

TICA - Cleaning and Energy Saving



TICA Central Air Conditioner FLOODED CENTRIFUGAL CHILLER

TWCF-E/H/P
FORM NO.B0620G01

Established in 1991

TICA is a professional enterprise specialized in R&D, manufacturing, sales and services of environment cleaning and thermal energy utilization.

TICA is a national high-tech enterprise, a single leading enterprise cultivated by the Ministry of Industry and Information Technology, a national brand cultivation enterprise of the Ministry of Industry and Information Technology, and a vice chairman member of China Refrigeration and Air-conditioning Industry Association. It has a national-recognized enterprise technology center, an enterprise academician workstation, and a post-doctoral research workstation. Its projects cover Beijing Bird's Nest Stadium, Water Cube, Wukesong Indoor Stadium, PetroChina, Sinopec, State Grid, Nanjing Panda, Hangzhou Xiaoshan International Airport, Hainan Airlines Group, Shangri-La Hotel, Manila Ocean Park, Abu Dhabi Al Muneera, SM City in Philippines and Unilever, etc.

TICA is also the outstanding provider of central air conditioners for China's subway networks and has successfully served nearly 60 key subway lines in major cities such as Beijing, Shanghai, Guangzhou, Shenzhen, Chengdu, Suzhou, Hangzhou and Tianjin. TICA is a professional supplier and service provider in China that specializes in system integration of clean environment. While for microelectronics, hospital operating rooms, biopharmaceutical industry and other professional purification areas, our market share has achieved over 40% in each.

TICA Quality For IAQ

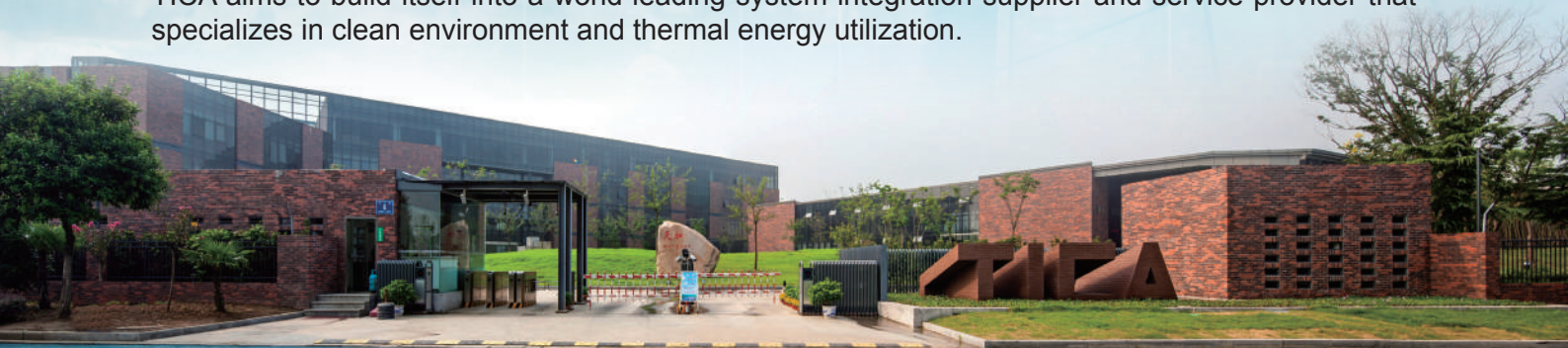
TICA focuses on indoor air quality (IAQ) in clean environments. Product lines include return air purifiers, heat recovery ventilators, fresh air purifiers, air purifiers, as well as the clean air handling units and digital variable-capacity air handling units used in the professional purification field. Regarding core technology, TICA established an ISO class 1 super-clean environment integration system and won the first prize of CMIST.

In the field of thermal energy utilization, TICA's product lines include modular chillers, VRF units, screw chillers, centrifugal chillers, and ORC low-temperature waste heat power generation systems. In 2015, TICA and United Technologies Corporation (UTC) established a global strategic joint venture cooperation relationship and acquired PureCycle, an ORC low-temperature power generation company owned by Pratt & Whitney under UTC. TICA obtained PureCycle trademarks and more than 100 patents and national copyrights. TICA's efficient centrifugal chillers, water-cooled screw chillers, and air-cooled screw chillers are manufactured with the technical license of Carrier under UTC.

TICA is characterized by excellent system integration capability. In the application of "Efficient Refrigeration System of Underground Railway Station", the integrated COP of the refrigeration room amounts to 6.0, and the research achievement reaches the international advanced level. In 2018, TICA merged and acquired an OFC central air conditioning enterprise **SMARTD**. TICA's excellent system integration capability and the **SMARTD** world-class OFC water chillers help increase the integrated COP of the efficient equipment room to 6.7 to 7.0.

TICA---We're striving.

TICA aims to build itself into a world-leading system integration supplier and service provider that specializes in clean environment and thermal energy utilization.



CONTENTS

Overview	2
Nomenclature	3
Features	4
Specifications	7
Dimensions	10
Base Installation	13

TICA owns five production sites in Nanjing, Tianjin, Guangzhou, Chengdu and Kuala Lumpur, and a network of over 70 sales and branches around the world.

Its Nanjing HQ base received 3-star certification for national No. 001 green industrial construction.



Malaysia Base



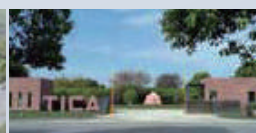
Nanjing Headquarter



Tianjin Base



Guangzhou Base



Chengdu Base

TICA flooded centrifugal chillers perfectly combine applications of efficient parts with internationally leading technologies. Energy efficiency of the whole series chillers reach the national standard of energy-saving products. Chillers can be widely used in various places such as large public buildings, hotels, hospitals, stadiums, and industrial sites.



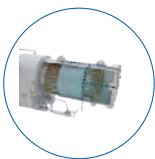
Centrifugal compressor

The aerospace pneumatic technology helps completely increase full load and partial load efficiencies.



Two-stage Impeller

The compression ratio is higher, while the operating range is wider. Two-stage impellers can reduce speed of the compressor, thus providing higher reliability.



Closed Motor

The motor is cooled by spraying refrigerant liquid. Therefore, motor temperature is low, reliability is high, and service life increases.



Condenser

An air discharge baffle is installed above, while a subcooler is installed below.



