	18000		21500	1470	2900*750	2650*750	2450*800	2100*900	1900*1000	1700*1100

Classification standards for clean operating rooms

Cleanroom classification	Sedimentation (airborne) bacteria maximum average concentration		Air cleanliness level		Reference surgery
	surgical area	Surrounding area	surgical area	Surrounding area	
Level I	0.2cfu/30min φ90mm Petri dish(5cfu/m ³)	0.4cfu/30min φ90 Petri dish(5cfu/m ³)	5	6	Surgeries such as prosthesis implantation, certain large organ transplants, and those where surgical site infections can directly endanger life and quality of life
Level II	0.75cfu/30min φ90 Petri Dish(25cfu/m ³)	1.5cfu/30min φ90 Petri Dish(30cfu/m ³)	6	7	Large-scale surgery involving deep tissues and vital organs
Level III	2cfu/30min φ90 Petri Dish(75cfu/m ³)	4cfu/30min φ90 Petri Dish(150cfu/m ³)	7	8	Other surgical procedures
Level IV	6cfu/30min - φ90 Petri Dish(5cfu/m ³)		8.5		Infection and severe contamination surgery

Main technical indicators of clean operating room

name	Indoor pressure	Minimum ventilation rate (times/h)	Average wind speed in the workspace (m/s)	Temperature (°C)	relative humidity(%)	Minimum fresh air volume m ³ /s or Times/ (Only refers to the data in parentheses in this column)	Noise dB (A)	Minimum illuminance (lx)	Minimum room self-cleaning time (min)
Grade I Clean Operating Room and Special Rooms Requiring Aseptic Procedures	positive	—	0.20-0.25	21-25	30-60	15-20	≤34	≥350	10
Grade II clean operating rooms	positive	≥4	—	21-25	30-60	15-20	≤40	≥350	20

name	Indoor pressure	Minimum ventilation rate (times/h)	Average wind speed in the workspace (m/s)	Temperature (°C)	relative humidity(%)	Minimum fresh air volume m ³ /s or Times/ (Only refers to the data in parentheses in this column)	Noise dB (A)	Minimum illuminance (lx)	Minimum room self-cleaning time (min)
Grade III clean operating rooms	positive	18	—	21-25	30-60	15-20	≤40	≥350	30
Grade IV clean operating rooms	positive	12	—	21-25	30-60	15-20	≤40	≥350	30
Extraoperational radiation chamber	positive	12	—	21-27	≤60	2	≤60	≥150	—
Aseptic Waste Material Department	positive	12	—	≤27	≤60	1	≤60	≥150	—
Unopened instruments, sterile supplies and secondary items	positive	10	—	≤27	≤60	1	≤60	≥150	—
Precision instruments storage room	positive	10	—	21-27	≤60	2	≤55	≥150	—
sterile status Pre anesthesia department	negative	10	—	21-26	30-60	1	≤55	≥150	—
Operating room heat room	positive	8	—	21-27	≤60	2	≤60	≥200	—
restrooms	negative	8	—	23-27	—	2	≤55	≥150	—
Clean area corridor	positive	8	—	21-27	≤60	2	≤52	≥150	—
Recovery Room	positive	8	—	22-26	25-36	2	≤48	≥200	—
Unpacking Rooms	External unpacking area	—	—	—	—	—	—	—	—
	Internal unpacking area	8	—	—	—	—	—	—	—

Taken from "GB 50333-2013 Technical Code for Building of Hospital Clean Operating Department"

Remarks:

1. The column for indoor pressure in the negative pressure operating room should be "negative";
2. The average wind speed refers to the average wind speed of the section 1.2m above the ground in the concentrated air supply area;
3. The average wind speed of the ophthalmic operating room section should be controlled between 0.15m/s and 0.2m/s;
4. The lower limit of the temperature and humidity range is the lowest value in winter, and the upper limit is the highest value in summer;
5. The value of fresh air volume in the operating room should be adjusted according to the presence or absence of general anesthesia or electric knives that emit harmful gases during the surgical process.

Air cleanliness level (ISO14644-1)

ISO grade (N)	Maximum concentration limit (pc/m ³) for particles with a diameter greater than or equal to the particle size of interest					
	0.1μm	0.2μm	0.3μm	0.5μm	1μm	5μm
ISO1	10	2				
ISO2	100	24	10	4		
ISO3	1000	237	102	35	8	
ISO4	10000	2370	1020	352	83	
ISO5	100000	23700	10200	3520	832	29
ISO6	1000000	237000	102000	35200	8320	293
ISO7				352000	83200	2930
ISO8				3520000	832000	29300
ISO9				35200000	8320000	293000

Note: According to the uncertainty requirements related to the measurement method, the significant figures of the concentration data at the determined grade level shall not exceed 2.

