Version: CAT_WCFX-R_C-JV_09C
Substitute: CAT_WCFX-R_C-HU_08C

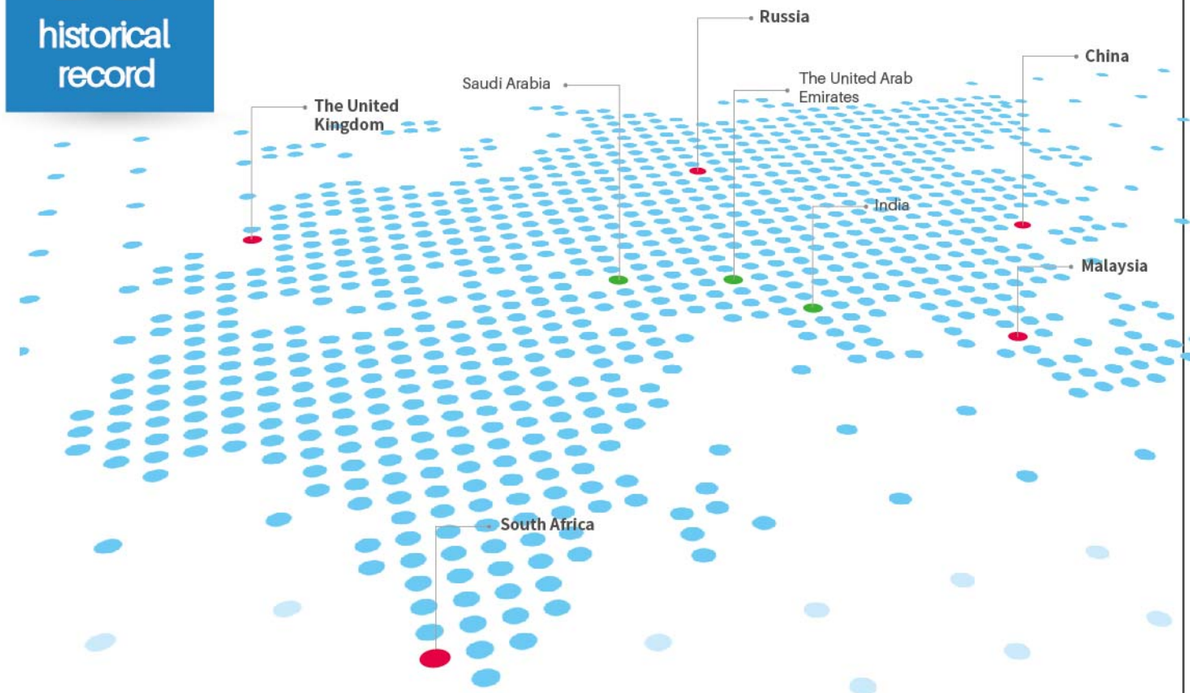
WCFX-R

Water-cooled Hermetical Screw Chiller

Cooling only: cooling capacity 204-2204kW

Dunham-Bush Central Air-conditioning

DB
historical
record

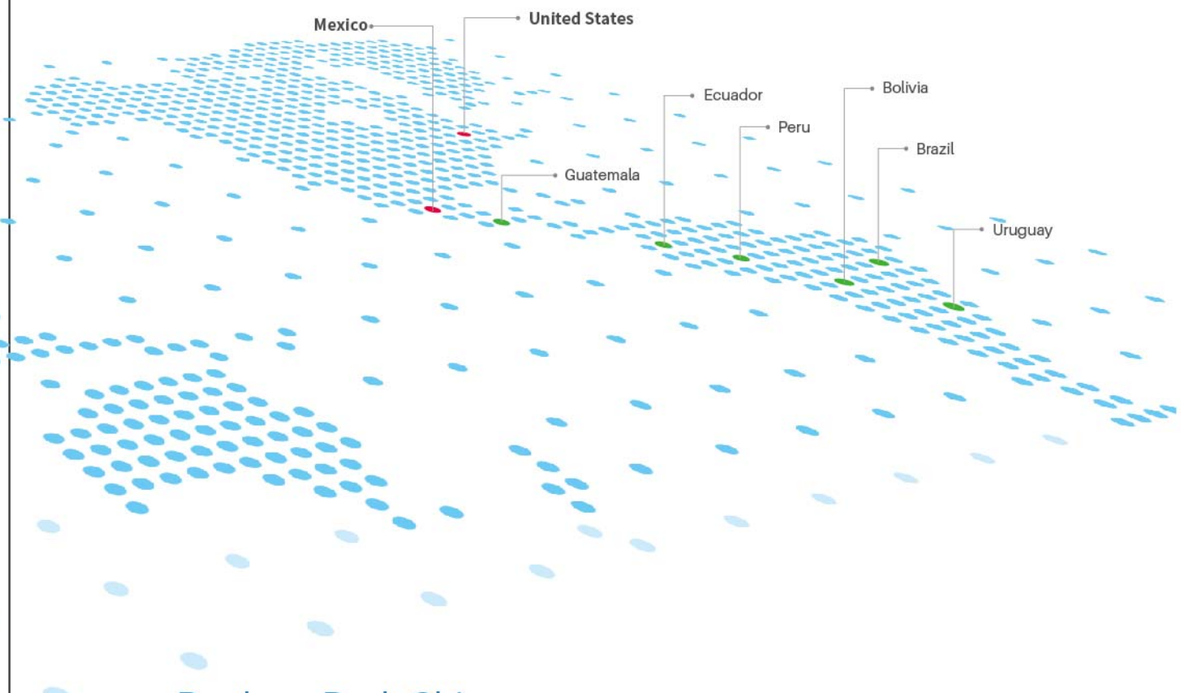


DUNHAM-BUSH Group

DUNHAM-BUSH SINCE 1894…

After more than 120 years of development, Dunham-Bush's products and services now cover the equipment manufacturing of HVAC, industrial refrigeration, fluid cooling and relevant product system integration control. At the same time, Dunham-Bush's R&D, manufacturing and sales service network also covers more than 100 countries and regions in the world such as North America, Europe, Middle East and Asia-Pacific.

Up to now, Dunham-Bush has developed into one of the globally largest manufacturers of HVAC and refrigeration equipment.



Dunham-Bush China

In 1995, Dunham-Bush China set up a research and development center and manufacturing plant in Yantai, with the product line including compressors, large water chillers, heat pump units, air-side heat exchange products, DC frequency conversion multi-connected units, small commercial air conditioning units, low-temperature refrigeration units, cooling towers, etc.; and its pre-sales technical support and after-sales service network covers 46 major cities and regions in China. Adhering to 100 years of technical accumulation and manufacturing experience, Dunham-Bush China will continue to devote itself to continuous technological innovation and improvement, and provide Chinese customers with the most stable and reliable air-conditioning refrigeration equipment and energy-saving and environmental-friendly overall solutions of computer room systems.

1894 Dunham Bush brand was established in

1904 The first set of air compressor system officially went offline in

1906 The US R&D center was put into use and the global layout was started in

1924 The first piston refrigerator was successfully developed in