Efficient Flooded Evaporator

A suction baffle is installed above, while a liquid equalizer is installed below.



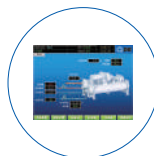
Economizer

The unique two-stage Enhanced Vapour Injection (EVI) technology reduces power consumption and increases efficiency.



Control Cabinet

It controls automatic operation of the unit.

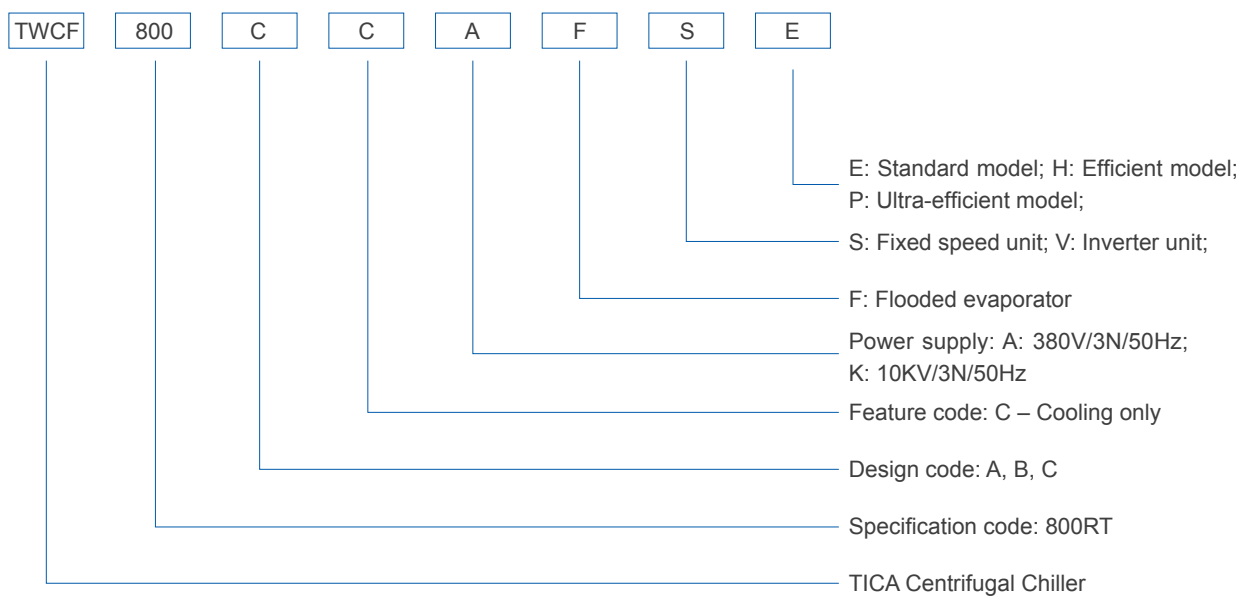


Color Touch Screen

10.4" color touch screen, which displays information in Chinese, and is easy to use.

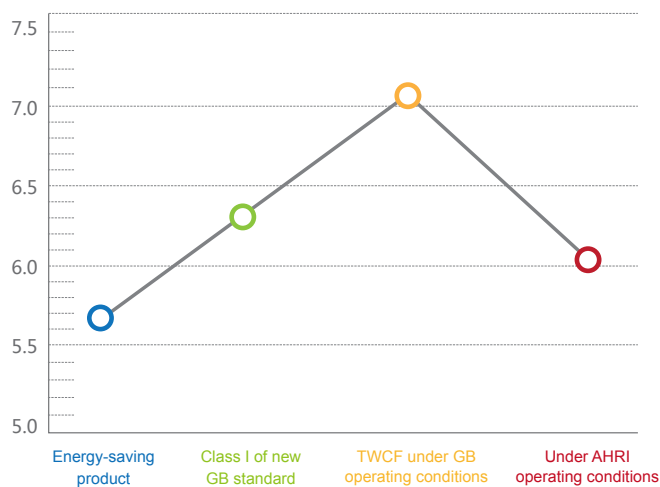
Nomenclature

TICA FLOODED CENTRIFUGAL CHILLER



High Efficiency & Energy Saving

With two-stage compression and EVI technology, system efficiency is around 6% higher than a single-level compression. With efficient economizer, efficient flooded evaporator, and two-stage throttling, energy efficiency increases fully.



Low Carbon Footprint

- The unit uses the eco-friendly refrigerant R134a. The chlorine-free refrigerant does not harm the ozone layer.
- The R134a is non-toxic and non-combustible, which is the best choice for the refrigerant of large water chillers.



Stable and Reliable

- The application of two-stage compression increases compression ratio and widens operating range.
- The unit uses high-performance and industry-leading gear, which reaches military level and Grade-5 precision of national standard.
- IGV, blade-free diffuser and efficient interlocking vapour injection efficiently prevent surge.
- Level-F efficient fluorine-resistant closed motor and multi-channel liquid spray cooling enhance security and reliability.
- The built-in oil pump reduces possibility of leakage and enhances reliability of the unit.



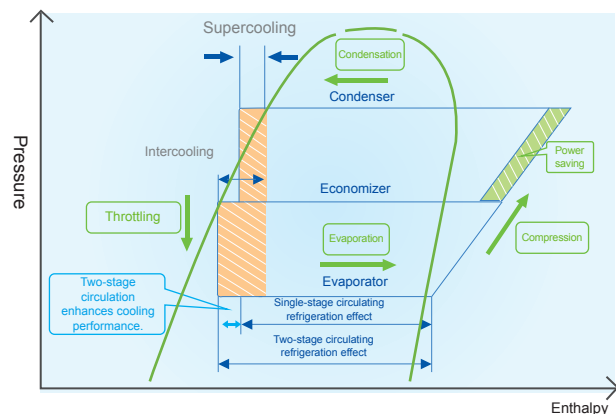
Quiet Running

The best configurations of speed and impeller's diameter, and the air flow channel optimized by CFD reduce noises of flowing. By using two-stage compression, the unit reduces speed, especially generating low noise in high-frequency areas. With reasonable vibration reduction facilities, units can be better applied to schools, hospitals, and office buildings that raise higher requirements for noise.



Cutting-edge Technology

The unique double-level EVI compression technology increases heat absorption capability, reduces power consumption of the compressor and increases efficiency by 6% in comparison to single-stage compression system. Two-stage impellers can reduce speed of the compressor and increase reliability.



