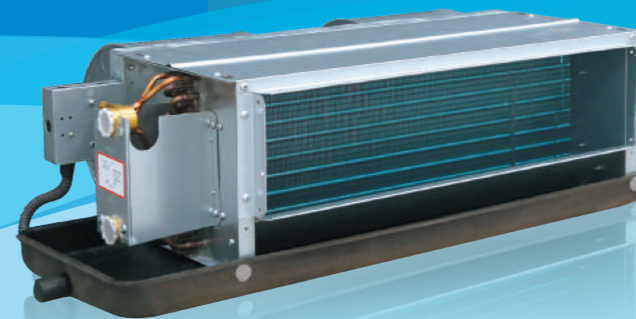




CA-TCR/TCRQ/TFM/TC/TKM/TFR-201706V02

TCR TCRQ TFM TC TKM TFR



FAN COIL UNIT

TICA CENTRAL AIR-CONDITIONING

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DISCLAIMER NOTE: Data provided herein are not binding and might change without prior notice.



TICA is a hi-tech enterprise specialized in R&D, manufacturing, sales and services of air-conditioning and refrigeration products. Established in 1991, it has developed into one of the top four Chinese air-conditioning brands, with factories in Nanjing, Tianjin and Guangzhou, and a network of over 70 sales and service filiales around the world.

TICA has invested up to RMB 600 million in the first phase to build the top notch central air-conditioning R&D and production base, credited as the state enterprise R&D center. Certified by CNAS, it serves as a national R&D public service platform.

TICA produces over 30 series of products, covering AHUs, VRFs, screw chillers and centrifugal chillers, diverse enough to meet various requirements with regards to comfort and manufacturing processing application.

TICA is a strong competitor in chillers and commercial air conditioning products. It is the largest producer of AHUs in China for five consecutive years and covers over 40% of the market share as the supplier to such industries as micro-electronics, surgery operation room equipment and biopharmaceuticals.

TICA has established a global strategic joint venture with United Technologies Corporation (UTC) whose businesses include the world's most advanced Pratt & Whitney Aircraft Engines, the largest air-conditioning company Carrier and the biggest elevator company Otis.

The giant UTC transfers such global cutting-edge core technologies as large centrifugal chillers, screw chillers, and ORC systems to TICA, thrusting TICA 20 years ahead of its Chinese counterparts in terms of centrifuge technology and 30 years ahead in cryogenic power generation technology. Meanwhile, TICA and UTC will integrate global resources to create a brand-new international market pattern.

Meanwhile, the company has also provided energy-saving air-conditioning system integration solutions to both domestic and foreign users like Zhongnanhai, the Great Hall of the People, Beijing Bird's Nest stadium, the Water Cube, the Wukesong Indoor Stadium, Petro China, Sinopec, State Grid, Nanjing Panda, Hangzhou Xiaoshan Airport, Hainan Airlines Group, Shangri-La Hotel, Manila Ocean Park, Abu Dhabi Al Muneera, SM City in Philippines and Unilever, etc.



Nanjing Headquarter



Tianjin Base



Guangzhou Base



Chengdu Base

DIRECTORY

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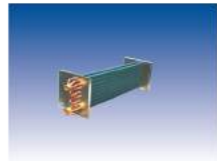
Features

Superior Product Quality



All fan coil units are manufactured in a ISO9001:2000 and ISO14000:2004 certified manufacturing facility whereby highest products quality is always top priority. The products' quality standard has been recognized through successfully obtaining the CE marking certification which in turn comply with the stringent EU requirements

High Efficiency Heat Exchanger



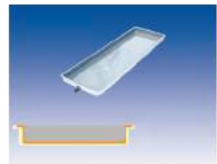
High quality copper pipes with slit profile aluminum fins are being transformed into high efficiency heat exchanger through advance design, manufacturing equipment and processes.

Low Noise



Through straight static and dynamic balancing tests of motors, coupled with high quality thermal and acoustic insulation in the unit. Superb low noise performance is achieved.

No leakages



One piece molded drain with integral thermal insulation and professional welding skill enable all condensate water to be collected and prevent condensation at the outside of the drain pan.

High Efficiency DC Motor



High efficiency, average consumed power is 50% of common motor, leading low operation cost of air conditioner. Avoiding noise from carbon brushes. It is much silent when operating under medium speed.

Multiple ESP Options



Standard fan coil units come with low ESP(12Pa) and high ESP(30Pa,50Pa), options to suit different applications. In addition, 80Pa fan coil units are available as non-standard options. High air volume FCU comes with standard ESP and high ESP options to add to the product line up.

Slim And Compact Design



Light and rigid construction due to the compact and strong structural design of the unit. Slim unit design also fulfills the stringent space requirement of today building design. High air volume FCU with the height of only 430mm is most suitable for applications that demand for high air flow but with space saving in mind.

Easy Maintenance



The fan coil unit are equipped with high quality electric motor with low noise bearing that do not require lubrication and thus minimum maintenance effort required. Blowers and also motors can be dismantled individually if cleaning off heat exchanger is needed. High efficiency filter provides better filtration than normal filter with longer operational life and easy to clean.

Product Line

Name	Model	Air Flow(CFM)	Cooling Capacity(W)	Heating Capacity(W)
TCR (Ceiling Concealed FCU) TCRQ (Ceiling Concealed -Low Noise FCU)		TCR:200/300/400/500/600/ 700/800/1000/1200/1400 TCRQ: 400/500/600/800	TCR: 1400~15500 TCRQ: 2925~7950	TCR: 2050~25000 TCRQ: 4090~15500
TFM (Ceiling Concealed - High Pressure FCU)		800/1000/1200/1600/1800/ 2000/3000	6990~38250	6450~63700
TFR (Floor Standing Concealed FCU)		200/300/400/500/600/ 800/1000/1200/1400	1460~11700	3480~20040
TC (Ceiling & Floor Exposed FCU)		200/300/400/500/600/ 800/1000/1200/1400	1380~10500	2200~16800
TKM (Cassette Type FCU)		300/400/500/600/ 800/1000/1200	2140~10800	4050~17000

Optional Accessories







TICA has a series of optional accessories for different requirements on the following:

No.	Options	TCR			TCRQ			TFM		TFR	TC		TKM
		2 Pipes		4 Pipes	2 Pipes		4 Pipes	TFM-S	TFM-H		TC-DA	TC-DB	
		2 rows	3 rows	4 rows	3+1	3 rows	4 rows						
1	Brushless DC Motor	-	√	-	-	√	-	-	-	-	-	-	-
2	Filter	Nylon Filter	√	√	√	√	√	√	√	√	○	○	○
		Metal Filter	√	√	√	√	√	√	√	√	-	-	-
3	Return Air Plenum	Back	√	√	√	√	√	√	√	√	-	-	-
		Bottom	√	√	√	√	√	√	√	○	-	-	-
4	3-speed Switch	√	√	√	-	√	√	-	√	√	√	-	√
5	Thermostat	√	√	√	√	√	√	√	√	√	√	-	√
6	Wire Controller	-	-	-	-	-	-	-	-	-	-	√	-
7	Remote Controller	√	√	√	√	√	√	√	√	√	√	○	√
8	Motorized Valve	√	√	√	√	√	√	√	√	√	√	√	√

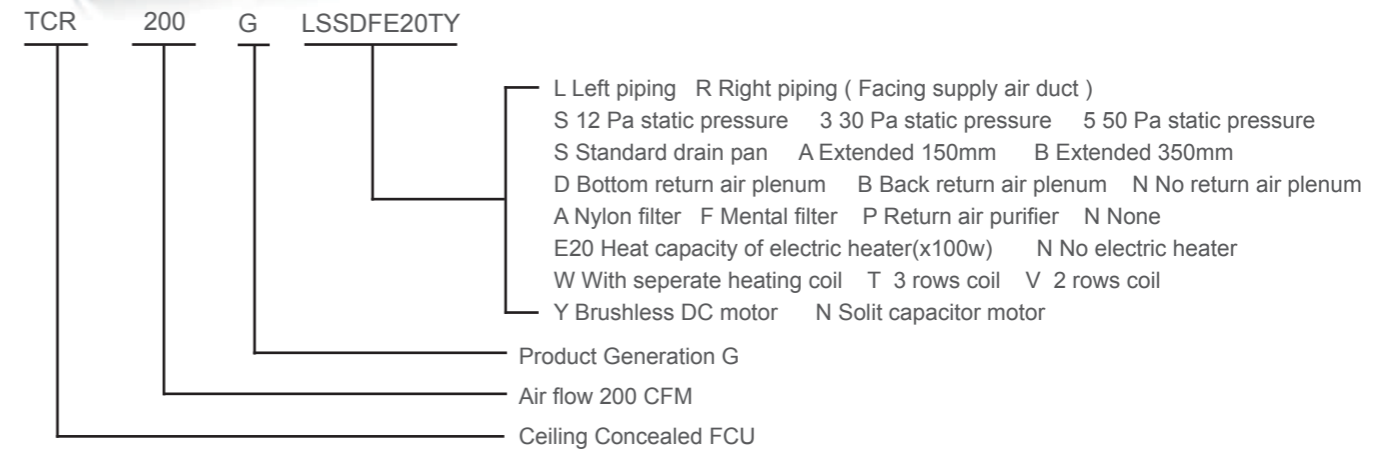
Note: √--Optional ○--Standard - None

TCR/TCRQ with brushless DC motor is matched with thermostat

TFM-S -- TFM standard static pressure type(0-80Pa) TFM-H -- TFM high static pressure type(80-180Pa)

Thermostat	Mechanical Thermostat	TA107 Series	TA107DB	<ul style="list-style-type: none"> ● Controls electric valve and 3-speed fan motor; two-/three-wire valve available ● Slide switch for enhanced comfort and control; long service life ● Large knob to adjust set temperature, pointer display, and clear scale to ensure simple operations 	
	LCD Thermostat	TA108 Series	TA108DB2	Two-pipe system/220V/three-speed fan/three-wire valve/water valve closed and fan turned off when the temperature is reached	
			TA108DA2	Two-pipe system/220V/three-speed fan/three-wire valve/water valve closed but fan continues running when the temperature is reached	
			TA108DB2-RL	Two-pipe system/220V/three-speed fan/three-wire valve/water valve closed and fan turned off when the temperature is reached + remote control + blue backlight	
			TA108FCV2	Four-pipe system/220V/three-speed fan/two-wire cold water valve/two-wire hot water valve/water valve closed but fan continues running when the temperature is reached	
TA8023 Series	TA8023DB2-L-MD	<ul style="list-style-type: none"> ● RS485 interface available; Modbus is used to implement group control; ● Low temperature protection and failure alarm function; key lock (optional); power failure memory (optional); ● Large LCD screen with optional blue button backlight, looking elegant and luxury; ● Electronic thermostat, 3-stage fan speed; two-/four-coil system (optional); two-/three-wire valve (optional). 			
TA-YK Series	TA-YK02	<ul style="list-style-type: none"> ● Used together with the flexible-range TA108DB2-RL remote controller. 			
3-speed Switch		TA-S3	<ul style="list-style-type: none"> ● Controls 3-speed fan; slide switch for enhanced comfort and control; long service life 		
Motorized Valve	TA-G Series	TA-G2-3/4-S2	<ul style="list-style-type: none"> ● Driver and valve body can be quickly removed and installed easily without using any tools; ● Applicable to various cooling/heating coil control systems; convenient, reliable, easy to install; ● Two-/Three-way valve optional; multiple voltages available for the driver; ● Driven by the hermetic unidirectional hysteresis synchronous motor and reset by a stainless steel spring; valve body formed by forging and pressing brass, stainless steel base and aluminum housing, ensuring reliability and long service life of the product. 		
		TA-G3-3/4-S2			

Ceiling Concealed FCU - TCR



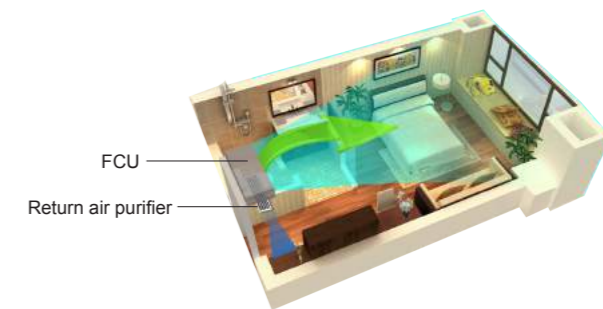
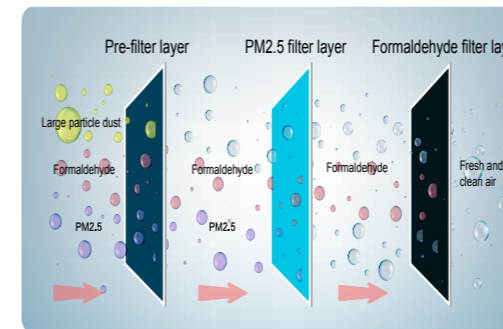
1. Different ESP for option

12Pa,30Pa,50Pa is standard,and 80Pa can be customized.

2. Multiple coils design

2 pipes (2 rows,3 rows 4 rows) and 4 pipes (3+1) are optional.

3. Return air purifiers as optional to make environment clean



Operating principles:

The pre-filter layer removes hair, dust, and large particles from the air; the professional PM2.5 filter layer adopts the unique electrostatic technology to remove PM2.5 from the air through physical adsorption measures, without causing ozone hazard; the capture agent on the formaldehyde filter surface shows a formaldehyde removal capacity more powerful than that of the traditional activated carbon net, and converts the formaldehyde in air into a kind of safe and harmless substance through chemical reaction, instead of releasing it into the room with air and without leading to secondary pollution because of filtration adsorption and heating.