1930 The first air-cooled air conditioner went offline at Harrisonburg factory, the United States in

1935 Dunham-Bush initiated its global development, and the US R&D and manufacturing center was established in

1962 The first open-type screw compressor was used in the refrigeration industry in

1965 The first open-type centrifugal compressor came out in

1967 The screw compressors for central air conditioning industry was successfully developed.

1981 The world's first vertical fully-enclosed screw compressor came out in

1988 Dunham-Bush Malaysia factory was established in

1995 Dunham-Bush established the R&D and manufacturing base in China - Dunham Bush China established in

2001 COMPRESSORS, a subsidiary of Dunham-Bush, was established, as a global compressor manufacturing center in China, in

2004 Dunham-Bush magnetic-suspending centrifuge technology came in the United States in

2009 Localization of the magnetic-suspending centrifuge technology in

2012 The first variable frequency magnetic-suspending centrifugal compressor set was on the market in

2013 A new compressor research and development center in the United Kingdom was completed and put into use in

2015 The magnetic-suspending centrifugal compressor self-developed by Dunham Bush went offline in China in

2017 Dunham-Bush Miami R&D and manufacturing base was established in

2018 The variable frequency air-suspending centrifuge self-developed was released globally in

2021 forward, no stopping

DUNHAM-BUSH WATER-COOLED HERMETICAL SCREW CHILLER

High efficiency and Energy saving / Stable and Reliable / Advanced control

WCFX-R INTRODUCTION

- Dunham-Bush WCFX-R series water-cooled screw chillers have the most efficient, stable and reliable unit design and the widest range of cooling capacity in the industry. They can well meet the comfort air conditioning applications such as air conditioning, low temperature, and heat recovery, and can also be widely used in process cooling.and other fields.