Schematic diagram of two-stage EVI compression technology

Real-time Monitoring and Multi-protection

The control system of 10.4" color touch screen can clearly display necessary information on unit operation on the water side/refrigerant side/lubricant side/electric side. The unit can record the latest 10 alarms and provide self-diagnosis information, thus helping customers analyze fault causes and rapidly rectify faults. The control system is configured with multi-level password protection to prevent operation or parameter change without authorization. The unit can be set to be powered on/off at the specified time, thus enabling unattended operation in an equipment room.

Multi-startups are available for users.		
Power Supply	380V ~ 415V - 50Hz	3kV ~ 10kV - 50Hz
Recommended Configurations	Closed star delta starter	Direct starter
Optional Configurations	Solid-state soft starter/ VFD starter	Primary-side series reactance starter/ Auto-coupling reduced voltage starter/ Solid-state soft starter/ VFD starter

Control system of the unit adjusts the openness of the inlet guide vane according to the outlet temperature on the use side. The loading and unloading processes are controlled by the microcomputer control program according to the specific requirements of buildings. To guarantee reliable operation of the unit, the unit features the following self-protection functions:

Startup cabinet failure	Chilled water break protection	High temperature of motor	Low evaporation pressure
High condensation pressure	High bearing temperature	Anti-freezing protection	High current of master unit
Low oil sink temperature	Low pressure difference for oil supply	Preventing repeated startup of the unit	Compressor surge protection
Sensor failure	Oil pump overload		

Configuration Items

Item	Standard Configuration	Optional Configuration
Heat exchanger process	2 processes	1 or 3 processes
Connection	< DN400 clamp connection ≥ DN400 flange connection	≤ DN400 Paired flange connection can be selected.
Water-side pressure	1.0MPa	1.6/2.0MPa
Damping device	Rubber shock-absorbing cushion	Spring shock absorber
Heat recovery	N/A	Heat recovery condenser
Insulation	19mm rubber and plastic moisturizing cotton	38mm rubber and plastic moisturizing cotton
Communication protocol	Modbus-RTU.RS485	Profibus-DPR.RS485

Optional Inverter Options

Increase partial load efficiency, greatly increase IPLV of the unit, and guarantee cost-effective operation.

Lower startup current of the unit and reduce the impact on the power grid.

Enable rapid startup and reduce operating condition fluctuation on the use side.

The TWCF unit can be stably applied to diversified systems, such as large temperature difference systems, primary pump variable flow systems, high cooling water temperature systems, water (ground) source heat pumps, and ice storage systems. For details, consult a local branch of TICA.

Specifications

TICA FLOODED CENTRIFUGAL CHILLER

Technical Specifications - E Series

Unit model TWCF-CCAFSE		300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	
Cooling capacity	KW	1055	1231	1406	1582	1758	1934	2110	2285	2461	2637	2813	2989	3164	3340	3516	3867	
	Tons	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	
Power	KW	196.4	225.9	254.9	284.5	313.0	343.2	374.8	405.2	437.9	468.5	498.9	531.4	561.0	591.8	613.6	679.9	
Performance in cooling conditions		5.372	5.449	5.516	5.561	5.617	5.635	5.630	5.639	5.620	5.629	5.638	5.625	5.640	5.644	5.730	5.689	
Cooling capacity regulation range		10%~100%																
Power supply		V-P-Hz	380-3-50															
Cold water	Water inlet/ outlet Temp	°C	The inlet cold water temperature is 12°C, and outlet water temperature is 7°C.															
	Water flow	m³/h	181	211	241	271	302	332	362	392	422	453	483	513	543	573	603	664
	Resistance on water side	kPa	59.8	58.6	58.4	59.7	60.8	61.7	59.8	55.9	56.9	57.7	58.5	58.8	58.0	58.7	57.7	67.0
Design pressure on water side		MPa	1.0															
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN300	DN300	DN300	DN300	DN350	
Cooling water	Water inlet/ outlet Temp	°C	Inlet cooling water temperature is 32°C, and outlet water temperature is 37°C.															
	Water flow	m³/h	217	252	288	323	359	395	431	466	502	538	574	610	645	681	716	788
	Resistance on water side	kPa	64.3	65.0	64.5	64.9	60.0	60.3	59.7	62.9	61.3	61.7	62.4	64.8	66.5	68.1	67.8	70.4
Design pressure on water side		MPa	1.0															
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN250	DN250	DN250	DN300	DN300	DN300	DN300	DN350	
Lifting weight		kg	6411	6533	6659	6778	7641	7861	8076	9235	9338	9455	9557	10196	10398	10601	10801	14606
Operating weight		kg	7402	7596	7810	8001	9209	9496	9791	11110	11316	11530	11681	12509	12836	13106	13396	18024
R134a charge amount		kg	405	412	436	449	576	581	588	646	680	717	708	762	829	844	869	1037

Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please confirm the latest parameters with a local branch of TICA.

Unit model TWCF-CCA(K)FSE		1200	1300	1400	1500	1600	1700	1800	1900	
Cooling capacity		KW	4219	4571	4922	5274	5626	5977	6329	6680
		Tons	1200	1300	1400	1500	1600	1700	1800	1900
Power		KW	738	796	854	905	985	1048	1104	1163
Performance in cooling conditions			5.717	5.740	5.762	5.828	5.712	5.703	5.731	5.742
Cooling capacity regulation range		10%~100%								
Power supply		V-P-Hz	380-3-50	10000-3-50						
Cold water	Water inlet/ outlet Temp	℃	The inlet cold water temperature is 12℃, and outlet water temperature is 7℃.							
	Water flow	m³/h	724	784	845	905	966	1026	1086	1146
	Resistance on water side	kPa	66.6	66.3	64.8	66.9	67.7	69.5	70.1	68.7
Design pressure on water side		MPa	1.0							
Process Qty			2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Cooling water	Water inlet/ outlet Temp	℃	Inlet cooling water temperature is 32℃, and outlet water temperature is 37℃.							
	Water flow	m³/h	859	930	1001	1071	1146	1218	1288	1359
	Resistance on water side	kPa	68.5	69.0	78.5	71.9	73.1	74.2	81.9	72.7
Design pressure on water side		MPa	1.0							
Process Qty			2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Lifting weight		kg	14809	15059	15632	17302	17989	18153	18253	21059
Operating weight		kg	18465	18920	19630	21900	22760	23089	23296	27761
R134a charge amount		kq	1109	1167	1226	1320	1367	1414	1462	2028

Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please confirm the latest parameters with a local branch of TICA.