Return air purifier



Characteristics:

- High-grade fashionable appearance design and first-class surface process and texture.
- Installation and maintenance are convenient. TICA provides six types of standard dimensions, meeting your different decoration requirements.
- The air flow range is wide, from 340 m³/h to 2400 m³/h, meeting the requirements of different occasions.
- Wide application scope: The purifiers can be used together with fan coils, VRF units, and commercial IDUs.
- Low wind resistance: The minimum resistance of air return unit is 8 Pa, and the IDU air return is not affected as clean air is produced.
- PM2.5 filtration efficiency 96% (120 min), Formaldehyde filtration efficiency 90% (60 min).

4. Brushless DC motor as optional



High efficiency and energy saving

- Low heat radiation, efficiencies up to 75% (in contrast to the 30%-40% of conventional AC motor), average power consumptions equal to 50%-70% of AC motor.
- Optional solutions of three-stage speed regulation and stepless speed regulation; the air conditioner operates with a partial load in 90% of the time; under the stepless regulation mode, the motor speed is adjusted based on actual demand to save energy and substantially increase the energy efficiency.

Low noise to ensure comfort

- Adopts the PWM sine wave control technology to achieve low vibration and noise; driver carrier frequency above 15k to eliminate high frequency noise and special groove type design to reduce low frequency noise.
- The output torque satisfies the load application characteristics of unit and keeps the unit in a highly stable status.

Safe and reliable

- The controller adopts the closed-loop startup without sensing current and current control technology to ensure safe, reliable and stable operation.
- The high performance industrial MCU is used as the main control chip, and the global cutting-edge TI (Texas Instruments) chip is adopted to improve the operation accuracy with 32-digit computing.
- The perfect intelligent protection feature achieves multiple protection functions including high/low pressure, stalling, over-temperature, overload, and over-speed/speed loss protection.
- The thermostat is provided with the low temperature protection function. When the room temperature is lower than 5°C, the thermostat starts the heating mode automatically and opens the electric water valve; when the temperature is higher than 7°C, the thermostat turns off automatically.

Intelligent control

- The thermostat with the RS485 interface is optional. It supports the Modbus communication protocol and can be used for linkage with the building automation system to implement the centralized operation management of remote automatic control and monitoring.
- The elegant thermostat is provided with an LCD screen to realize perfect fusion with building decoration.

TCR Ceiling Concealed FCU (2 rows, 2 pipes)

TCR		200G	300G	400G	500G	600G	700G	800G	1000G	1200G	1400G	
Air Flow m ³ /h	High	360	530	710	890	1060	1200	1420	1760	2120	2450	
	Medium	275	415	540	670	800	950	1100	1360	1620	2050	
	Low	200	280	360	450	580	690	770	1000	1130	1350	
Total Cooling Capacity W	High	2000	2750	3650	4300	4900	5600	6950	8200	9500	11400	
	Medium	1730	2365	3100	3700	4250	4800	6000	7200	8300	9700	
	Low	1400	1950	2550	3000	3450	3950	5000	5950	6750	8000	
Sensible Cooling Capacity W	High	1450	2000	2600	3050	3550	4050	5050	6000	6850	8300	
	Medium	1200	1700	2150	2500	3000	3350	4100	5000	5650	6900	
	Low	950	1350	1720	2020	2300	2650	3400	4000	4550	5500	
Heating Capacity W	High	3300	4650	6050	7400	8400	9550	11700	14000	16300	19100	
	Medium	3000	4200	5400	6500	7400	8400	10000	12000	14000	16300	
	Low	2700	3800	4900	5900	6800	7800	9200	11000	13000	15300	
Rated Power Input (AC Motor) W	12Pa	High	30	45	55	72	95	100	125	150	180	228
		Medium	27	38	43	58	80	90	105	130	145	185
		Low	23	30	35	48	68	75	90	110	115	150
	30Pa	High	38	56	65	82	100	120	140	170	190	253
		Medium	32	42	50	64	80	105	124	160	165	210
		Low	27	33	37	53	70	90	110	140	140	170
	50Pa	High	45	60	75	91	115	130	165	180	220	260
		Medium	36	54	65	86	105	110	150	175	190	230
		Low	30	47	55	73	90	96	125	155	160	200
Sound Pressure Level dB(A)	12Pa	High	36.5	36	39	40.5	45	46	44.5	47.5	48.5	50.5
		Medium	30	28.5	30.5	31.5	38.5	41	36.5	41	39.5	45
		Low	20.5	20	23	22.5	30.5	33	27.5	32	30.5	36
	30Pa	High	38	40	42	44	46.5	48	46.5	49	50	52
		Medium	30.5	32	34	37	38.5	45.5	39	42.5	43	47
		Low	23	25	25.5	27	30.5	38	31	33	34.5	37
	50Pa	High	42	42.5	45	47	49	50	50	52	52	53
		Medium	37	35	37	39	39	44.5	42.5	48	44	49
		Low	29	26.5	27	29.5	32	34.5	31	40.5	35	43
Fan	Type	Centrifugal(Blade:Forward-Curved)										
	Quantity	1	2	2	2	2	2	3	4	4	4	
Motor	Type	Split-capacitor motor with ball bearing										
	Insulation Class	B										
	Protection Class	IP20										
	Power Supply	220V~50Hz										
Coil	Quantity	1	1	1	1	1	1	2	2	2	2	
	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin										
	Max. Working Pressure MPa	1.6										
	Pipe Connection	Rc3/4 (Taper Pipe Female Threaded)										
Water Resistance	Water Flow Rate m ³ /h	0.36	0.54	0.66	0.79	0.89	0.97	1.19	1.42	1.65	1.98	
	Cooling Mode kPa	30	30	30	30	40	40	35	40	40	50	
Condensate Drain Pan	Heating Mode kPa	20	20	25	25	35	35	30	35	35	45	
	Pipe Connection	Rc3/4 (Taper Pipe Male Threaded)										
Dimension (Without return air plenum)	L mm	670	805	905	965	1060	1205	1485	1530	1785	1785	
	W mm	470	470	470	470	470	470	470	470	490	490	
	H mm	230	230	230	230	230	230	230	230	250	305	
Net Weight (AC) kg	Without plenum box kg	10.9	12.4	14.8	15.7	17.5	18.6	23.8	26.1	30.5	33.3	
	With plenum box kg	13.2	14.9	18	18.9	21	22.3	28.2	30.8	26.5	39.5	

Note:

- Cooling capacity is based on the following:
 - Water temperature: 7°C (inlet)/12°C (outlet)
 - Air entering condition: 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature: 60°C (inlet)
 - Air entering condition: 21°C DB
- Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- Can adjust left or right direction at site, but correct cooling & heating capacity must multiply correction factor 0.9 after adjustment.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

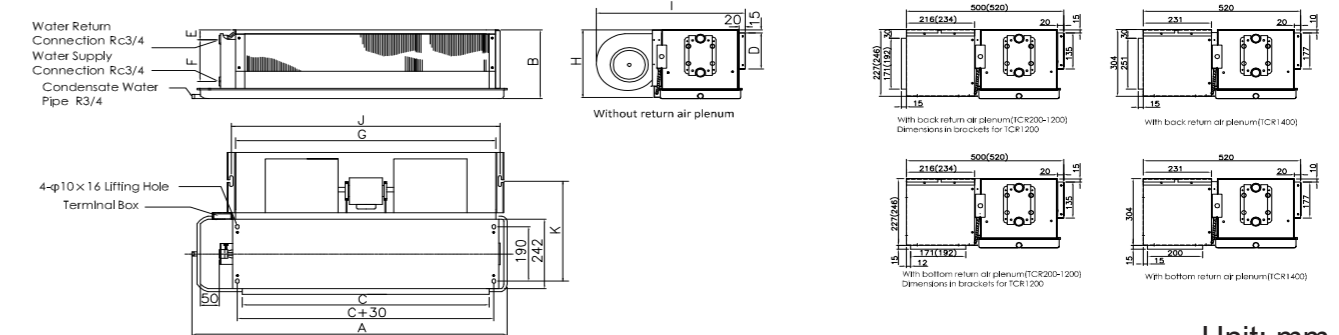
TCR Ceiling Concealed FCU (3+1 rows, 4 Pipes)

TCR		200G	300G	400G	500G	600G	700G	800G	1000G	1200G	1400G		
Air Flow m³/h	High	340	500	680	830	1000	1140	1340	1700	2040	2380		
	Medium	270	380	510	620	750	880	1030	1290	1540	1975		
	Low	190	240	340	420	560	610	720	890	1040	1255		
Total Cooling Capacity W	High	2210	3200	4150	4800	5950	6800	7900	9200	10275	13500		
	Medium	1890	2782	3570	4150	5200	5900	6900	8000	8500	11000		
	Low	1500	2304	2950	3400	4200	5000	5800	6700	7450	9500		
Sensible Cooling Capacity W	High	1590	2285	2880	3400	4200	4700	5750	6600	7400	9400		
	Medium	1350	1920	2420	2880	3570	3900	4800	5500	6200	7900		
	Low	1050	1555	1930	2210	2900	3200	3700	4200	4930	6200		
Heating Capacity W		High	2050	3000	3850	4500	5650	6300	7550	8500	12700		
Rated Power Input (AC Motor) W	12Pa	High	32	45	55	73	91	100	120	148	187	228	
		Medium	27	38	45	60	77	88	108	125	155	190	
		Low	22	30	35	48	65	76	88	108	135	165	
	30Pa	High	39	53	66	83	103	115	138	170	202	252	
		Medium	32	42	50	66	88	100	120	155	175	218	
		Low	28	34	38	55	77	86	105	135	150	190	
	50Pa	High	45	60	73	90	112	130	162	175	219	265	
		Medium	36	53	64	80	102	100	142	150	190	230	
		Low	30	48	55	72	94	85	122	130	160	200	
	Sound Pressure Level dB(A)	12Pa	High	36.5	36	38.5	41.5	45	45	44	47	49	51
			Medium	30	30	30.5	33	39	39.5	37.5	41	38.5	46
			Low	21	20.5	22.5	24	32.5	33	28	32.5	29.5	37
30Pa		High	38.5	40.5	42	44.5	46	47.5	47	49	50.5	52.5	
		Medium	32	32.5	34.5	37.5	39	44	40	41	43	48	
		Low	24	23	23.5	27.5	32	37.5	32	34	35.5	40	
50Pa		High	41.5	43.5	44.5	47	48.5	49	51.5	52	53.5		
		Medium	37	38	37	41	41	43.5	44.5	46.5	46	50	
		Low	30.5	29.5	27.5	32	33	35.5	33.5	38	37	45	
Fan		Type	Centrifugal (Blade:Forward-Curved)										
		Quantity	1	2	2	2	2	2	3	4	4	4	
Motor		Type	Split-capacitor motor with ball bearing										
	Insulation Class	B											
	Protection Class	IP20											
	Power Supply	220V ~ 50Hz											
Coil	Quantity	1	1	1	1	1	2	2	2	2			
	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin											
	Max. Working Pressure MPa	1.6											
Pipe Connection		Rc3/4 (Taper Pipe Female Threaded)											
Water Flow Rate m³/h	Cooling Mode	0.39	0.63	0.73	0.86	1.04	1.17	1.39	1.65	1.90	2.23		
	Heating Mode	0.21	0.29	0.33	0.42	0.47	0.55	0.66	0.72	0.88	1.06		
Water Resistance	Cooling Mode kPa	25	25	30	30	40	40	40	40	40	50		
	Heating Mode kPa	10	15	20	25	30	30	30	40	35	45		
Condensate Drain Pan		Rc3/4 (Taper Pipe Male Threaded)											
Dimension (Without return air plenum)	L mm	670	805	905	965	1060	1205	1485	1530	1785	1785		
	W mm	470	470	470	470	470	470	470	470	490	490		
	H mm	230	230	230	230	230	230	230	230	250	305		
Net Weight (AC) kg	Without plenum box	12.1	14	16.6	17.8	19.3	20.8	27.2	28.5	34	37.5		
	With plenum box	14.4	16.5	19.8	21	22.8	24.5	31.6	33.2	40	43.7		

- Note:
- Cooling capacity is based on the following:
 - Water temperature : 7°C (inlet)/12°C (outlet)
 - Air entering condition : 27°C DB/19.5°C WB
 - Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature : 60°C (inlet)
 - Air entering condition : 21°C DB
 - Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
 - The air volume is tested under entering air condition of 20°C DB and dry coil condition.
 - The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
 - Can adjust left or right direction at site, but correct cooling & heating capacity must multiply correction factor 0.9 after adjustment.
 - The manufacturer reserves the rights to make changes to the above specifications without prior notice.