✓ Airflow patterns and supply air volume in clean rooms and clean areas

Air cleanliness level	airflow pattern	Average wind speed (m/s)	Ventilation rate (h)
1~3	Unidirectional flow	0.3~0.5	—
4~5	Unidirectional flow	0.2~0.4	—
6	Non unidirectional flow	—	50~60
7	Non unidirectional flow	—	15~25
8~9	Non unidirectional flow	—	10~15

✓ Classification of suspended particles and microbiological testing standards for clean areas required for sterile drug production

Cleanliness level	Maximum allowable number of suspended particles per cubic meter			
	static		dynamic	
	≥0.5μm	≥5.0μm	≥0.5μm	≥5.0μm
Grade A	3520	20	3520	20
Grade B	3520	29	352000	2900
Grade C	352000	2900	3520000	29000
Grade D	3520000	29000	not specified	not specified

Cleanliness level	Floating bacteria cfu/m ³	Settling bacteria (medium 90mm) cfu/4 hours	Surface microorganisms	
			Contact (φ 55mm) cfu/disc	5-finger gloves cfu/glove
Grade A	<1	<1	<1	<1
Grade B	10	5	5	5
Grade C	100	20	25	—
Grade D	200	100	50	—

Excerpted from the Appendix to Good Manufacturing Practice(GMP) for Drugs (2011 Edition)

Remarks:

1. The nominal heating capacity test conditions are: outdoor dry-bulb/wet-bulb temperature of 20/15°C, initial temperature of 15°C, and termination temperature of 55°C;
2. The model parameters and performance may change due to product improvements without prior notice. Please refer to the product nameplate for specific parameters.

✓ Requirements for air cleanliness levels in the production of various electronic products

Product and process		Air cleanliness level	Control particle size (μ m)
semiconductor material	Single crystal pulling	6~8	0.5
	Cut, grind, wash	5~7	0.3~0.5
	wash	4~6	0.3~0.5
	Epitaxy	4~6	0.3~0.5

Product and process		Air cleanliness level	Control particle size (μ m)
Chip manufacturing	Oxidation, diffusion, cleaning, etching, thin film, ion implantation CMP	2~5	0.1~0.5
	photolithography	1~5	0.1~0.3
	detection	3~6	0.2~0.5
	Equipment zone	6~8	0.3~0.5
Packaging	Scribing and bonding	5~7	0.3~0.5
	Packaging	6~8	0.3~0.5
TFT-LCD	Array board (thin film, photolithography, etching, peeling)	2~5	0.2~0.3
	Box formation (coating, friction, liquid crystal injection, cutting, edge grinding)	3~6	0.2~0.3
	module	4~6	0.3~0.5
	Color film version	2~5	0.2~0.3
	STN-LCD	6~7 (local level 5)	0.3~0.5
HDD	Manufacturing area	3~4	0.1~0.3
	other districts	6~7	0.3~0.5
PDP	core area	6~7	0.3~0.5
	Support Zone	7~8	0.3~0.5
lithium battery	Dry area	6~7	0.5
	other districts	7~8	0.5
Assembly of electronic instruments and microcomputers		8	0.5
Photography, plate making, and dry film production for printing plates		7~8	0.5
optical fiber	Optical fiber preform	6~7	0.3~0.5
	wire drawing	5~7	0.3~0.5
	Optical disc manufacturing	6~8	0.3~0.5
Manufacturing of chip ceramic capacitors, chip resistors, etc	Screen printing and tape casting	8	0.5
	Lithography and development	5	0.3~0.5
Manufacturing of Surface Acoustic Wave Devices	Coating, cleaning, cutting, and sealing	6	0.5

Taken from "GB50472-2008 Design Specification for Cleanrooms in the Electronic Industry"

✓ Comparison Table of Efficiency Specifications between China, the United States, and Europe

China GB/T 14295-2008		primary efficiency ≥ 2 μ m 50% > efficiency ≥ 10%				Medium efficiency ≥ 0.5 μ m 70% > efficiency ≥ 20%				High efficiency ≥ 0.5 μ m 95% > efficiency ≥ 70%				high efficiency ≥ 0.5 μ m 99.9% > efficiency ≥ 95%				high-efficiency ≥ 0.5 μ m > efficiency ≥ 99.99%(GB13554)					
the United States ASHRAE		C1	C2~C4		L5	L6	L7	L8	M9	M10	M11	M12	M13	M14	H12-H16				VH17	H18	VH19	VH20	
Europe	New standard efficiency EN 779:2012	G1	G2	G3		G4>90 %		M5 40%				M6 60%		F7	F8	F9	H10	H11	H12	H13	H14	U15~ U17 99.995%	
	Old specifications Eurovent	EU1	EU2	EU3		EU4		EU5		EU6		EU7	EU8	EU9	EU10	EU11	EU12	EU13	EU14				