Technical Specifications - H Series

Unit model TWCF-CCAFSH		300	350	400	450	500	550	600	650	700	750	800	850
Cooling capacity	KW	1055	1231	1406	1582	1758	1934	2110	2285	2461	2637	2813	2989
	Tons	300	350	400	450	500	550	600	650	700	750	800	850
Power	KW	187.2	215.0	242.6	270.8	297.3	327.2	357.7	381.7	413.2	446.6	475.5	505.8
Performance in cooling conditions		5.636	5.726	5.796	5.842	5.913	5.911	5.899	5.986	5.956	5.905	5.916	5.910
Cooling capacity regulation range		10%~100%											
Power supply		V-P-Hz 380-3-50											
Cold water	Water inlet/outlet Temp	°C	The inlet cold water temperature is 12°C, and outlet water temperature is 7°C.										
	Water flow	m³/h	181	211	241	271	302	332	362	392	422	453	513
	Resistance on water side	kPa	59.8	58.6	58.4	59.7	60.8	61.7	59.8	55.9	56.9	57.7	58.5
	Design pressure on water side	MPa	1.0										
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN300
Cooling water	Water inlet/outlet Temp	°C	Inlet cooling water temperature is 32°C, and outlet water temperature is 37°C.										
	Water flow	m³/h	215	251	286	321	356	392	428	462	498	534	606
	Resistance on water side	kPa	64.3	65.0	64.5	64.9	60.0	60.3	59.7	63.8	63.1	61.7	62.4
	Design pressure on water side	MPa	1.0										
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN250	DN250	DN250	DN300
Lifting weight	kg	6635	6773	6899	7018	7929	8141	8361	8650	8825	9743	9860	10518
Operating weight	kg	7626	7836	8050	8241	9497	9776	10076	10525	10803	11818	11984	12831
R134a charge amount	kg	454	461	485	498	625	630	637	695	729	766	757	823

Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please confirm the latest parameters with a local branch of TICA.

Unit model TWCF-CCA(K)FSH			900	950	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900
Cooling capacity		KW	3164	3340	3516	3867	4219	4571	4922	5274	5626	5977	6329	6680
		Tons	900	950	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900
Power		KW	534.0	564.7	585.9	648.5	703.7	760.4	814.5	864.0	940.5	1000	1054	1111
Performance in cooling conditions			5.925	5.915	6.001	5.965	5.996	6.011	6.043	6.104	5.982	5.975	6.006	6.014
Cooling capacity regulation range			10%~100%											
Power supply		V-P-Hz	380-3-50						10000-3-50					
Cold water	Water inlet/outlet Temp	℃	The inlet cold water temperature is 12℃, and outlet water temperature is 7℃.											
	Water flow	m³/h	543	573	603	664	724	784	845	905	966	1026	1086	1146
	Resistance on water side	kPa	58.0	58.7	57.7	67.0	66.6	66.3	64.8	66.9	67.7	69.5	70.1	68.7
	Design pressure on water side	MPa	1.0											
Process Qty			2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN300	DN300	DN300	DN350	DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Cooling water	Water inlet/outlet Temp	℃	Inlet cooling water temperature is 32℃, and outlet water temperature is 37℃.											
	Water flow	m³/h	641	677	711	783	853	924	994	1064	1138	1209	1279	1350
	Resistance on water side	kPa	66.5	68.1	67.8	70.4	68.5	69	78.5	71.9	73.1	74.2	81.9	72.7
	Design pressure on water side	MPa	1.0											
Process Qty			2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN300	DN300	DN300	DN350	DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Lifting weight		kg	10736	10938	11138	14998	15218	15471	16027	17872	18540	18709	18823	21727
Operating weight		kg	13174	13443	13733	18416	18874	19332	20025	22470	23311	23645	23866	28429
R134a charge amount		kg	890	905	930	1123	1195	1253	1312	1406	1453	1500	1548	2163

Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please confirm the latest parameters with a local branch of TICA.

Technical Specifications - P Series

Unit model TWCF-CCAFSP		300	350	400	450	500	550	600	650	700	750	800	850
Cooling capacity	KW	1055	1231	1406	1582	1758	1934	2110	2285	2461	2637	2813	2989
	Tons	300	350	400	450	500	550	600	650	700	750	800	850
Power	KW	180.1	203.7	229.6	259.3	281.9	309.2	338.0	363.2	394.1	422.3	449.3	477.1
Performance in cooling conditions		5.858	6.043	6.124	6.101	6.236	6.255	6.243	6.291	6.245	6.244	6.261	6.265
Cooling capacity regulation range		10%~100%											
Power supply		V-P-Hz 380-3-50											
Cold water	Water inlet/outlet Temp	°C	The inlet cold water temperature is 12°C, and outlet water temperature is 7°C.										
	Water flow	m³/h	181	211	241	271	302	332	362	392	422	453	483
	Resistance on water side	kPa	68.1	66.7	66.5	68.0	69.3	70.3	68.1	63.7	64.8	65.7	66.6
Design pressure on water side		MPa	1.0										
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN300
Cooling water	Water inlet/outlet Temp	°C	Inlet cooling water temperature is 32°C, and outlet water temperature is 37°C.										
	Water flow	m³/h	214	249	283	319	353	389	424	459	495	530	565
	Resistance on water side	kPa	71.9	72.6	72.1	72.5	67.1	67.3	66.7	71.2	69.5	68.9	70.6
Design pressure on water side		MPa	1.0										
Process Qty		2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter		DN200	DN200	DN200	DN200	DN250	DN250	DN250	DN250	DN250	DN250	DN250	DN300
Lifting weight		kg	6885	7001	7123	7249	8279	8491	8711	8950	9100	10140	10966
Operating weight		kg	7997	8204	8431	8644	10007	10301	10626	11055	11308	12449	13552
R134a charge amount		kg	522	538	571	590	695	706	727	807	832	865	944