Dimension

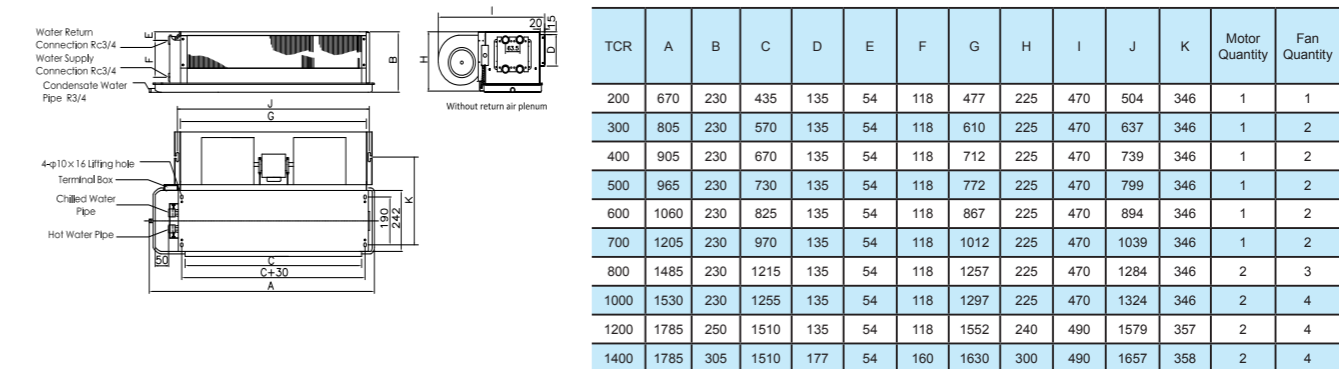
TCR Ceiling Concealed FCU (2 rows 3 rows)



TCR	A	B	C	D	E	F	G	H	I	J	K	Motor Quantity	Fan Quantity
200	670	230	435	135	54	118	477	225	470	504	346	1	1
300	805	230	570	135	54	118	610	225	470	637	346	1	2
400	905	230	670	135	54	118	712	225	470	739	346	1	2
500	965	230	730	135	54	118	772	225	470	799	346	1	2
600	1060	230	825	135	54	118	867	225	470	894	346	1	2
700	1205	230	970	135	54	118	1012	225	470	1039	346	1	2
800	1485	230	1215	135	54	118	1257	225	470	1284	346	2	3
1000	1530	230	1255	135	54	118	1297	225	470	1324	346	2	4
1200	1785	250	1510	135	54	118	1552	240	490	1579	357	2	4
1400	1785	305	1510	177	54	160	1630	300	490	1657	358	2	4

TCR	Length of return air plenum	Length of plenum wind-gap
200	483.6	422
300	615.6	557
400	725.6	657
500	775.6	717
600	870.6	812
700	1015.6	957
800	1260.6	1202
1000	1300.6	1242
1200	1555.6	1497
1400	1634	1596

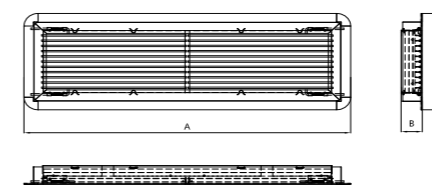
TCR Ceiling Concealed FCU (3+1 rows)



TCR	A	B	C	D	E	F	G	H	I	J	K	Motor Quantity	Fan Quantity
200	670	230	435	135	54	118	477	225	470	504	346	1	1
300	805	230	570	135	54	118	610	225	470	637	346	1	2
400	905	230	670	135	54	118	712	225	470	739	346	1	2
500	965	230	730	135	54	118	772	225	470	799	346	1	2
600	1060	230	825	135	54	118	867	225	470	894	346	1	2
700	1205	230	970	135	54	118	1012	225	470	1039	346	1	2
800	1485	230	1215	135	54	118	1257	225	470	1284	346	2	3
1000	1530	230	1255	135	54	118	1297	225	470	1324	346	2	4
1200	1785	250	1510	135	54	118	1552	240	490	1579	357	2	4
1400	1785	305	1510	177	54	160	1630	300	490	1657	358	2	4

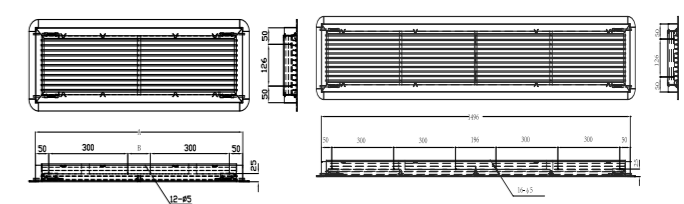
Return Air Purifier

Outline Dimension



Model	A/(mm)	B/(mm)	C/(mm)
TRP070BPF	836	54	276
TRP090BPF	1046	54	276
TRP110BPF	1246	54	276
TRP160BPF	1396	54	276
TRP220BPF	1546	54	276

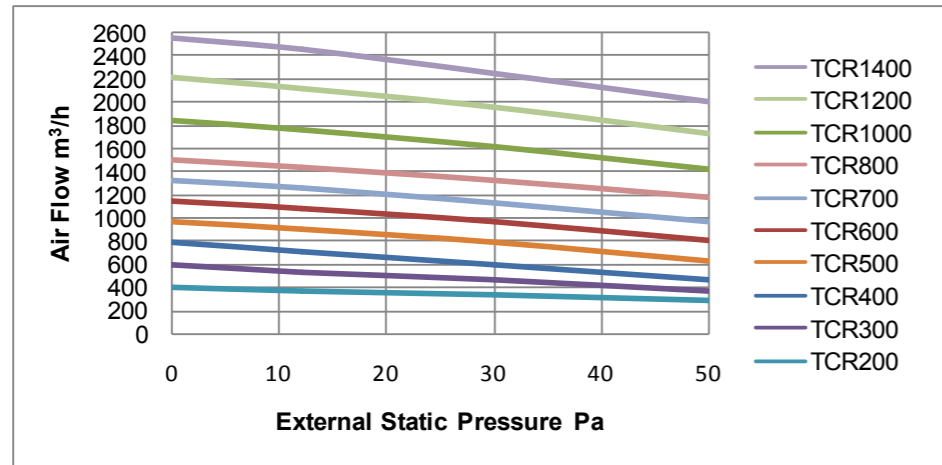
Installation Dimension



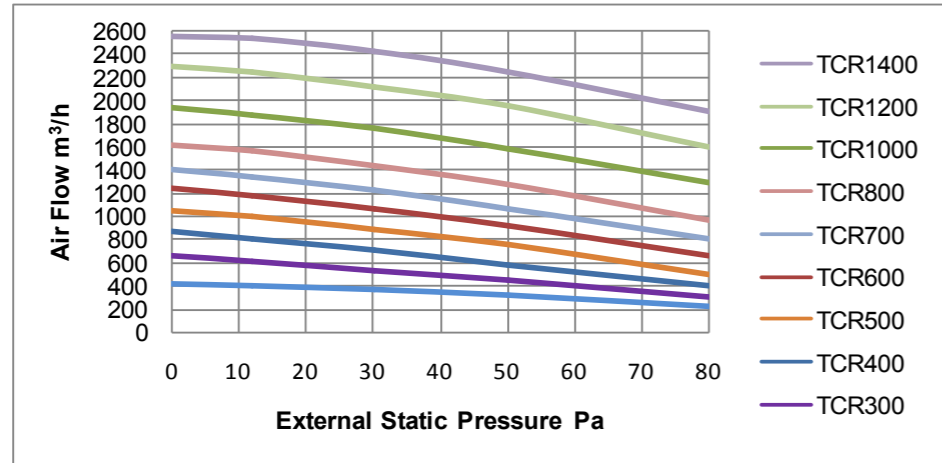
Model	A/(mm)	B/(mm)
TRP070BPF	786	86
TRP090BPF	996	296
TRP110BPF	1196	496
TRP160BPF	1346	646

Air Flow and External Static Pressure Curve (2 rows)

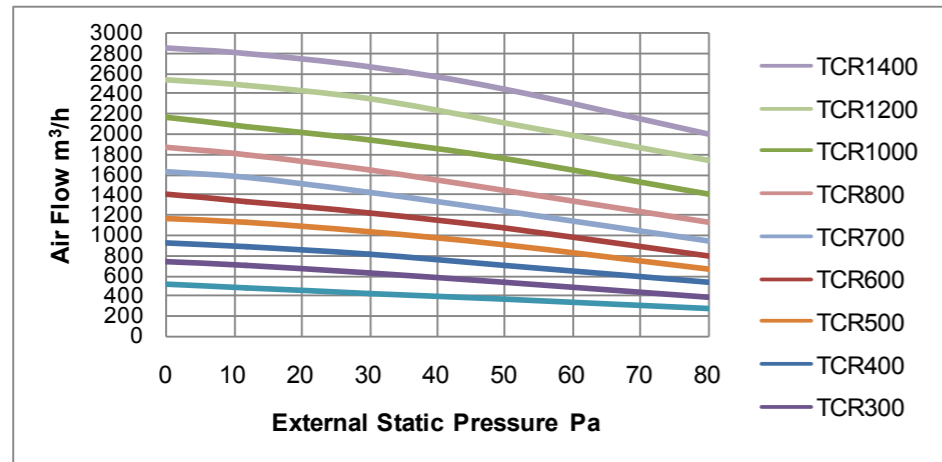
External Static Pressure 12Pa



External Static Pressure 30Pa

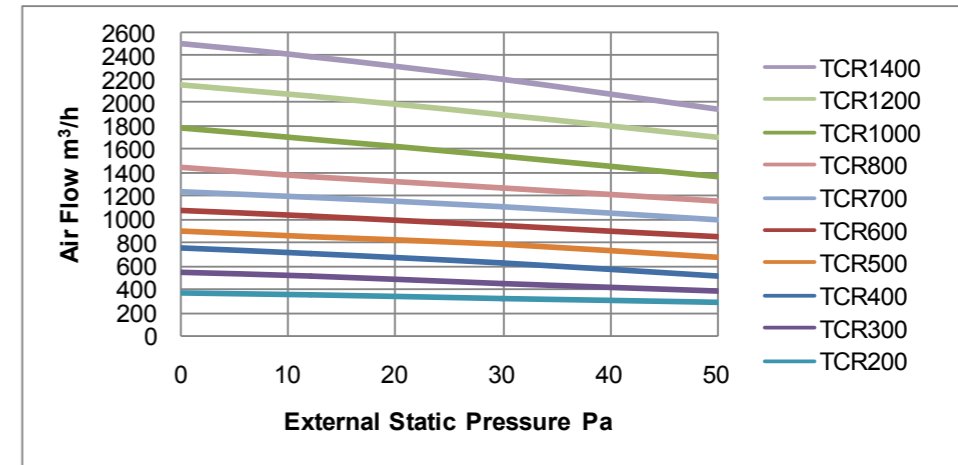


External Static Pressure 50Pa

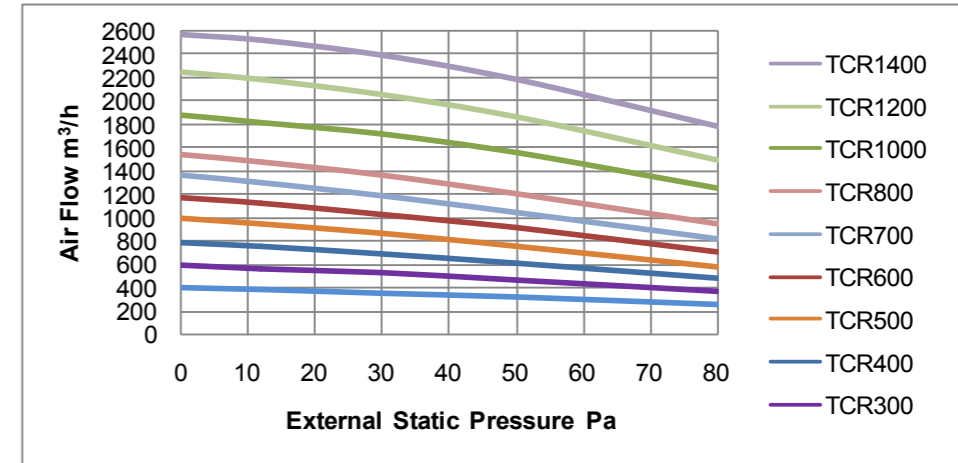


Air Flow and External Static Pressure Curve (3 rows)

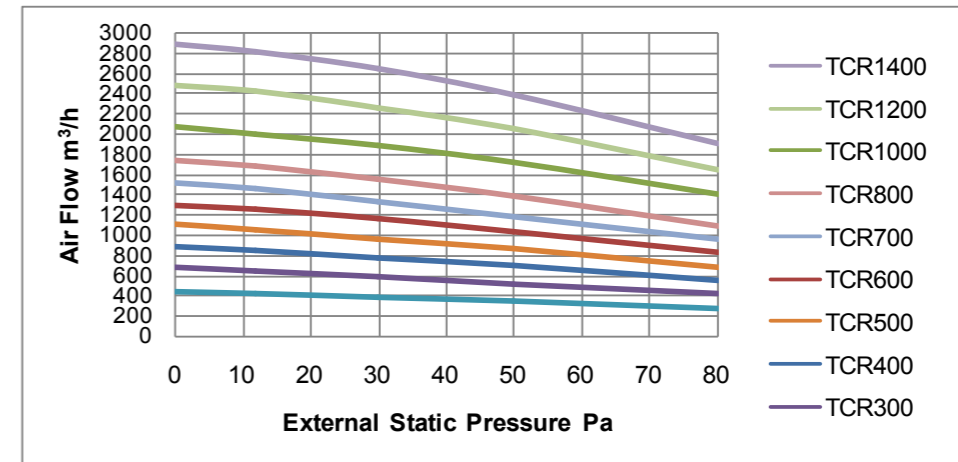
External Static Pressure 12Pa



External Static Pressure 30Pa

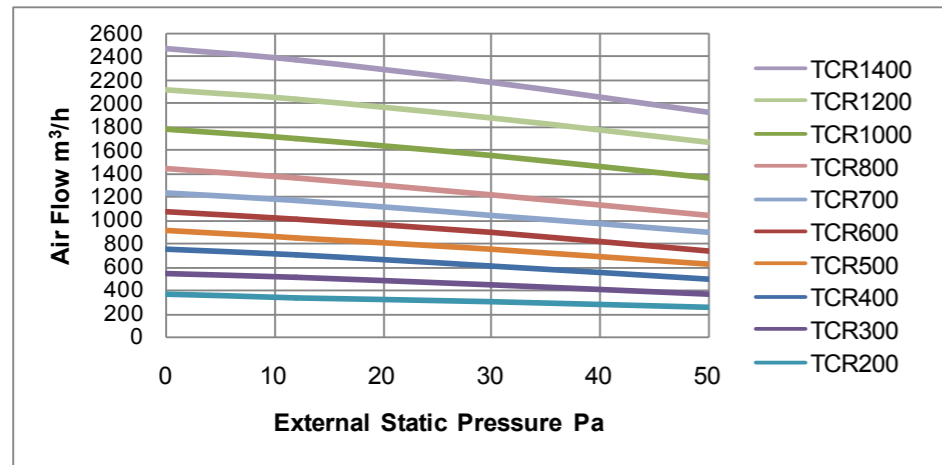


External Static Pressure 50Pa

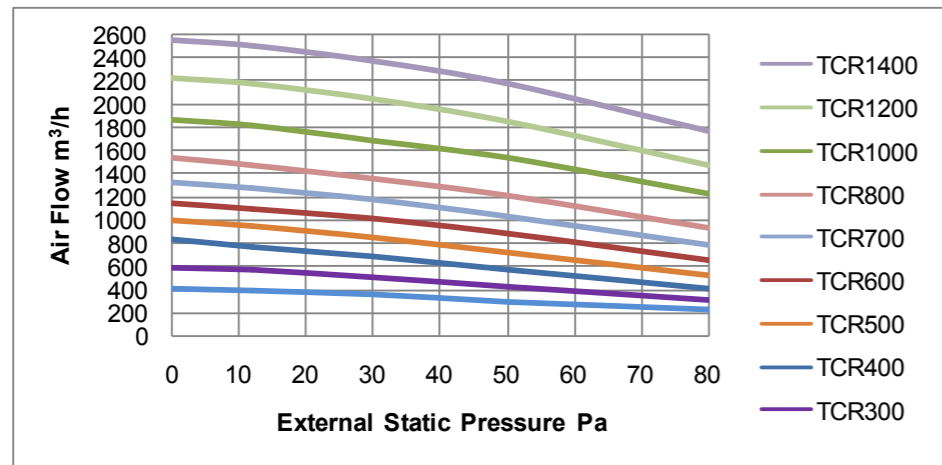


Air Flow and External Static Pressure Curve (3+1 rows)