DESIGN STANDARDS AND CERTIFICATIONS

- AHRI 550/590 American Association of Air Conditioning, Heating and Refrigeration Industries 《Performance Calibration of Chillers and Heat Pump Hot Water Units Using Vapor Compression Cycles》
- GB/T 18430.1 《Water chilling (heat pump) packages using the vapor compression cycle - Part 1:Water chilling (heat pump) packages for industrial & commercial and similar application》
- GB 25131 《Safety requirements for water chillers (heat pump) using the vapor compression》 cycle
- GB 19577-2015 《Minimum allowable values of energy efficiency and energy efficiency grades for water chillers》

AHRI CERTIFIED™ www.ahridirectory.org
Water-Cooled Chillers
AHRI Standard 550/590

NOMENCLATURE

WC	F	X	27	S	R	S
Water-cooled chiller						
Falling film evaporator						
Screw compressors						
model						
				S: Single compressor T: Two		
					R134a	
						S-Standard E-Economic

PRODUCT OVERVIEW

Exhaust stop valve

Easy compressor maintenance

Evaporator

Falling film evaporator is adapted. Patented distributor design and low fin heat exchange tubes ensure high heat exchange efficiency of the container.

High-efficiency compressor

The core technology main engine and the compressor are from the same manufacturer, with its own oil separator and stepless adjustment, which can effectively respond to user load changes and facilitate after-sales maintenance.

Condenser

Subcooling design, high efficiency and energy saving

Economizer

Unique economizer circulation system, secondary subcooling

Patented oil balance

Multi-head single-circuit design, part-load performance is higher

Color LCD touch screen

Large screen and letters, easy to operate

PLC microcomputer control screen

Intelligent control, convenient operation, function upgrade is more convenient.

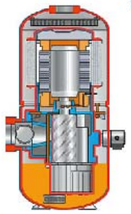
HIGH EFFICIENCY AND ENERGY SAVING

1 Compressor

Dunham-Bush Patented Twin-screw Compressor

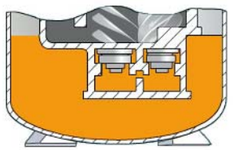
The vertical twin-screw compressor patented by Dunham-Bush was invented in Dunham-Bush, USA in 1981. It has obtained 48 North American invention patents and has a design life of up to 100,000 hours. After continuous improvement and development, it has now been upgraded to the 8th generation. It is widely used in industrial and commercial refrigeration units.

Compressor Shell



- The compressor shell adopts closed design, and no flange connection is required, which can prevent the leakage of refrigerant and lubricating oil; the double-layer steel shell has a higher protection level and can effectively reduce the operating noise.

Compressor Lubrication



- The main force bearing of the compressor is in the lower part, and the oil can just submerge the lower bearing, so that the bearing is in a state of immersion lubrication to meet the requirements of high reliability and stability.

Compressor Rotor

- The upper part of the compressor rotor sucks and the lower part exhausts, and the refrigerant gas generates reverse thrust, which offsets the gravity of the rotor and keeps the rotor in a suspended state. The main bearing load is only 30% of the horizontal compressor, and the working life is effectively extended.

Compressor Oil Separator

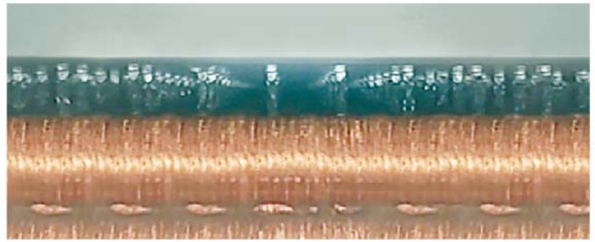
- Built-in 3-stage oil separator realizes the oil separation effect as high as 99.9%, ensuring that the lubricating oil entering the heat exchanger is reduced to a minimum.