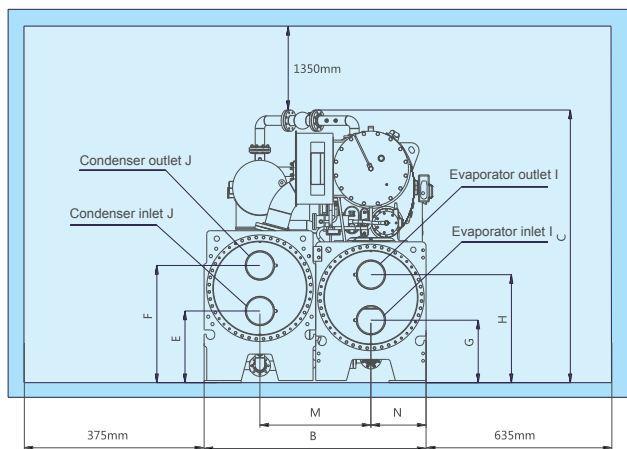
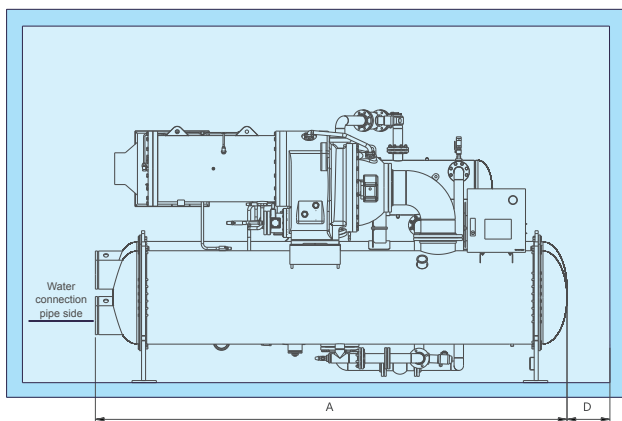
Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please confirm the latest parameters with a local branch of TICA.

Unit model TWCF-CCA(K)FSP		900	950	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	
Cooling capacity		KW	3164	3340	3516	3868	4219	4571	4922	5274	5626	5977	6329	6680
		Tons	900	950	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900
Power		KW	507.7	538.4	561.4	617.9	672.7	721.5	784.6	823.1	885.1	940.5	991.8	1044
Performance in cooling conditions			6.232	6.204	6.263	6.260	6.272	6.335	6.273	6.408	6.356	6.355	6.381	6.398
Cooling capacity regulation range			10%~100%											
Power supply		V-P-Hz	380-3-50					10000-3-50						
Cold water	Water inlet/outlet Temp	℃	The inlet cold water temperature is 12℃, and outlet water temperature is 7℃.											
	Water flow	m³/h	543	573	603	664	724	784	845	905	966	966	1086	1146
	Resistance on water side	kPa	66.1	66.8	65.7	76.5	76.1	75.7	74.0	76.4	77.3	77.3	80.1	78.5
Design pressure on water side		MPa	1.0											
Process Qty			2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN300	DN300	DN300	DN350	DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Cooling water	Water inlet/outlet Temp	℃	Inlet cooling water temperature is 32℃, and outlet water temperature is 37℃.											
	Water flow	m³/h	636	672	707	777	848	917	989	1057	1128	1199	1269	1338
	Resistance on water side	kPa	74.3	76.1	76.8	79.0	76.7	77.4	88.0	80.6	81.9	83.1	91.8	81.5
Design pressure on water side		MPa	1.0											
Process Qty			2	2	2	2	2	2	2	2	2	2	2	2
Water inlet/outlet pipe diameter			DN300	DN300	DN300	DN350	DN350	DN350	DN350	DN400	DN400	DN400	DN400	DN450
Lifting weight		kg	11168	11386	11588	15463	15948	16218	16321	18755	19402	19540	19809	22877
Operating weight		kg	13879	14177	14486	19265	20010	20531	20779	23852	24702	24953	25425	30285
R134a charge amount		kg	1003	1025	1058	1276	1346	1430	1485	1593	1650	1707	1765	2475

Notes:

1. Data in the table is figured out based on the following operating conditions: air-conditioning conditions: The inlet/outlet cold water temperature is 12/7°C. The inlet/outlet cooling water temperature is 32/37°C. All the preceding models are AHRI certified.
2. The preceding models are models of some units. Based on customers' requirements for cooling capacity, operating conditions, and efficiency, TICA can select models for users by using a computer, thus meeting customers' needs to the maximum extent. For details, contact a local branch of TICA.
3. Due to TICA's constant research and innovation on products, please the latest parameters with a local branch of TICA.



Unit model E series (RT)	Length "A"	Width "B"	Height "C"	Tube drawing length "D"	E	F	G	H	M	N	Condenser water pipe caliber J	Evaporator water pipe caliber J	Base height	Base weight
	mm													kg
300	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
350	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
400	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
450	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
500	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
550	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
600	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
650	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
700	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
750	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
800	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
850	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
900	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
950	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
1000	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
1100	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1200	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1300	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1400	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1500	5134	2800	2959	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1600	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1700	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1800	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1900	5333	3100	3170	4300	905	1605	710	1410	1550	800	DN450	DN450	180	500

Note: The preceding dimensions are based on standard units. Processes of the evaporator and condenser are 2, and water-side pressure of them is 1.0MPa. The water connection pipe is on the motor side. The inlet and outlet directions follow the rule of water inlet at bottom and outlet at top. Additional non-standard requirements may cause dimension change. For details, contact a local branch of TICA.



TICA Flooded Centrifugal Chiller

Unit model H series (RT)	Length "A"	Width "B"	Height "C"	Tube drawing length "D"	E	F	G	H	M	N	Condenser water pipe caliber J	Evaporator water pipe caliber J	Base height	Base weight
	mm													kg
300	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
350	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
400	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
450	4341	1600	1980	3800	580	950	420	790	800	400	DN200	DN200	180	300
500	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
550	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
600	4404	1879	2100	3800	595	1005	480	850	940	464	DN250	DN200	180	320
650	4431	1994	2310	3800	665	1095	515	945	997	489	DN250	DN250	180	325
700	4431	1994	2310	3800	665	1095	515	945	997	489	DN250	DN250	180	325
750	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
800	4431	1994	2470	3800	665	1095	515	945	997	489	DN250	DN250	180	325
850	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
900	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
950	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
1000	4464	2220	2510	3800	672	1122	530	980	1110	583	DN300	DN300	180	330
1100	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1200	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1300	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1400	5066	2426	2770	4300	707	1257	595	1145	1213	610	DN350	DN350	180	454
1500	5134	2800	2959	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1600	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1700	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1800	5134	2800	2984	4300	764	1364	685	1285	1400	700	DN400	DN400	180	475
1900	5333	3300	3170	4300	905	1605	710	1410	1550	800	DN450	DN450	180	500

Note: The preceding dimensions are based on standard units. Processes of the evaporator and condenser are 2, and water-side pressure of them is 1.0MPa. The water connection pipe is on the motor side. The inlet and outlet directions follow the rule of water inlet at bottom and outlet at top. Additional non-standard requirements may cause dimension change. For details, contact a local branch of TICA.