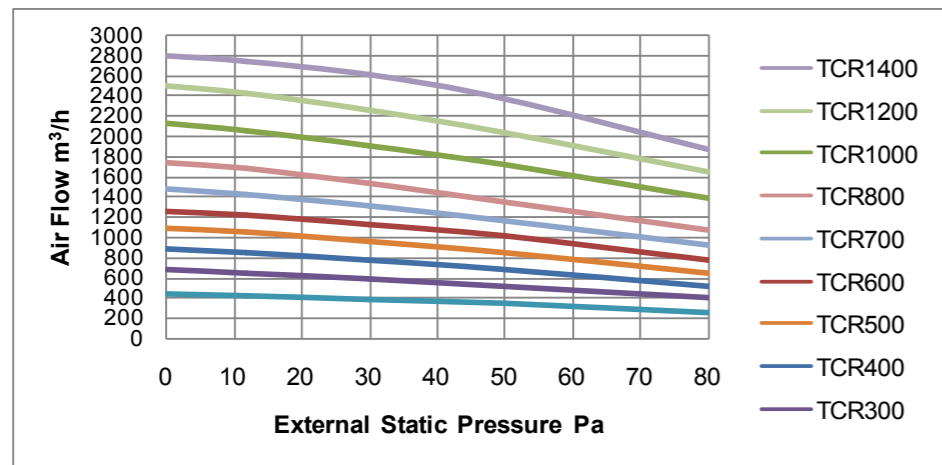
External Static Pressure 12Pa



External Static Pressure 30Pa



External Static Pressure 50Pa



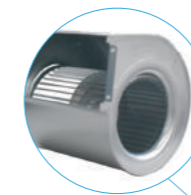
Ceiling Concealed Low Noise FCU - TCRQ



TCRQ 400 B LSSDFE20TN

- L Left piping R Right piping (Facing supply air duct)
- S 12 Pa static pressure 3 30 Pa static pressure
- S Standard drain pan A Extended 150mm B Extended 350mm
- D Bottom return air plenum B Back return air plenum N No return air plenum
- A Nylon filter F Mental filter N No filter
- E20 Heat capacity of electric heater(x100w) N No electric heater
- W With separate heating coil T 3 rows coil
- Y Brushless DC motor(for 3 rows coil) N Solit capacitor motor
- Product Generation B
- Air flow 400 CFM
- Ceiling Concealed - Low Noise FCU

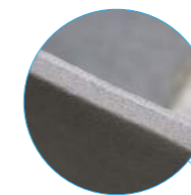
1. Low Noise



It adopts the stamping-formed wide impeller with imported hot dip galvanized steel sheet of high quality and the centrifugal (blade: forward-curved) fan of low speed, and features low noise, high efficiency and exquisite structure.



It adopts the high quality rolling bearings with low noises and little vibration delivered by an international famous brand, which do not need to be maintained and can be used for a long time.



It adopts the composite acoustical coating meeting environmental protection requirements. Anechoic layers with different interface shapes are provided between composite layers to improve the acoustic attenuation performance greatly.

Main technologies

- TICA's independently patented micro-perforated panel diversion assembly
- Eco-friendly flame retardant and anechoic material used in the FCU cavity
- Combined with the high efficiency motor by matching the centrifugal (blade: forward-curved) fan

2. Brushless DC motor as optional



High efficiency and energy saving

- Low heat radiation, efficiencies up to 75% (in contrast to the 30%-40% of conventional AC motor), average power consumptions equal to 50%-70% of AC motor.
- Optional solutions of three-stage speed regulation and stepless speed regulation; the air conditioner operates with a partial load in 90% of the time; under the stepless regulation mode, the motor speed is adjusted based on actual demand to save energy and substantially increase the energy efficiency.

Low noise to ensure comfort

- Adopts the PWM sine wave control technology to achieve low vibration and noise; driver carrier frequency above 15k to eliminate high frequency noise and special groove type design to reduce low frequency noise.
- The output torque satisfies the load application characteristics of unit and keeps the unit in a highly stable status.



Safe and reliable

- The controller adopts the closed-loop startup without sensing current and current control technology to ensure safe, reliable and stable operation.
- The high performance industrial MCU is used as the main control chip, and the global cutting-edge TI (Texas Instruments) chip is adopted to improve the operation accuracy with 32-digit computing.
- The perfect intelligent protection feature achieves multiple protection functions including high/low pressure, stalling, over-temperature, overload, and over-speed/speed loss protection.
- The thermostat is provided with the low temperature protection function. When the room temperature is lower than 5°C, the thermostat starts the heating mode automatically and opens the electric water valve; when the temperature is higher than 7°C, the thermostat turns off automatically.

Intelligent control

- The thermostat with the RS485 interface is optional. It supports the Modbus communication protocol and can be used for linkage with the building automation system to implement the centralized operation management of remote automatic control and monitoring.
- The elegant thermostat is provided with an LCD screen to realize perfect fusion with building decoration.

3. Different ESP for option (12Pa, 30Pa)

4. Multiple coils design

2 pipes (3 rows, 4 rows) and 4 pipes (3+1) are optional.

TCRQ Ceiling Concealed Low Noise FCU (3 rows, 2 pipes)

TCRQ		400B	500B	600B	800B	
Air Flow m³/h	High	680	850	1020	1360	
	Medium	510	640	780	1030	
	Low	340	450	560	740	
Total Cooling Capacity W	High	4020	4850	6010	7950	
	Medium	3540	4070	5050	6670	
	Low	2925	3200	4385	5570	
Sensible Cooling Capacity W	High	2970	3485	4455	5475	
	Medium	2500	2860	3790	4540	
	Low	1995	2160	3070	3665	
Heating Capacity W		High	6250	7630	9020	12120
Rated Power Input (AC Motor) W	12Pa	High	49	75	80	132
		Medium	42	65	70	115
		Low	36	55	58	100
	30Pa	High	72	85	100	155
		Medium	63	72	88	140
		Low	52	65	75	115
Rated Power Input (DC Motor) W	12Pa	High	31	43	55	75
		Medium	15	24	28	33
		Low	9	12	15	19
	30Pa	High	47	57	79	89
		Medium	20	28	34	41
		Low	10	14	17	25
Sound Pressure Level dB(A)	12Pa	High	37	39	41	43
		Medium	30	31	35	33.5
		Low	22	23.5	29	25
	30Pa	High	40.5	42.5	43	45.5
		Medium	32	34.5	39	36.5
		Low	23	26	30	28
Fan	Type	Centrifugal (Blade: Forward-Curved)				
	Quantity	2	2	2	3	
Motor	Type	AC	Split-capacitor motor with ball bearing			
		DC	Brushless DC Motor (built-in AC-DC conversion module)			
	Insulation Class	B				
	Protection Class	IP20				
	Power Supply	220V~50Hz				
Quantity	1	1	1	2		
Coil	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin				
	Max. Working Pressure MPa	1.6				
	Pipe Connection	Rc3/4 (Taper Pipe Female Threaded)				
	Water Flow Rate m³/h	0.73	0.86	1.07	1.39	
Water Resistance	Cooling Mode kPa	30	30	40	35	
	Heating Mode kPa	25	25	35	30	
Condensate Drain Pan	Pipe Connection	Rc3/4 (Taper Pipe Male Threaded)				
Dimension (Without return air plenum)	L mm	925	1005	1205	1485	
	W mm	490	490	515	515	
	H mm	250	250	275	275	
Net Weight (AC) kg	Without plenum box kg	17	17.5	19.5	26	
	With plenum box kg	19.9	20.6	22.9	30.4	
Net Weight (DC) kg	Without plenum box kg	16.7	17	19.1	25.5	
	With plenum box kg	19.6	20.1	22.5	29.9	

Note:

- Cooling capacity is based on the following:
 - Water temperature : 7°C (inlet)/12°C (outlet)
 - Air entering condition : 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature : 60°C (inlet)
 - Air entering condition : 21°C DB
- Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- Can adjust left or right direction at site, but correct cooling & heating capacity must multiply correction factor 0.9 after adjustment.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

TCRQ Ceiling Concealed Low Noise FCU (4 rows, 2 pipes)

Model TCRQ		400B	500B	600B	800B	
Air Flow m ³ /h	High	680	850	1020	1360	
	Medium	510	640	780	1030	
	Low	340	450	560	740	
Total Cooling Capacity W	High	4950	5900	7300	9600	
	Medium	4250	5150	6280	8250	
	Low	3550	4200	5300	6900	
Sensible Cooling Capacity W	High	3500	4150	5240	6820	
	Medium	2900	3540	4450	5760	
	Low	2300	2750	3500	4500	
Heating Capacity W		High	7900	9500	11800	15500
Rated Power Input W	12Pa	High	49	75	92	115
		Medium	40	56	80	105
		Low	35	45	70	95
	30Pa	High	72	87	107	155
		Medium	60	70	90	122
		Low	50	60	70	100
Sound Pressure Level dB(A)	12Pa	High	38	41	43	43
		Medium	33	34	38.5	39
		Low	25	27	31	30
	30Pa	High	41.5	44	44.5	46
		Medium	35	36	39.5	40
		Low	27	29	32	31
Fan	Type	Centrifugal (Galvanized Steel Multi Blade:Forward-Curved)				
	Quantity	2	2	2	3	
Motor	Type	AC	Split-capacitor motor with ball bearing			
		DC	Brushless DC Motor (built-in AC-DC conversion module)			
	Insulation Class		B			
	Protection Class		IP20			
	Power Supply		220V~50Hz			
	Quantity		1	1	1	2
Coil	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin				
	Max. Working Pressure MPa	1.6				
	Pipe Connection		Rc3/4(Taper Pipe Female Threaded)			
	Water Flow Rate m ³ /h		0.88	1.06	1.31	1.72
Water Pressure Drop kPa	(Cooling) kPa	25	25	30	35	
	(Heating) kPa	20	20	25	30	
Condensate Drain Pan	Pipe Connection		R 3/4 (Taper Pipe Male Threaded)			
Dimension (Without return air plenum)	Length mm	925	1005	1205	1485	
	Width mm	490	490	515	515	
	Height mm	250	250	275	275	
Net Weight	(Without return air plenum) kg	18.5	19.5	23	29	
	(With return air plenum) kg	21.4	22.6	26.4	33.4	

Note:

- Cooling capacity is based on the following:
 - Water temperature : 7°C (inlet)/12°C (outlet)
 - Air entering condition : 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature : 60°C (inlet)
 - Air entering condition : 21°C DB
- Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- Can adjust left or right direction at site, but correct cooling & heating capacity must multiply correction factor 0.9 after adjustment.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

TCRQ Ceiling Concealed Low Noise FCU (3+1 rows, 4 pipes)