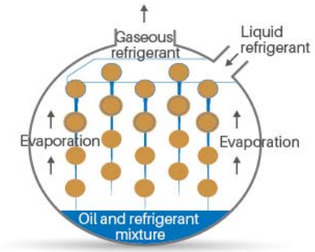
Compressor Motor Cooling

- The insulation level of the motor is H, which ensures the stable operation of the motor under high temperature environment.

2 Evaporator

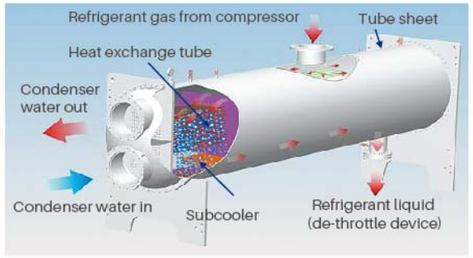
- The patented falling film evaporator, CFD simulation optimizes the uniform flow field distribution for heat transfer and reduces the refrigerant resistance.
- The refrigerant is evenly distributed on the heat exchange tube by spraying, and the flow mode heat exchange is realized between the refrigerant and the heat exchange tube, and the heat exchange coefficient is high.
- The refrigerant charge is small, and the refrigerant level at the bottom of the evaporator is low.
- The pressure difference returns the oil, the oil return level is low, and the effect is better.
- The special suction baffle and liquid separator design make the unit run more efficiently and reliably.





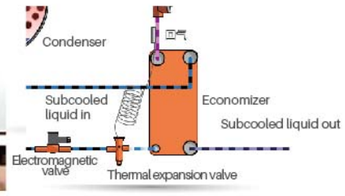
3 Condenser

- The high-efficiency shell-and-tube condenser heat exchange tube adopts unique heat exchange threads, which increases the heat exchange area and improves efficiency.
- The unique design of exhaust baffle and subcooler makes the unit run more efficiently and stably.



4 Throttling device

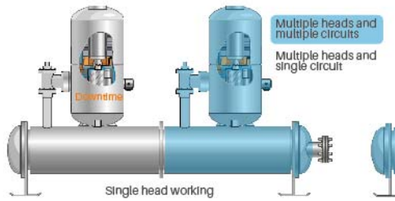
- The world's most advanced electronic expansion valve is adopted, with high control precision, fast response and wide adjustment range, so that the unit can maintain efficient operation under any load.
- The unique economizer auxiliary circulation system effectively improves the unit COP.

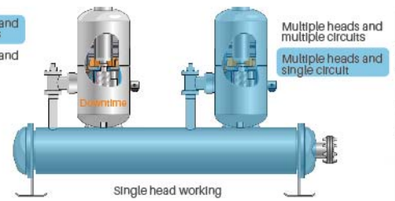


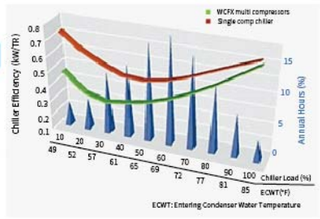
STABLE AND RELIABLE

1 Multiple heads single circuit

- A single compressor uses entire heat exchange area at partial load.
- Although the whole machine is under partial load, it still means a high load state for a single compressor, so the power factor of the compressor motor is still at a high level.







2 Patented Oil Balancing Technology

- Dunham-Bush's patented multi-head unit oil balance technology enables the compressor to automatically start the oil equalization control program when the oil level is low, ensuring the safe and reliable operation of the compressor.
- Dunham-Bush's specially designed ejector pump ejects only a small amount of lubricating oil in the evaporator back to the compressor to ensure the stable operation of the system.

ADVANCED CONTROL

- By selecting controllers of the world's top industrial control brand as the hardware platform, combining with its years of experience in screw chiller control, Dunham-Bush provides precise control and perfect protection for the efficient and stable operation of the WCFX-R unit.