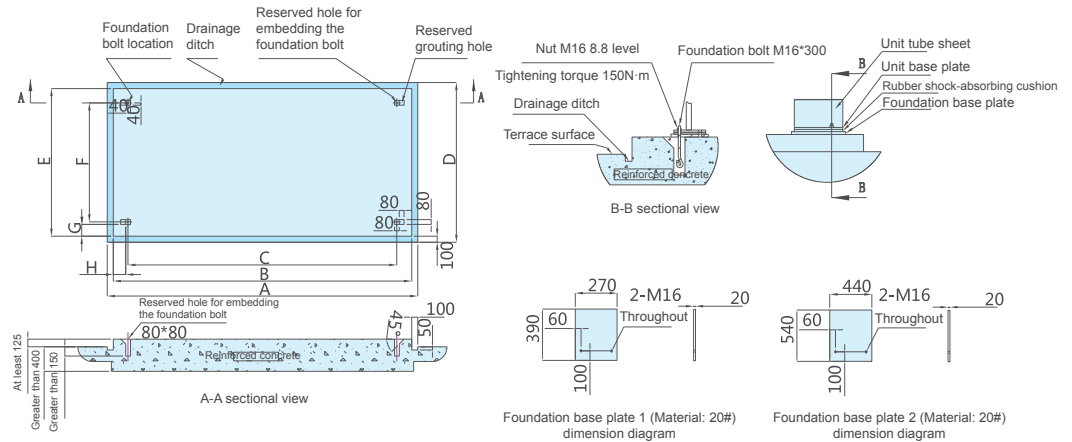
Unit model P series (RT)	Length "A"	Width "B"	Height "C"	Tube drawing length "D"	E	F	G	H	M	N	Condenser water pipe caliber J	Evaporator water pipe caliber J	Base height	Base weight
	mm													kg
300	4862	1600	1980	4300	580	950	420	790	800	400	DN200	DN200	180	335
350	4862	1600	1980	4300	580	950	420	790	800	400	DN200	DN200	180	335
400	4862	1600	1980	4300	580	950	420	790	800	400	DN200	DN200	180	335
450	4862	1600	1980	4300	580	950	420	790	800	400	DN200	DN200	180	335
500	4925	1879	2100	4300	595	1005	480	850	940	464	DN250	DN200	180	350
550	4925	1879	2100	4300	595	1005	480	850	940	464	DN250	DN200	180	350
600	4925	1879	2100	4300	595	1005	480	850	940	464	DN250	DN200	180	350
650	4952	1994	2310	4300	665	1095	515	945	997	489	DN250	DN250	180	355
700	4952	1994	2310	4300	665	1095	515	945	997	489	DN250	DN250	180	355
750	4952	1994	2470	4300	665	1095	515	945	997	489	DN250	DN250	180	355
800	4952	1994	2470	4300	665	1095	515	945	997	489	DN250	DN250	180	355
850	4985	2220	2510	4300	672	1122	530	980	1110	583	DN300	DN300	180	360
900	4985	2220	2510	4300	672	1122	530	980	1110	583	DN300	DN300	180	360
950	4985	2220	2510	4300	672	1122	530	980	1110	583	DN300	DN300	180	360
1000	4985	2220	2510	4300	672	1122	530	980	1110	583	DN300	DN300	180	360
1100	5676	2426	2770	4900	707	1257	595	1145	1213	610	DN350	DN350	180	495
1200	5676	2426	2770	4900	707	1257	595	1145	1213	610	DN350	DN350	180	495
1300	5676	2426	2770	4900	707	1257	595	1145	1213	610	DN350	DN350	180	495
1400	5676	2426	2770	4900	707	1257	595	1145	1213	610	DN350	DN350	180	495
1500	5744	2800	2959	4900	764	1364	685	1285	1400	700	DN400	DN400	180	516
1600	5744	2800	2984	4900	764	1364	685	1285	1400	700	DN400	DN400	180	516
1700	5744	2800	2984	4900	764	1364	685	1285	1400	700	DN400	DN400	180	516
1800	5744	2800	2984	4900	764	1364	685	1285	1400	700	DN400	DN400	180	516
1900	5943	3300	3170	4900	905	1605	710	1410	1550	800	DN450	DN450	180	540

Note: The preceding dimensions are based on standard units. Processes of the evaporator and condenser are 2, and water-side pressure of them is 1.0MPa. The water connection pipe is on the motor side. The inlet and outlet directions follow the rule of water inlet at bottom and outlet at top. Additional non-standard requirements may cause dimension change. For details, contact a local branch of TICA.