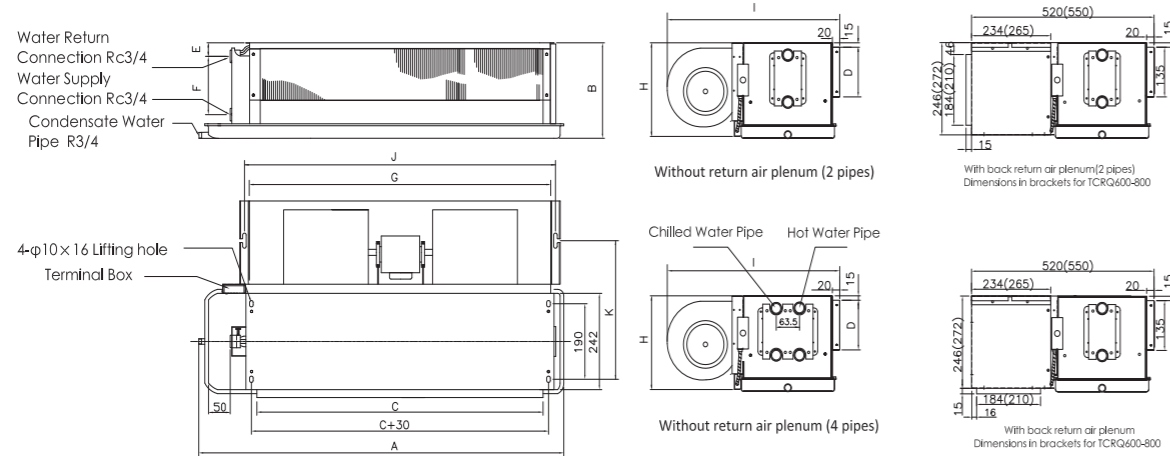
TCRQ		400B	500B	600B	800B	
Air Flow m ³ /h	High	680	850	1020	1360	
	Medium	510	640	780	1030	
	Low	340	450	560	740	
Total Cooling Capacity W	High	4020	4850	6010	7950	
	Medium	3350	4200	5280	6735	
	Low	2445	3270	4105	5260	
Sensible Cooling Capacity W	High	2830	3400	4180	5590	
	Medium	2300	2900	3610	4660	
	Low	1655	2200	2750	3560	
Heating Capacity W		High	4090	4800	5690	7700
Rated Power Input (AC Motor) W	12Pa	High	49	75	92	115
		Medium	40	56	80	105
		Low	35	45	70	95
	30Pa	High	72	87	107	155
		Medium	60	70	90	122
		Low	50	60	70	100
Sound Pressure Level dB(A)	12Pa	High	38	41	43	43
		Medium	33	34	38.5	39
		Low	25	27	31	30
	30Pa	High	41.5	44	44.5	46
		Medium	35	36	39.5	40
		Low	27	29	32	31
Fan	Type	Centrifugal (Blade: Forward-Curved)				
	Quantity	2	2	2	3	
Motor	Type	AC	Split-capacitor motor with ball bearing			
		DC	Brushless DC Motor (built-in AC-DC conversion module)			
	Insulation Class		B			
	Protection Class		IP20			
	Power Supply		220V~50Hz			
	Quantity		1	1	1	2
Coil	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin				
	Max. Working Pressure MPa	1.6				
	Pipe Connection		Rc3/4 (Taper Pipe Female Threaded)			
Water Flow Rate m ³ /h	Cooling Mode m ³ /h	0.74	0.87	1.07	1.41	
	Heating Mode m ³ /h	0.31	0.42	0.49	0.66	
Water Pressure Drop	Cooling Mode kPa	30	30	40	40	
	Cooling Mode kPa	20	30	20	35	
Condensate Drain Pan	Pipe Connection		Rc3/4 (Taper Pipe Male Threaded)			
Dimension (Without return air plenum)	L mm	925	1005	1205	1485	
	W mm	490	490	515	515	
	H mm	250	250	275	275	
Net Weight (AC) kg	Without plenum box kg	18.5	19.5	23	29	
	With plenum box kg	21.4	22.6	26.4	33.4	

Note:

- Cooling capacity is based on the following:
 - Water temperature : 7°C (inlet)/12°C (outlet)
 - Air entering condition : 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature : 60°C (inlet)
 - Air entering condition : 21°C DB
- Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- Can adjust left or right direction at site, but correct cooling & heating capacity must multiply correction factor 0.9 after adjustment.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

Dimension

Ceiling Concealed Low Noise FCU



TCRQ	A	B	C	D	E	F	G	H	I	J	K	Motor Quantity	Fan Quantity
400B	925	250	690	135	54	160	732	245	490	759	357	1	2
500B	1005	250	770	135	54	160	812	245	490	839	357	1	2
600B	1205	275	970	135	54	160	1012	270	515	1039	372	1	2
800B	1485	275	1215	135	54	160	1257	270	515	1284	372	2	3

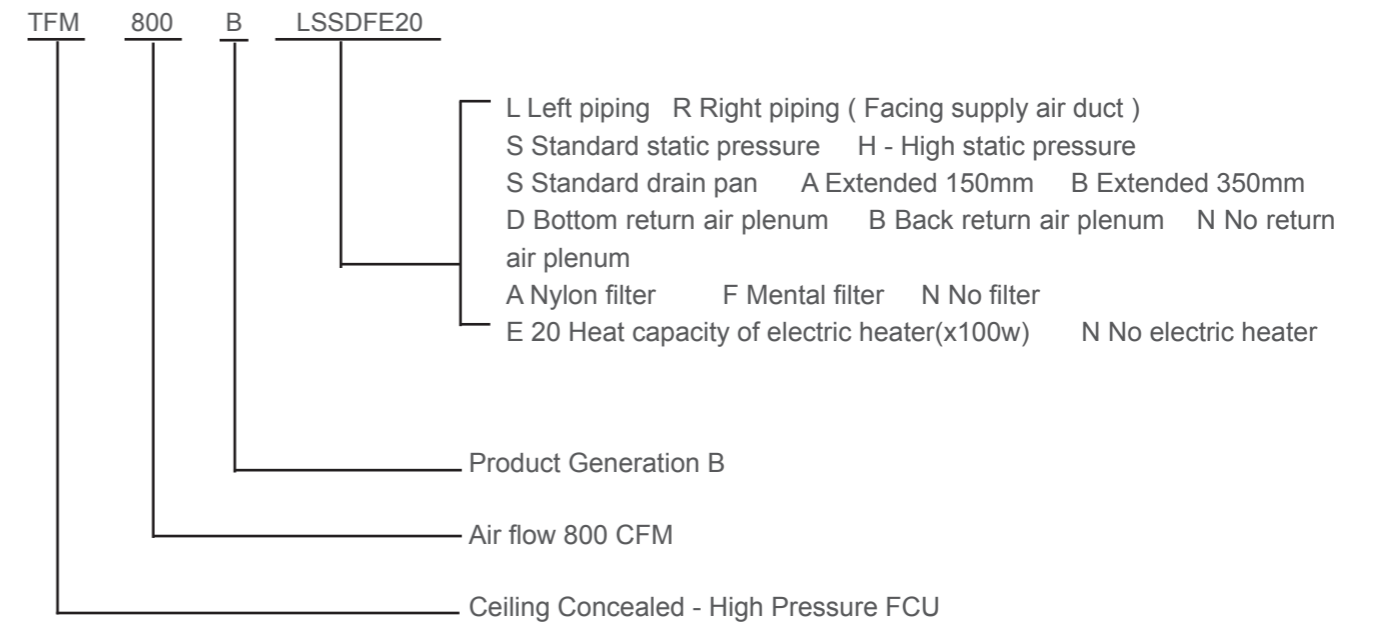
TCRQ	Length of return air plenum	Length of plenum wind-gap
400	745.6	677
500	815.6	757
600	1015.6	957
800	1260.6	1202

Ceiling Concealed High Pressure FCU - TFM



Characteristics:

- Large air flow, range from 655CMH to 6200CMH
- High external static pressure, up to 180Pa.



TFM Ceiling Concealed High Pressure FCU

Model TFM			800B			1000B			1200B			1600B		
			High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Air Flow m³/h	Standard (S)	0 Pa	1400	1090	880	1610	1285	1035	2050	1640	1305	2640	2105	1685
		40 Pa	1200	960	775	1420	1135	915	1850	1450	1155	2355	1885	1510
		80 Pa	1030	820	655	1230	985	790	1560	1250	1000	2095	1675	1340
	High static pressure (H)	80 Pa	1460	1170	945	1715	1380	1100	2195	1745	1400	2820	2255	1805
		130 Pa	1265	1015	815	1510	1215	970	1925	1540	1230	2490	1990	1595
		180 Pa	1075	860	690	1305	1045	835	1660	1330	1065	2160	1730	1385
Total Cooling Capacity kW	Standard (S)	0 Pa	8.78	7.02	5.63	10.52	8.41	6.74	13.39	10.72	8.57	17.22	13.78	11.02
		40 Pa	7.85	6.28	5.03	9.27	7.42	5.94	11.80	9.45	7.94	15.17	12.14	9.71
		80 Pa	6.99	5.59	4.47	7.98	6.39	5.11	10.16	8.13	6.49	13.05	10.44	8.36
	High static pressure (H)	80 Pa	9.38	7.50	6.01	11.26	9.00	7.21	14.31	11.45	9.15	18.40	14.72	11.78
		130 Pa	8.29	6.64	5.30	9.87	7.90	6.31	12.04	9.63	7.70	15.93	12.75	10.20
		180 Pa	7.19	5.75	4.60	8.49	6.79	5.43	9.84	7.86	6.29	13.50	10.80	8.63
Sensible Cooling Capacity kW	Standard (S)	0 Pa	6.47	5.18	4.14	7.88	6.30	5.04	9.72	7.78	6.23	12.83	10.27	8.22
		40 Pa	5.79	4.63	3.71	6.95	5.55	4.43	8.57	6.86	5.48	11.30	9.05	7.23
		80 Pa	5.16	4.12	3.30	5.98	4.78	3.82	7.37	5.96	4.71	9.73	7.78	6.23
	High static pressure (H)	80 Pa	6.92	5.53	4.44	8.42	6.74	5.39	10.39	8.32	6.65	13.71	10.97	8.78
		130 Pa	6.11	4.89	3.92	7.39	5.91	4.73	8.75	6.99	5.60	11.87	9.51	7.61
		180 Pa	5.05	4.25	3.39	6.36	5.08	4.07	7.14	5.71	4.57	10.06	8.05	6.44
Heating Capacity kW	Standard (S)	0 Pa	13.35	10.68	8.54	16.17	12.93	10.34	20.86	16.69	13.36	26.00	20.80	16.64
		40 Pa	11.75	9.40	7.52	14.29	11.43	9.14	18.41	14.73	11.78	23.25	18.61	14.88
		80 Pa	10.07	8.06	6.45	12.38	9.90	7.92	15.89	12.72	10.17	20.67	16.54	13.24
	High static pressure (H)	80 Pa	14.26	11.42	9.12	17.28	13.83	11.06	22.29	17.84	14.27	27.79	22.24	17.79
		130 Pa	12.37	9.89	7.91	15.19	12.51	9.72	19.60	15.68	12.54	24.56	19.65	15.73
		180 Pa	10.49	8.39	6.71	13.09	10.47	8.38	16.89	13.52	10.81	21.31	17.05	13.64
Motor	Power Supply	220V~50Hz												
	Type	Split-capacitor motor with ball bearing												
	Insulation Class	B												
	Quantity(S/H)	1/1			1/1			1/1			1/1			
Fan Quantity	1			1			1			1				
High Rated Power Input W (S/H)	200/280			280/370			300/600			350/700				
Water Flow Rate m³/h	1.60			1.88			2.39			3.08				
Water Pressure Drop kPa	6			14			25			20				
Dimension (Without return air plenum)	Length mm	860			860			960			1110			
	Width mm	770			770			770			770			
	Height mm	430			430			430			430			
Net Weight	(Without return air plenum) kg	40			40			46			53			
	(With return air plenum) kg	50			50			56			65			
Pipe connection	R 1 (Taper Pipe Male Threaded)													
Condensate Drain Size	R 1(Taper Pipe Male Threaded)													

- Note:
- Cooling capacity is based on the following:
 - Water temperature: 7°C(inlet)/12°C(outlet)
 - Air entering condition:27°C DB/19.5°C WB
 - Heating capacity is based on the following(with same water flow rate as cooling cycle):
 - Water temperature: 60°C (inlet)
 - Air entering condition:21°C DB
 - The air volume is tested under entering air condition of 20°C DB and dry coil condition.
 - High Static Pressure Series Units may drift water when excess pressure of air duct is less than 80Pa.
 - The standard type (S) without return air plenum (Optional).High static pressure (H) with back return air plenum.
 - The nameplate of standard type (S) is 40Pa.and high static pressure (H) is 130Pa.
 - Please contact factory if need thermostat and three-way switch.
 - The manufacturer reserves the rights to make changes to the above specifications without prior notice.