- Perfect automatic control, with protection functions of high and low pressure, anti-freezing, over-current, overload and so on, ensures the safe and stable operation of the unit.

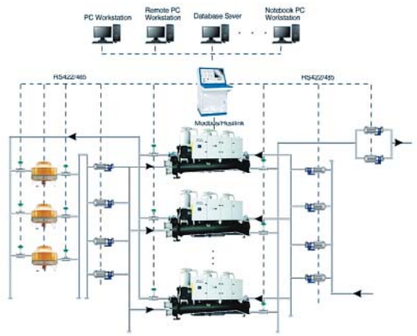
The unit will enable the automatic protection function in the following cases

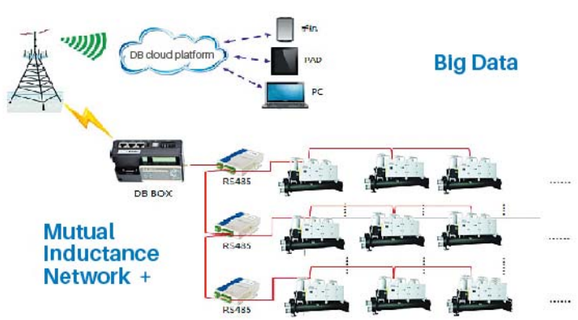
- ▶ Low suction pressure
- ▶ High discharge pressure
- ▶ Anti-freeze protection
- ▶ High motor-rotor temperature
- ▶ Low oil supply differential pressure
- ▶ Low oil level
- ▶ Compressor operation fault
- ▶ Power failure alarm
- ▶ Cold water cut-off protection
- ▶ Sensor fault
- ▶ Overcurrent
- ▶ Prevent the repeated start

- The color touch screen display control center provides the operator with an intuitive and easy-to-operate human-computer interaction platform; the operation control center is the most advanced microprocessor control system nowadays, which can display all necessary parameters in the daily operation of the unit; multi-level passwords are set in the control center to prevent unauthorized personnel from changing parameter settings at will.
- Local and remote methods are provided to control the start and stop of the unit.
- The increase and decrease of the compressor load are adjusted by the computer program according to the actual load required by the building.
- The unit adopts electronic expansion valve and high-precision liquid level sensor to accurately control the circulation amount of refrigerant, so that the liquid level of the heat exchanger can be accurately controlled and the liquid level fluctuation can be effectively suppressed.
- It can realize the interlocking control between the unit and the cold-water pump and cooling water pump to ensure the efficient and safe operation of the unit.
- When the control unit is started, the reduction rate of evaporator outlet water temperature can be controlled within the adjustable range, which can effectively avoid energy waste caused by excessive reduction rate, improve the energy efficiency ratio of the unit and prolong the service life of the unit.

NETWORK GROUP CONTROL

- WCFX-R is equipped with RS485 communication interface as standard, and adopts opened Modbus-RTU communication protocol, which can directly connect the unit to the BAS system, thereby realizing centralized control or remote control of the chiller room. Other communication protocols could be provided as options, such as BACnet, Profibus, etc.
- Dunham-Bush has established a complete remote monitoring system based on the Internet, using advanced smart cloud platform technology to provide customers with high-quality cloud services through the Internet network. Customers can choose DB-VISION system to connect the Dunham-Bush host to the global remote monitoring system, and professional personnel will help for remote monitoring, data analysis of working conditions, fault diagnosis and analysis, early warning of faults, etc. There is no need for designating personnel to be on duty in the machine room to ensure the safe operation of the unit.

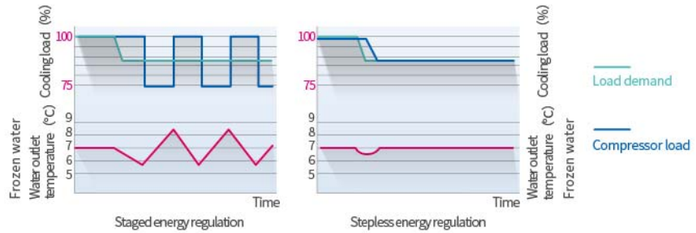




Features

Precise adjustment

- WCFX-R adopts stepless energy regulation, the outlet water temperature is stable, the output capacity of the unit completely matches the load required by the user's system, and the energy is "output on demand".