TICA FLOODED CENTRIFUGAL CHILLER

Base Installation

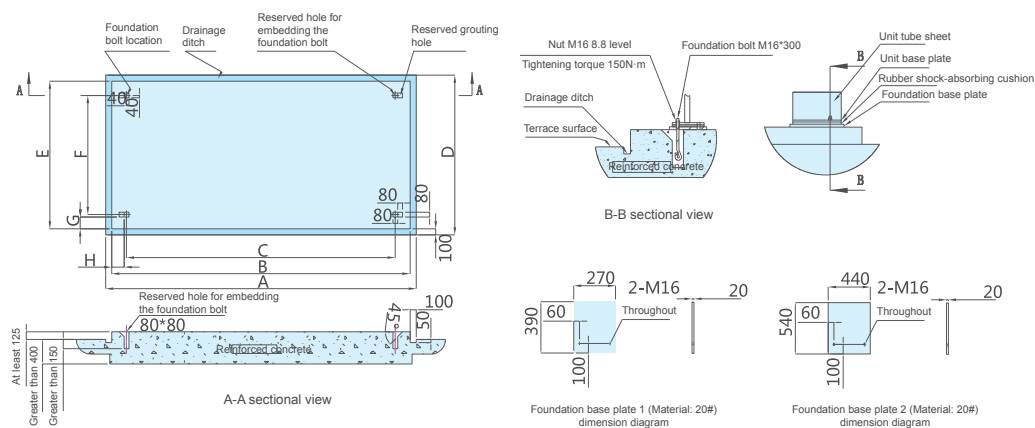
Foundation drawing



Unit model E/H series (RT)	A	B	C	D	E	F	G	H
	mm							
300	4726	4526	3846	2100	1900	1440	190	300
350	4726	4526	3846	2100	1900	1440	190	300
400	4726	4526	3846	2100	1900	1440	190	300
450	4726	4526	3846	2100	1900	1440	190	300
500	4726	4526	3846	2379	2179	1719	190	300
550	4726	4526	3846	2379	2179	1719	190	300
600	4726	4526	3846	2379	2179	1719	190	300
650	4726	4526	3846	2494	2294	1834	190	300
700	4726	4526	3846	2494	2294	1834	190	300
750	4726	4526	3846	2494	2294	1834	190	300
800	4726	4526	3846	2494	2294	1834	190	300
850	4726	4526	3846	2720	2520	2060	190	300
900	4726	4526	3846	2720	2520	2060	190	300
950	4726	4526	3846	2720	2520	2060	190	300
1000	4726	4526	3846	2720	2520	2060	190	300
1100	5407	5207	4527	2926	2726	2266	190	300
1200	5407	5207	4527	2926	2726	2266	190	300
1300	5407	5207	4527	2926	2726	2266	190	300
1400	5407	5207	4527	2926	2726	2266	190	300
1500	5407	5207	4527	3300	3100	2640	190	300
1600	5407	5207	4527	3300	3100	2640	190	300
1700	5407	5207	4527	3300	3100	2640	190	300
1800	5407	5207	4527	3300	3100	2640	190	300
1900	5407	5207	4527	3600	3400	2940	190	300

Notes:

- Foundation bolts are not needed, because vibration of this unit is small. Units can be directly placed on the base.
- Each unit requires four M16*300 foundation bolts and has four base plates. On each unit base plate, there is one foundation bolt and one foundation base plate, which are provided by users.
- The units whose nominal cooling capacity is less than 1000RT (excluding 1000) use foundation base plate 1, while the units whose nominal cooling capacity is 1000RT and above use foundation base plate 2.