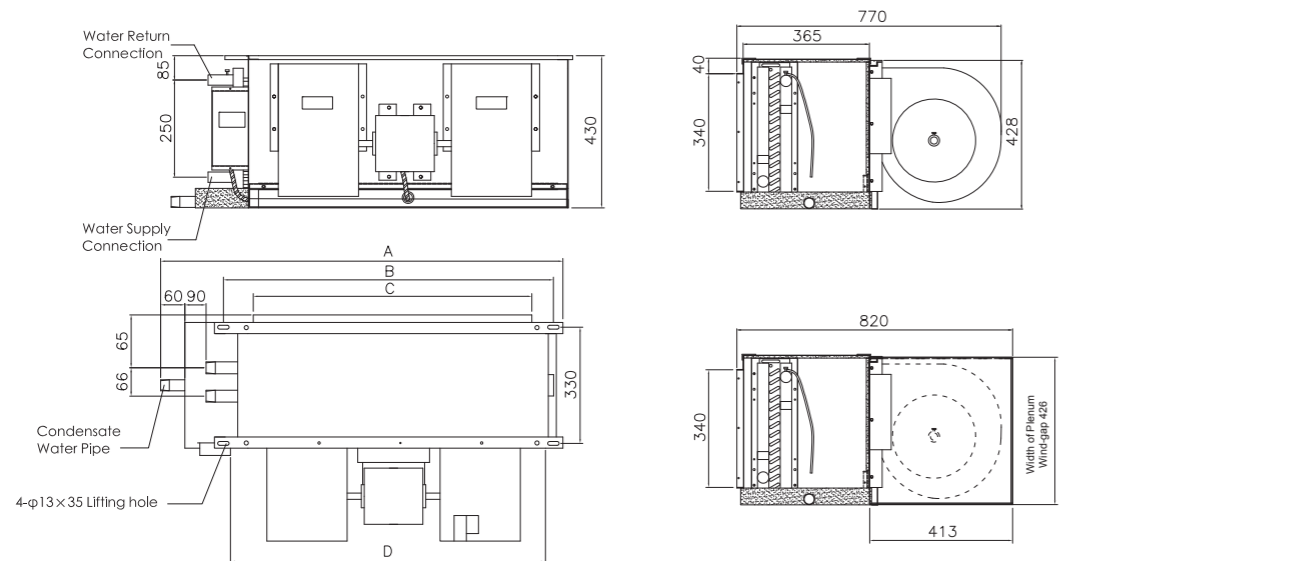
TFM Ceiling Concealed High Pressure FCU

Model TFM			1800B			2000B			3000B		
			High	Medium	Low	High	Medium	Low	High	Medium	Low
Air Flow m³/h	Standard (S)	0 Pa	3120	2495	2000	4000	3195	2550	5850	4680	3735
		40 Pa	2800	2240	1795	3860	3100	2475	5155	4140	3300
		80 Pa	2510	2010	1610	3610	2890	2320	4455	3565	2860
	High static pressure (H)	80 Pa	3335	2670	2135	4200	3345	2685	6200	4990	4000
		130 Pa	2945	2360	1890	3880	3100	2485	5500	4395	3520
		180 Pa	2555	2050	1640	3555	2850	2285	4735	3800	3040
Total Cooling Capacity kW	Standard (S)	0 Pa	20.41	16.32	13.07	26.10	20.89	16.73	38.25	30.61	24.49
		40 Pa	17.97	14.38	11.50	25.25	20.21	16.16	33.71	26.99	21.55
		80 Pa	15.43	12.34	9.87	23.52	18.82	15.05	29.02	23.22	18.55
	High static pressure (H)	80 Pa	21.81	17.45	13.96	27.42	21.92	17.55	40.90	32.70	26.15
		130 Pa	19.11	15.29	12.22	24.26	19.39	15.53	34.41	27.51	22.01
		180 Pa	16.42	13.13	10.50	21.10	16.86	13.51	28.11	22.46	17.98
Sensible Cooling Capacity kW	Standard (S)	0 Pa	15.25	12.20	9.76	18.96	15.17	12.16	27.77	22.23	17.80
		40 Pa	13.43	10.74	8.59	18.35	14.68	11.74	24.50	19.60	15.66
		80 Pa	11.53	9.22	7.37	17.07	13.65	10.92	21.06	16.84	13.46
	High static pressure (H)	80 Pa	16.31	13.03	10.43	19.91	15.93	12.75	29.69	23.77	19.00
		130 Pa	14.28	11.42	9.14	17.62	14.09	11.29	25.00	19.98	15.99
		180 Pa	12.27	9.81	7.85	15.32	12.24	9.82	20.41	16.31	13.07
Heating Capacity kW	Standard (S)	0 Pa	30.34	24.28	19.42	40.67	32.55	26.07	59.58	47.69	38.16
		40 Pa	27.24	21.80	17.43	39.39	31.52	25.24	52.60	42.09	33.66
		80 Pa	24.42	19.54	15.62	36.79	29.45	23.58	45.39	36.34	29.06
	High static pressure (H)	80 Pa	32.44	25.96	20.76	42.70	34.17	27.37	63.70	50.96	40.78
		130 Pa	28.66	22.93	18.34	39.47	31.58	25.29	55.99	44.79	35.84
		180 Pa	24.86	19.89	15.91	36.22	28.99	23.22	48.24	39.62	30.89
Motor	Power Supply	220V~50Hz									
	Type	Split-capacitor motor with ball bearing									
	Insulation Class	B									
	Quantity(S/H)	1/2			2/2			3/3			
Fan Quantity	2			2			3				
High Rated Power Input W (S/H)	600/750			650/1200			900/1800				
Water Flow Rate m³/h	3.65			4.50			6.16				
Water Pressure Drop kPa	25			35			45				
Dimension (Without return air plenum)	Length mm	1260			1560			2010			
	Width mm	770			770			770			
	Height mm	430			430			430			
Net Weight	(Without return air plenum) kg	64			80			108			
	(With return air plenum)kg	76			94			126			
Pipe connection	R 1 (Taper Pipe Male Threaded)			R 1 1/2(Taper Pipe Male Threaded)							
Condensate Drain Size	R 1 (Taper Pipe Male Threaded)										

- Note:
- Cooling capacity is based on the following:
 - Water temperature: 7°C(inlet)/12°C(outlet)
 - Air entering condition:27°C DB/19.5°C WB
 - Heating capacity is based on the following(with same water flow rate as cooling cycle):
 - Water temperature: 60°C (inlet)
 - Air entering condition:21°C DB
 - The air volume is tested under entering air condition of 20°C DB and dry coil condition.
 - High Static Pressure Series Units may drift water when excess pressure of air duct is less than 80Pa.
 - The standard type (S) without return air plenum (Optional).High static pressure (H) with back return air plenum.
 - The nameplate of standard type (S) is 40Pa.and high static pressure (H) is 130Pa.
 - Please contact factory if need thermostat and three-way switch.
 - The manufacturer reserves the rights to make changes to the above specifications without prior notice.

Dimension

Ceiling Concealed - High Pressure FCU



Model	800/1000	1200	1600	1800	2000	3000
Length of Plenum Wind-gap	653	653	753	923	1373	1823

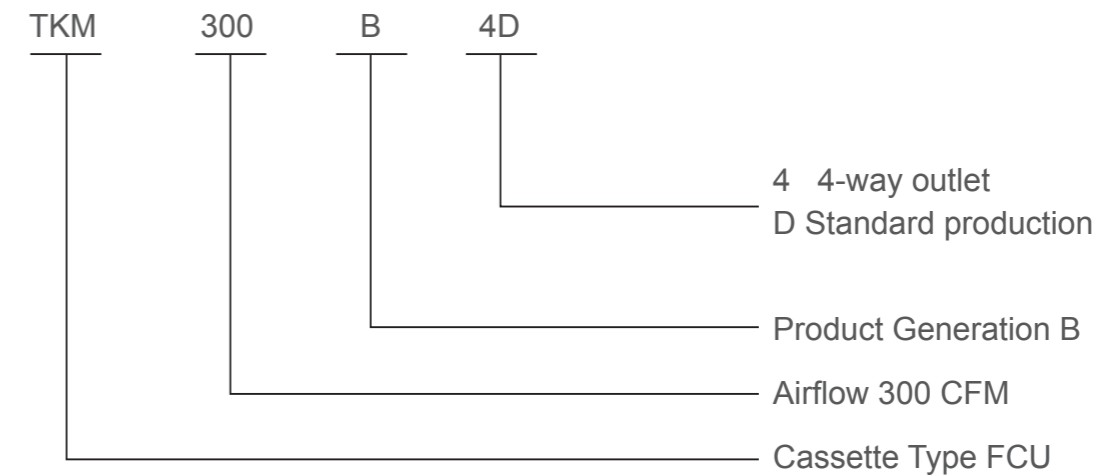
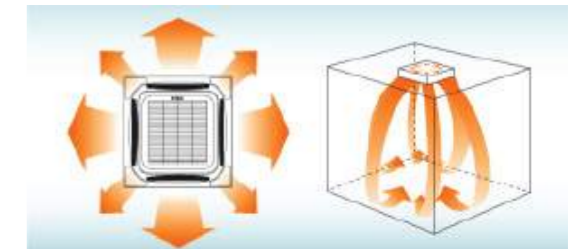
Model TFM	A	B	C	D	Inlet/outlet Pipe	Condensate Water Pipe	Motor Quantity (S/H)	Fan Quantity
800B	860	683	530	590	R1	R1	1/1	1
1000B	860	683	530	590	R1	R1	1/1	1
1200B	960	783	630	690	R1	R1	1/1	1
1600B	1110	953	800	860	R1	R1	1/1	2
1800B	1260	1083	930	990	R1	R1	1/2	2
2000B	1560	1403	1250	1310	R1 ^{1/2}	R1	2/2	2
3000B	2010	1853	1700	1760	R1 ^{1/2}	R1	3/3	3

Cassette Type FCU - TKM



Characteristics:

- 360° air outlet, no blind spot.
- Low noise
The quality heat insulating and anechoic material is used to minimize the unit vibration and noise. The 3D aerofoil-type blade fan with a large diameter is used to ensure low speed and low noise.
- Compact design, built-in drain pump



TKM Cassette Type FCU

Model TKM		300B4D	400B4D	500B4D	600B4D	800B4D	1000B4D	1200B4D
Air Flow m ³ /h	High	510	680	820	1020	1360	1700	2040
	Medium	420	560	630	870	1150	1450	1750
	Low	350	460	500	715	950	1190	1430
Total Cooling Capacity W	High	2700	3600	4300	6000	8000	9500	10800
	Medium	2410	3100	3530	5150	6655	8285	9430
	Low	2140	2750	3010	4530	5860	6950	8200
Heating Capacity W	High	4050	5400	6450	10000	12500	15500	17000
	Low	3450	4500	5300	8000	10000	12500	14000
Motor	Type	Split-capacitor motor with ball bearing						
	Insulation Class	B						
	Power Supply	220V~50Hz						
	Quantity	1						
	Rated Power Input	56	65	80	85	108	144	189
Coil	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin						
	Max. Working Pressure Mpa	1.6						
	Inlet/outlet Pipe	Rc3/4 (Taper Pipe Female Threaded)						
	Condensing Pipe	Φ20						
	Water Flow Rate m ³ /h	0.48	0.64	0.94	1.1	1.42	1.7	1.85
	Water Pressure Drop kPa	30	30	30	35	40	40	50
Sound Pressure Level (High) dB(A)	39	41	43	43	45	47	49	
Body Dimension (Without Panel)	Length(mm)	570	570	570	840	840	840	840
	Width(mm)	570	570	570	840	840	840	840
	Height(mm)	250	250	290	230	310	310	310
Panel Dimension	Length(mm)	650	650	650	950	950	950	950
	Width(mm)	650	650	650	950	950	950	950
Net Weight kg	23	23	28	29	34	34	35	

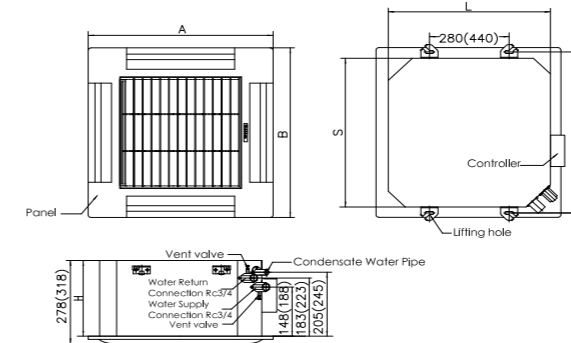
Note:

- Cooling capacity is based on the following:
 - Water temperature: 7°C (inlet)/12°C (outlet)
 - Air entering condition: 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature: 60°C (inlet)
 - Air entering condition: 21°C DB
- Air volume above is tested under units with nylon filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- Units supply blowing guide plate drive mechanism and remote control devices and pump.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

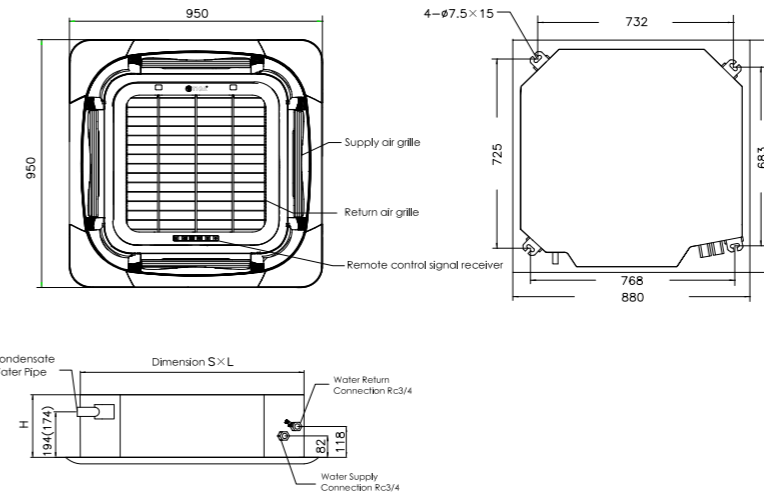
Dimension

Cassette Type FCU

TKM300-500 (Dimensions in brackets for TKM500)



TKM600-1200 (Dimensions in brackets for TKM600)



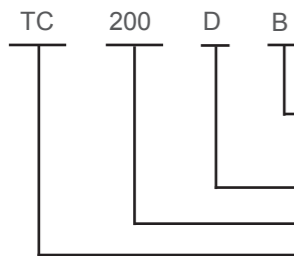
TKM	TKM300	TKM400	TKM500	TKM600	TKM800	TKM 1000	TKM 1200
Panel Dimension (A x B)	650x650	650x650	650x650	950 x 950	950x950	950x950	950x950
Unit Dimension (S x L x H)	570x570x250	570x570x250	570x570x290	840x840x230	840 x 840 x 310	840x840x310	840 x 840 x 310

Ceiling & Floor Exposed FCU - TC



Characteristics:

- Flexible installation, ceiling or floor mounted
- Automatic horizontal and vertical air flow
- One side access hole ,easy for maintenance



A With remote controller(wired controller is optional)
B No controller as standard

Product Generation D

Airflow 200 CFM

Ceiling & Floor Exposed FCU

(Note: The unit can be in vertical or ceiling installation at right direction when in front of the unit.)

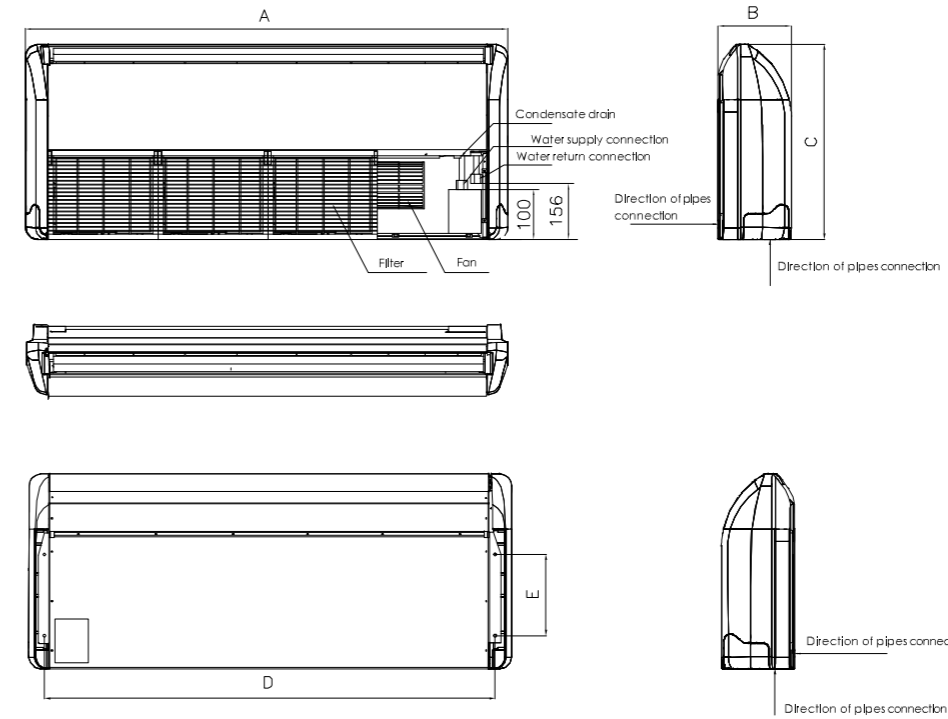
TC		200D	300D	400D	500D	600D	800D	1000D	1200D	1400D
Air Flow m³/h	High	350	520	680	850	1030	1360	1700	2040	2380
	Medium	280	440	560	700	870	1255	1450	1830	2100
	Low	230	350	410	570	740	1080	1160	1500	1650
Total Cooling Capacity W	High	1970	2850	3600	4300	5400	6600	8400	9600	10500
	Medium	1675	2400	3060	3655	4590	5610	7140	8160	8900
	Low	1380	1995	2520	3010	3780	4620	5880	6720	7350
Heating Capacity W	High	3200	4500	5600	6800	8600	10500	13500	15000	16800
	Medium	2680	3825	4760	5780	7310	8900	11500	12750	14280
	Low	2200	3150	3920	4760	6020	7350	9450	10500	11760
Fan	Type	Centrifugal (Blade:Forward-Curved)								
	Quantity	2	2	2	2	3	3	4	4	4
Power Supply		220V~50Hz								
Motor Rated Power Input(W)		37	52	62	76	106	134	165	189	228
Coil	Type	Seamless copper tube mechanically bonded to aluminum fin								
	Max.Working Pressure MPa	1.6								
	Pipe Connection	Rc3/4(Taper Pipe Female Threaded)								
	Condensate Pipe	Φ25								
	Water Flow Rate m³/h	0.34	0.49	0.62	0.74	0.89	1.12	1.44	1.65	1.81
Water Pressure Drop kPa	12	14	22	26	15	20	20	24	29	
Weight	(Without return air plenum) kg	25	25	25	25	40	40	45	45	45
Dimension (Without return air plenum)	Length(mm)	905	905	905	905	1288	1288	1672	1672	1672
	Width(mm)	243	243	243	243	243	243	243	243	243
	Height(mm)	673	673	673	673	673	673	673	673	673
Sound Pressure Level (High) dB(A)		37	39	41	43	45	46	48	50	52

Note:

- Cooling capacity is based on the following: a) Water temperature: 7°C(inlet)/12°C(outlet) b) Air entering condition:27°C DB/19.5°C WB
- Heating capacity is based on the following(with same water flow rate as cooling cycle): a) Water temperature: 60°C(inlet) b) Air entering condition:21°C DB
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- TCXXXDB series do not supply three speeds switch and wired controller is optional accessory.TCXXXDA series do supply remote controller.
- Thermostat is optional which have three speed levels and can be connected to electric valve and adjust temperature.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.
- The unit can be in vertical or ceiling installation and connect pipe at right direction when in front of the unit.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

Dimension

Floor Ceiling Type FCU



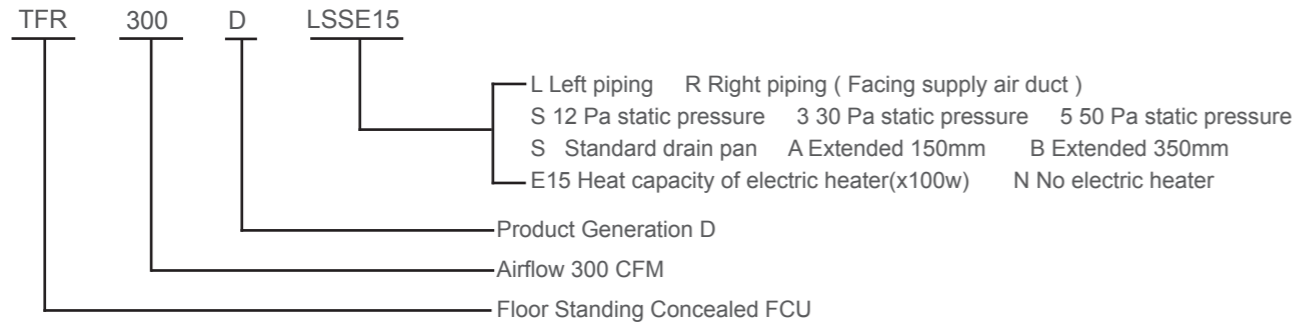
TC	200	300	400	500	600	800	1000	1200	1400
Dimension	905x243x673			1288x243x637			1672x243x673		
Steeve Pitch	801x280			1184x280			1569x280		
Fan Quantity	2	2	2	2	3	3	4	4	4

Floor Standing Concealed FCU - TFR



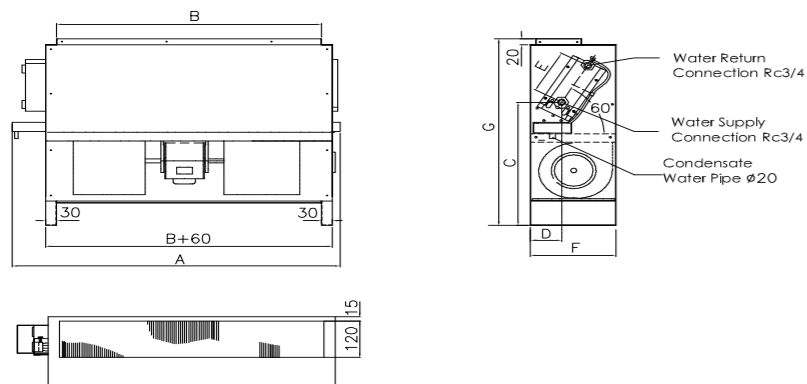
Characteristics:

- Different ESP for option (12Pa,30Pa,50Pa)
- Air flow ranges from 190CMH to 2400CMH.



Dimension

Floor Standing Concealed FCU



TFR	A	B	C	D	E	F	G	Motor Quantity	Fan Quantity
200	640	470	393	74	145	230	620	1	1
300	760	590	393	74	145	230	620	1	2
400	880	710	393	74	145	230	620	1	2
500	1000	830	393	74	145	230	620	1	2
600	1120	950	393	74	145	230	620	1	2
800	1505	1310	418	89	88	230	620	2	3
1000	1625	1430	418	89	88	230	620	2	4
1200	1745	1550	418	89	88	230	620	2	4
1400	1870	1670	438	94	167	255	680	2	4

TFR Floor Standing Concealed FCU

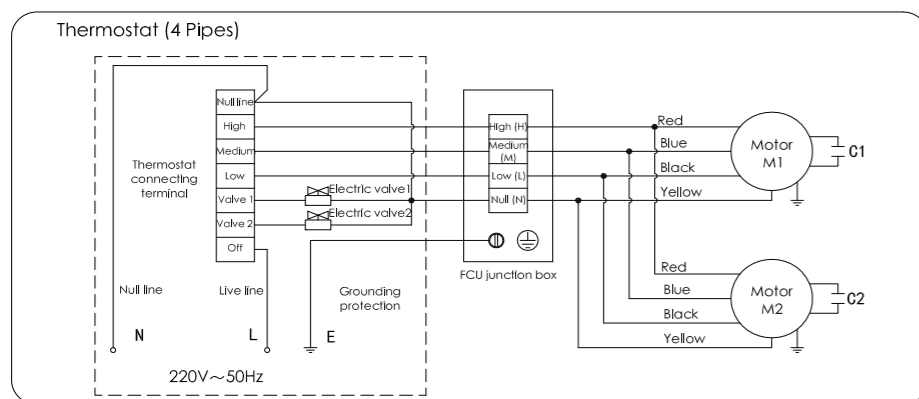
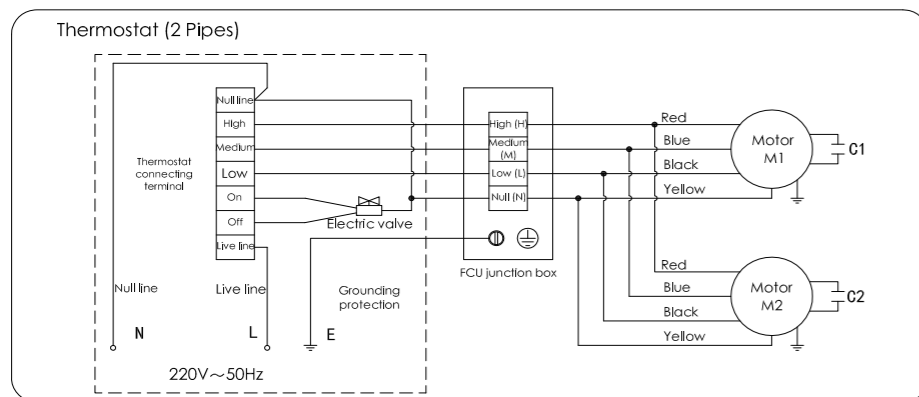
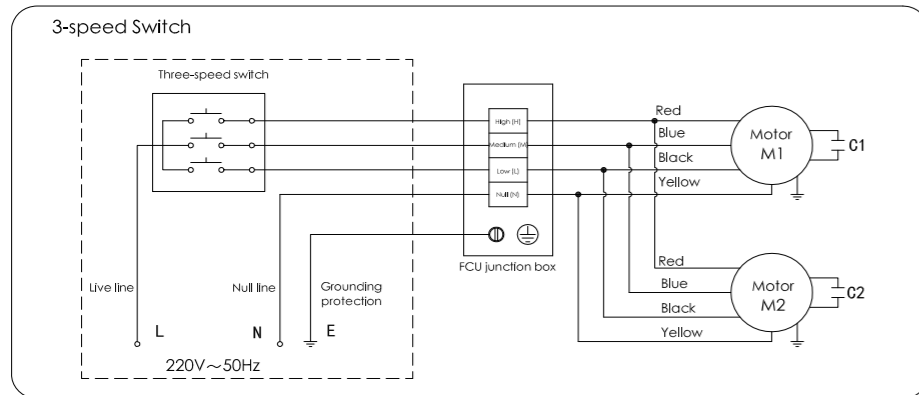
TFR		200D	300D	400D	500D	600D	800D	1000D	1200D	1400D
Air Flow m ³ /h	High	350	520	680	850	1030	1380	1710	2040	2400
	Medium	270	380	510	640	780	1030	1290	1540	1975
	Low	190	280	340	450	560	740	890	1040	1255
Total Cooling Capacity W	High	1970	2850	3760	4600	5450	7310	9000	10800	13000
	Medium	1780	2480	3250	3860	4600	6215	7920	9400	11700
	Low	1460	2050	2655	3030	4000	5190	6120	7230	7560
Sensible Cooling Capacity W	High	1417	2050	2713	3307	3920	5260	6480	7760	9360
	Medium	1255	1720	2270	2700	3330	4365	5570	6520	7950
	Low	935	1390	1830	2050	2700	3520	4150	4780	5710
Heating Capacity W	High	3480	5350	6700	7800	9000	11800	13880	16700	20040
	Type	Centrifugal (Blade: Forward-Curved)								
Fan	Quantity	1	2	2	2	2	3	4	4	4
	Type	Split-capacitor motor with ball bearing								
Motor	Insulation Class	B								
	Power Supply	220V~50Hz								
	Quantity	1	1	1	1	1	2	2	2	2
High Rated Power Input W	S	30	45	55	75	90	128	150	189	228
	30Pa	42	55	65	82	105	148	171	212	253
	50Pa	47	62	75	91	115	165	203	250	290
Coil	Type	Seamless copper tube mechanically bonded to aluminum hydrophilic fin								
	Max. Working Pressure Mpa	1.6								
	Pipe Connection	Rc3/4 (Taper Pipe Female Threaded)								
	Water Flow Rate m ³ /h	0.34	0.49	0.65	0.79	0.94	1.25	1.55	1.85	2.23
Water Pressure Drop kPa		3.4	7.6	13	21	31.2	10	15.7	22.8	38
Dimension	Length mm	640	760	880	1000	1120	1505	1625	1745	1870
	Width mm	230	230	230	230	230	230	230	230	255
	Height mm	620	620	620	620	620	620	620	620	680
Net Weight kg		18	22	24	30	36	52	58	64	75
High Sound Pressure Level	S(12Pa)	36.5	38	40.5	42	45	46	47.5	49	51
	30Pa	39	41	43	44	46	47	49	51	52
	50Pa	42	43	45	47	49	50	52	53	53
Condensate Drain Size	R 3/4 (Taper Pipe Male Threaded)									