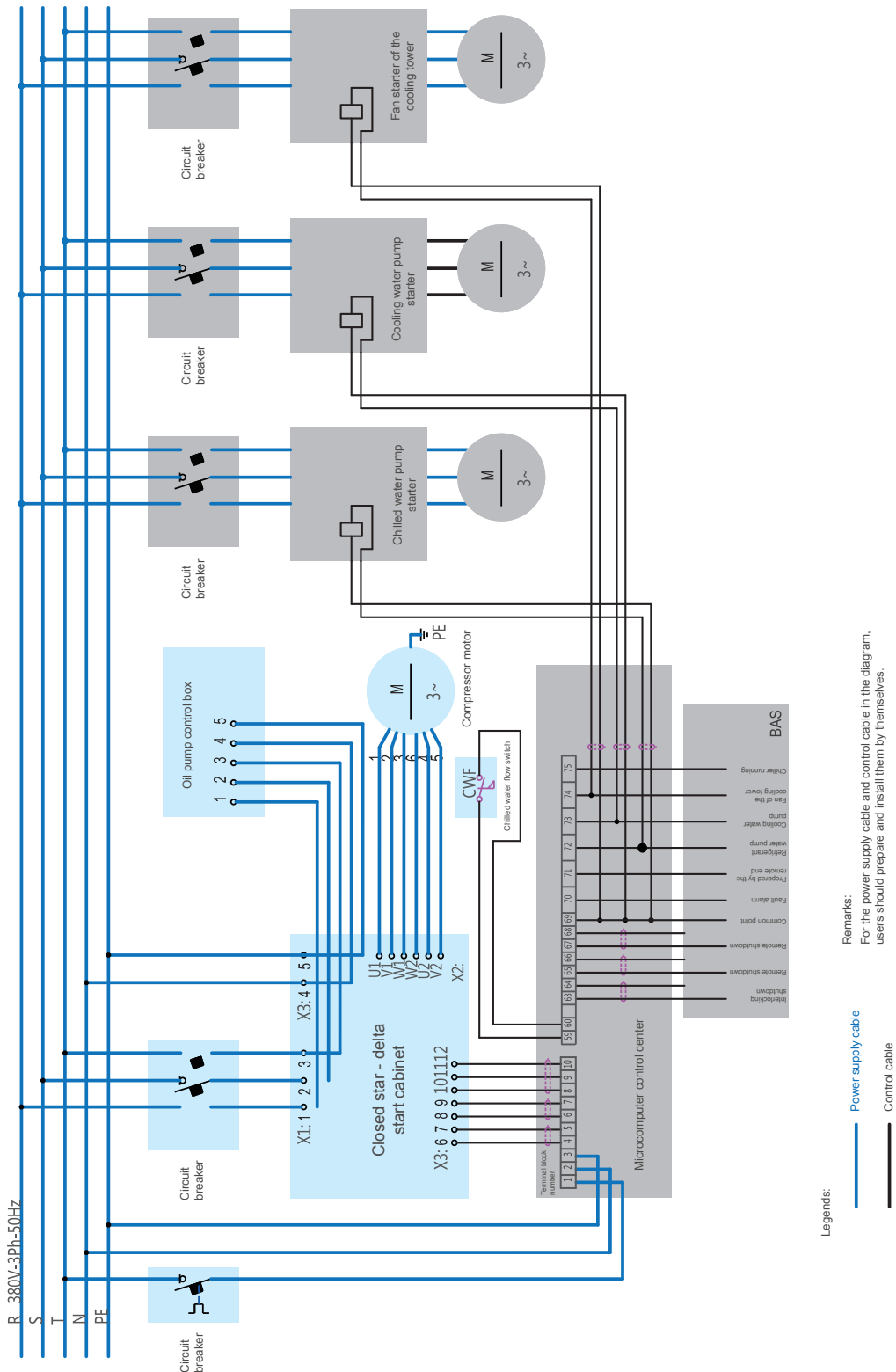


Unit model P series (RT)	A	B	C	D	E	F	G	H
	mm							
300	5247	5047	4367	2100	1900	1440	190	300
350	5247	5047	4367	2100	1900	1440	190	300
400	5247	5047	4367	2100	1900	1440	190	300
450	5247	5047	4367	2100	1900	1440	190	300
500	5247	5047	4367	2379	2179	1719	190	300
550	5247	5047	4367	2379	2179	1719	190	300
600	5247	5047	4367	2379	2179	1719	190	300
650	5247	5047	4367	2494	2294	1834	190	300
700	5247	5047	4367	2494	2294	1834	190	300
750	5247	5047	4367	2494	2294	1834	190	300
800	5247	5047	4367	2494	2294	1834	190	300
850	5247	5047	4367	2720	2520	2060	190	300
900	5247	5047	4367	2720	2520	2060	190	300
950	5247	5047	4367	2720	2520	2060	190	300
1000	5247	5047	4367	2720	2520	2060	190	300
1100	6017	5817	5137	2926	2726	2266	190	300
1200	6017	5817	5137	2926	2726	2266	190	300
1300	6017	5817	5137	2926	2726	2266	190	300
1400	6017	5817	5137	2926	2726	2266	190	300
1500	6017	5817	5137	3300	3100	2640	190	300
1600	6017	5817	5137	3300	3100	2640	190	300
1700	6017	5817	5137	3300	3100	2640	190	300
1800	6017	5817	5137	3300	3100	2640	190	300
1900	6017	5817	5137	3600	3400	2940	190	300

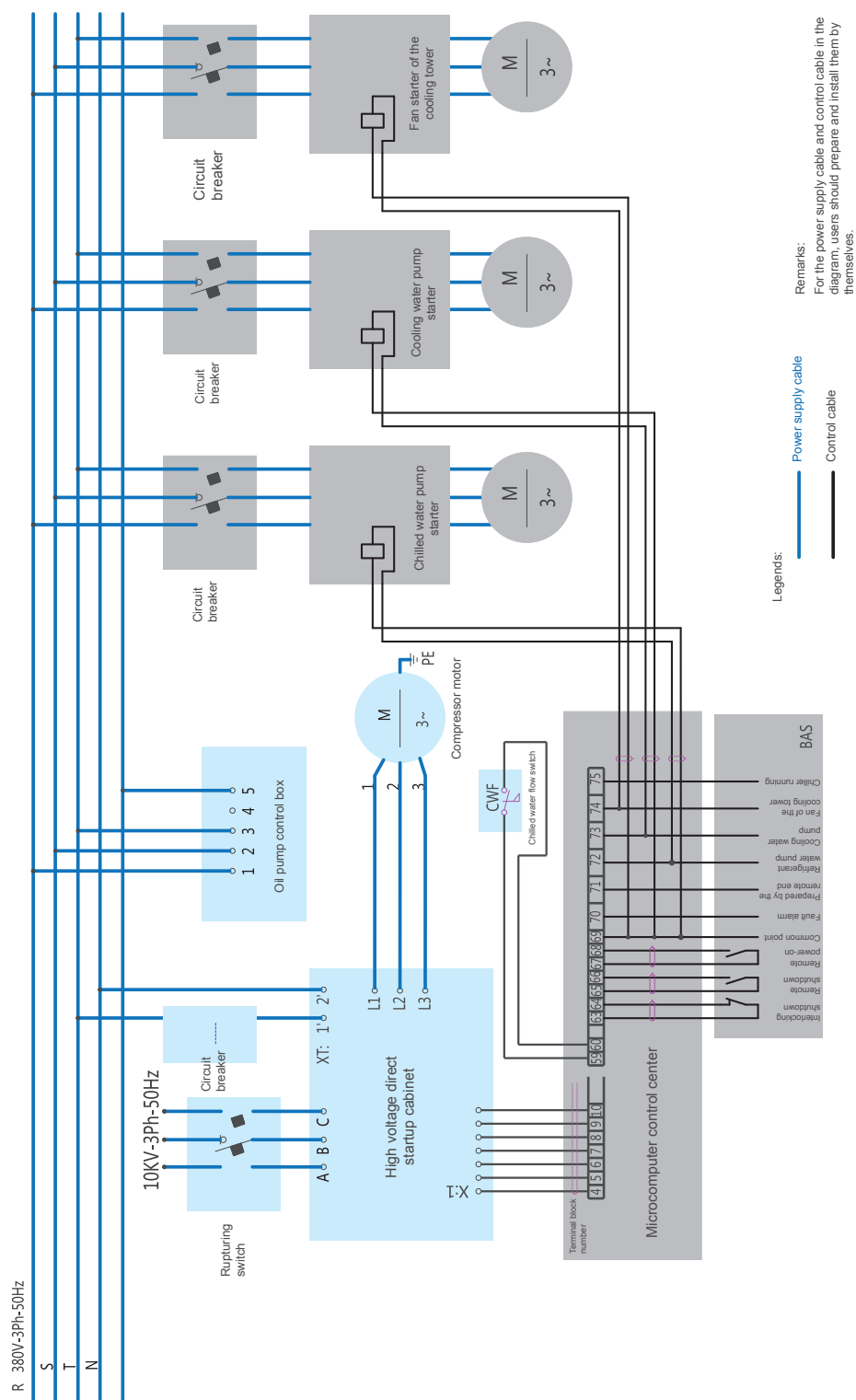
Notes:

1. Foundation bolts are not needed, because vibration of this unit is small. Units can be directly placed on the base.
2. Each unit requires four M16*300 foundation bolts and has four base plates. On each unit base plate, there is one foundation bolt and one foundation base plate, which are provided by users.
3. The units whose nominal cooling capacity is less than 1000RT (excluding 1000) use foundation base plate 1, while the units whose nominal cooling capacity is 1000RT and above use foundation base plate 2.

On-site typical wiring diagram (low-pressure star-delta startup cabinet)



On-site typical wiring diagram (high-pressure direct startup cabinet)





TICA Flooded Centrifugal Chiller

[illegible]



EUROCON Airconditioning (Pvt.) Ltd.

HEAD OFFICE

Suit # 309, 3rd Floor, KATI Building,
Near Brookes Round About,
Korangi Industrial Area, Karachi, Pakistan.

E-mail: info@eurocon.com.pk

[www. eurocon.com.pk](http://www.eurocon.com.pk)

Tel: 92-21-351 10120