Note:

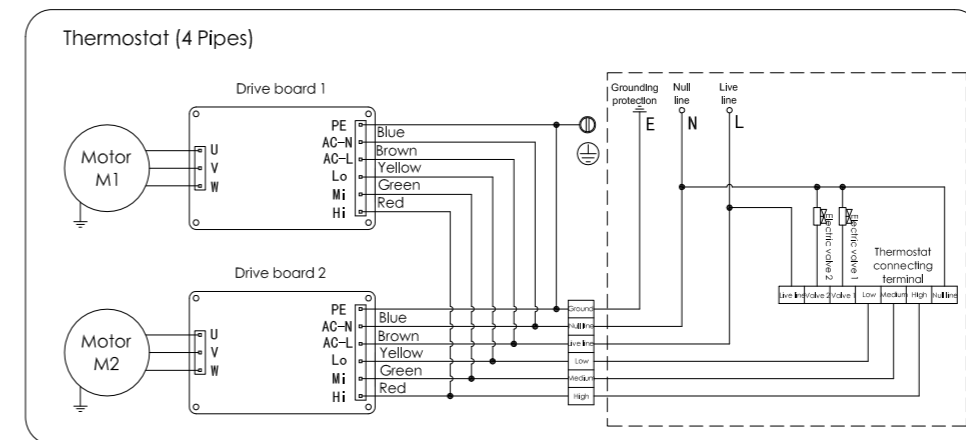
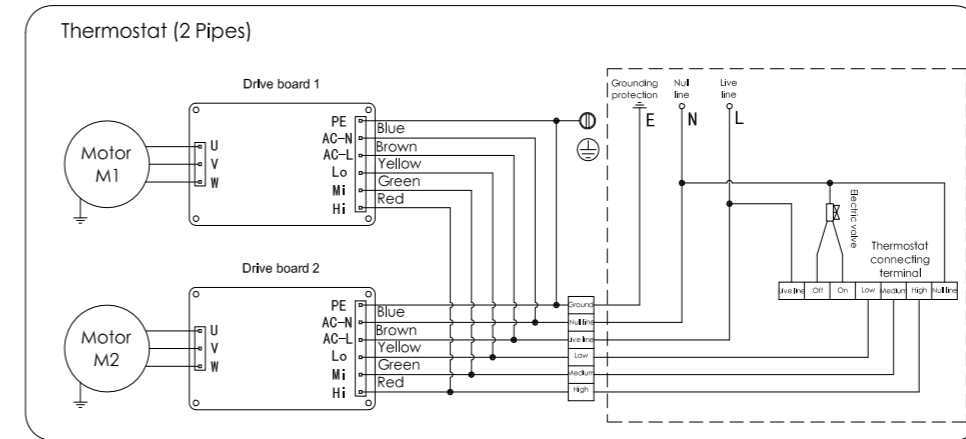
- Cooling capacity is based on the following:
 - Water temperature: 7°C (inlet)/12°C (outlet)
 - Air entering condition: 27°C DB/19.5°C WB
- Heating capacity is based on the following (with same water flow rate as cooling cycle):
 - Water temperature: 60°C (inlet)
 - Air entering condition: 21°C DB
- Low ESP means 0Pa with air vent & filter and 12Pa without air vent& filter.
- The air volume is tested under entering air condition of 20°C DB and dry coil condition.
- The sound pressure level is based on 11.5dB(A) hemi-anechoic room background noise.
- The manufacturer reserves the rights to make changes to the above specifications without prior notice.

Wiring Diagrams

AC Motor Wiring Diagram (applicable to TCR, TCRQ, TFM and TFR series)



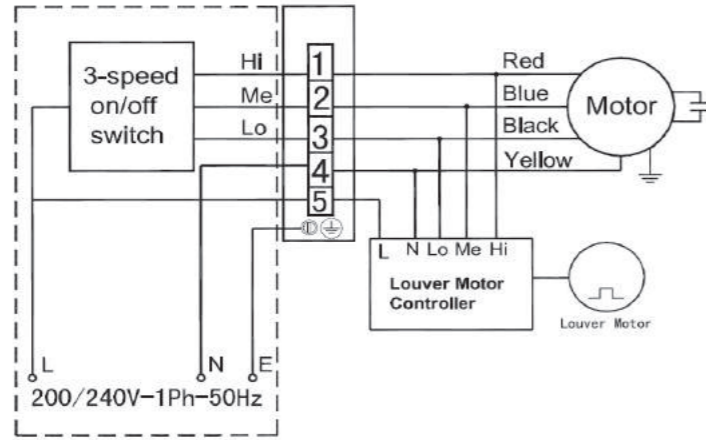
Brushless DC Motor Wiring Diagram (applicable to TCR-Y and TCRQ-Y series)



★ Remarks

1. Wiring to be implemented by the customer is indicated in the dashed frame. If the three-speed switch or thermostat is required, please specify when placing an order.
2. The TFM three-speed switch must be able to bear the maximum operating current of the unit or the AC contactor to control the unit.
3. The unit connection must be correct; otherwise, the motor may be burnt out.
4. The voltage, frequency, and phase number of the power supply must be consistent with the unit requirements, and the supply voltage deviation should not exceed 10% of the rated voltage.
5. Disconnect the power supply before maintenance work to prevent electric shock.
6. For the TCR series, only the 800-1400 unit is provided with the motor M2.
7. The electric valve should be matched with the thermostat for use; otherwise, the connection of electric valve may be incorrect. The two-way valve or three-way valve of two-wire system needs to be selected for the 4 pipes FCU.
8. Electric valve 1 is a cold water valve, and electric valve 2 is a hot water valve. No hot water valve is provided for the 2 pipes FCU.

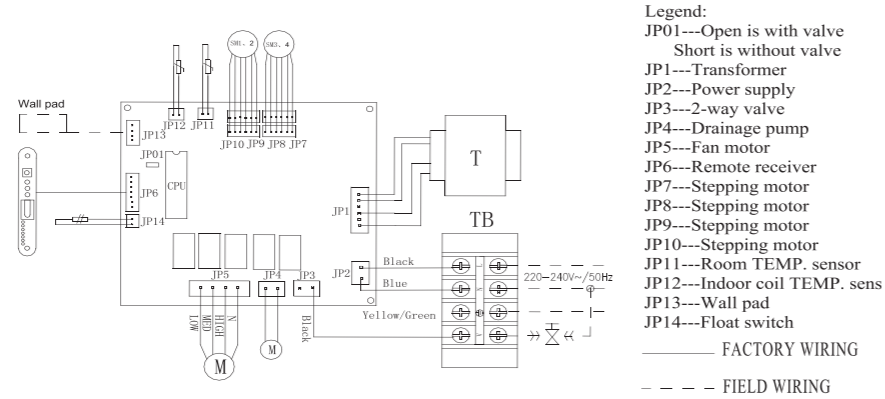
Model: TC



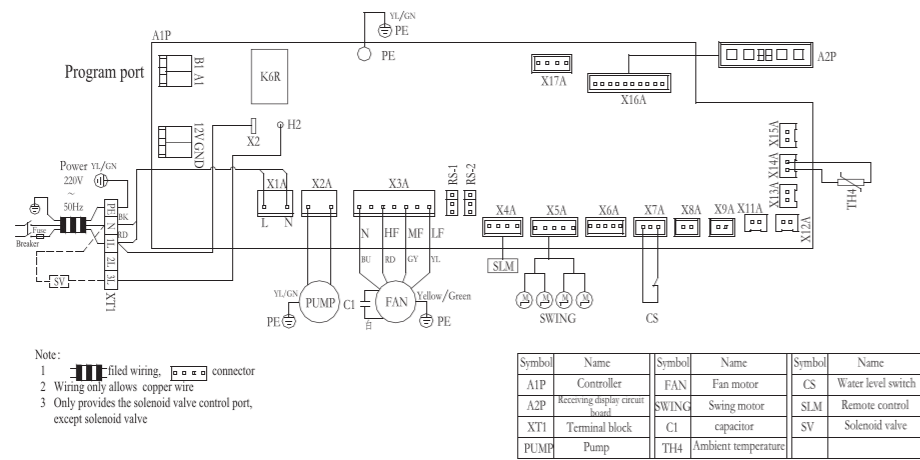
Installation

- Handle the unit with care and never handle it by holding its impeller or the volute. Contact the distributor for repair or replacement if it is found, before installation, that the unit is damaged seriously, the volute or the condensate drain pan is deformed or that the motor or the fan loosens.
- When installing the unit, ensure that it is level or the drain side is lower than the other side by 3 ~ 5mm to make the condensate drain pan function smoothly; make sure that the unit only bears its dead load (free from any external load like air ducts and water pipes); reserve sufficient low-maintenance space at the installation position.
- Install a filter screen at the return air inlet to prevent dust blocking the fins of the heat exchanger and ensure its heat-transfer capacity.
- Adopt the top-in and bottom-out pipe connecting system in which the inlet and outlet pipes and recommended to be flexible joints. Do not use excessive torque when connecting pipes, or the heat exchanger may be damaged. Provide thermal insulation measures for the inlet and outlet pipes Seal the threaded connections with tetrafluoroethylene tapes. Keep the drain pipe at a sufficiently low gradient.
- Before initial operation and cold-heat switchover, open the manual air vent valve installed on the outlet pipe of the unit and close it after all air in the coil pipe and the pipeline is vented, or the heat-transfer effect may be not satisfactory Note that the water temperature for cooling in summer and heating in winter shall not be lower than 6°C and greater than 65°C respectively and that clean and softened water is required.
- Provide a single-phase 220V power supply for the unit, with its fluctuation within ±10%. Carry out wiring against the circuit diagram and do not make any two gears (high, medium and low gears in total) served by the same wire to prevent the motor being burned out. When installing the unit, connect the grounding nut on the housing of the unit with the protective ground system. Never make different models of units share the same three-gear switch, or the motor may also be burned out.
- Clean the heat exchanger period carefully to ensure its satisfactory heat-transfer performance. Clean the filter screen regularly to ensure smooth air return. Never operate the unit for long time unless the filter screen is provided. Fill the coil pipe with water when the unit is shut down for long time, to reduce corrosion of pipes. Take antifreezing measures during installation commissioning and long-time shutdown of the unit in winter, to prevent the coil pipe and water pipe bursting.
- For condensation which may occur on the surface of the unit when chilled water enter the unit but the fan fails to operate, realize interlocking between the electrically operated valve and the temperature detect switch or provide the chilled water bypass; otherwise, manually closing the water inlet valve is the sole solution.
- Make sure that the maintenance of the unit shall be earned out by professional staff who are familiar with the product.

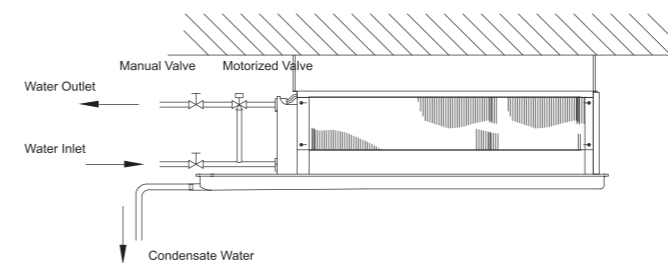
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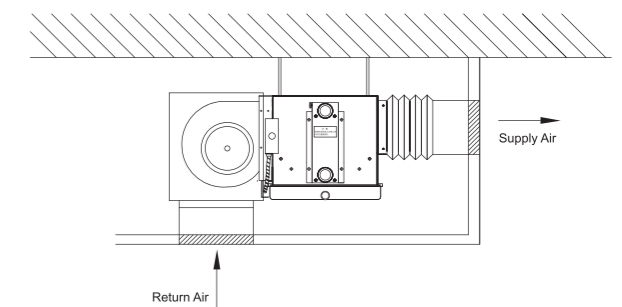
Model: TKM600-1200B4D



Installation Diagram of Water Pipe



Installation Diagram of Air Duct



Maintenance And Service

The air conditioning unit is an equipment and users are suggested to record the daily operation data of the equipment and to conduct regular maintenance and service.

1. Daily maintenance durina the equipment use:

Unit maintenance contents	Standard service cycle			Remarks
	Monthly	Quarterly	Half a year	
1. The inspection shall be inspected to confirm whether the power line (from the distribution cabinet to the unit) is loose or damaged.			★	
2. The inspection shall be conducted to confirm whether the condensate discharge is normal		★	●	Is the installation conducted accord ng to the pipe connection diagram? Is it dirty or blocked? Is the drainage smooth? Is there any overflow, etc. due to this?
3. The inspection shall be conducted to confirm whether there is abnormal noise during the operation of the unit.	★		●	For instance, sharp metal friction sound, whistlers, obvious clash and reasonance, significant electromagnetic noise (disgusting) and other abnormal noise.
4. The inspection shall be conducted to confirm whether it is necessary to clean the air side of heat exchanger (surface dust, sundries, etc.)	★	●		Space among fins are full of dust and there are sundries attached on the inlet side of the coil, etc.

2. We recommend the following maintenance and service methixis for the equipment which is not used for a long time
- ◆ In case that the unit does not operate for a long time or does not operate in winter, the power must be turned off and the water shall be discharged from the water system and the steam coil of the unit.
 - ◆ If necessary, the maintenance and service may be conducted according to the pre-use maintenance and service methods of the equipment.

Note:

1. User service: mandatory inspection -- ● recommended inspection -- ★
2. Vulnerable parts required for the service shall be purchased from TICA Air-Conditioning Co., Ltd.
3. The service methods apply to the cycle during normal use and the arrangement shall be made based on actual conditions in case of use in bad conditions.

Note