Low carbon and environmental protection

- Environmental leading refrigerant R134a, no chlorine, ODP=0, and has no damaging effect on the ozone layer.
- Ultra-energy-efficient operation can reduce the supply of electricity and reduce carbon emissions to help "carbon peak, carbon neutral".

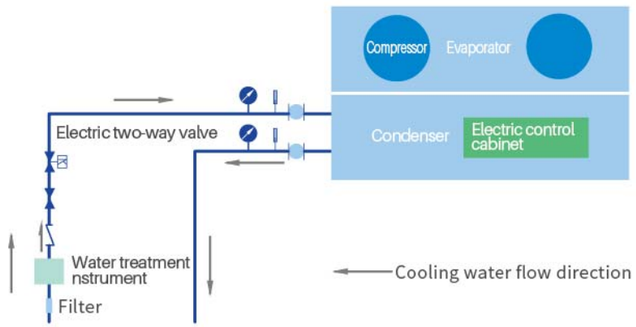
Operating range

	Minimum (℃)	Maximum value (℃)
Evaporator inlet water temperature	7	21
Evaporator outlet water temperature	4[1)]	15
Condenser inlet water temperature	16[2)]	35
Condenser outlet water temperature	25	40
Operating ambient temperature	6	45

Notes:

1) When evaporator outlet water temperature is less than 4°C, antifreeze should be used as a refrigerant.

2) When the cooling water inlet temperature is lower than 16°C, in order to ensure the normal lubrication of the compressor, it is necessary to add an electric regulating valve in front of the condenser water inlet to control the condensing pressure through the valve.



Technical Parameters

WCFXR-S series specifications

Unit Type WCFX		10 SRS	12 SRS	15 SRS	19 SRS	20 SRS	23 SRS	24 SRS	27 SRS	30 SRS	36 SRS	41 SRS	46 SRS
Cooling Capacity	kW	204.1	254.5	307.8	379.3	470.8	528.1	564.9	626.9	721.0	820.0	942.2	1098.5
	RT	58	72	87	108	134	150	160	178	205	233	268	312
	10^4kcal/h	17.5	21.9	26.5	32.6	40.5	45.4	48.6	53.9	62.0	70.5	81.0	94.4
COP		5.36	5.38	5.41	5.51	5.50	5.71	5.73	5.72	5.80	5.70	5.71	5.70
Cooling Capacity Adjustment Range		25-100% stepless adjustment											
Power Supply		380V/3P/50HZ											
Compressor													
Quantity Of Compressors		1	1	1	1	1	1	1	1	1	1	1	1
total Input Power	kW	38.1	47.3	56.9	68.9	85.6	92.5	98.6	109.6	124.4	143.9	165.0	192.6
rated Current	A	68	86	104	120	149	159	172	190	216	250	288	303
The Maximum Starting Current Of The Unit	A	206	283	311	355	355	355	461	461	493	494	570	761
Evaporator													
Chilled Water Flow Rate	m^3/h	35.0	43.7	52.8	65.1	80.8	90.6	96.9	107.6	123.7	140.7	161.7	188.5
Water Side Pressure Drop	kPa	34.4	34.9	37.4	44.2	48.9	40.9	42.2	42.8	43.7	76.1	77.5	79.8
Water Connection	DN	100	100	125	125	125	150	150	150	150	150	150	200
Condenser													
Cooling Water Flow Rate	m^3/h	41.9	52.3	63.2	77.6	96.4	107.5	114.9	127.5	146.4	166.9	191.7	223.6
Water Side Pressure Drop	kPa	29.0	30.2	29.3	39.9	52.7	49.3	39.0	46.9	50.9	64.3	65.4	65.9
Water Connection	DN	100	125	125	125	125	125	150	150	150	200	200	200
Assembly Parameters													
Unit Dimensions	Length mm	3250	3290	3290	3305	3305	3320	3355	3380	3390	4000	4000	4015
	Width mm	1150	1135	1160	1295	1300	1265	1270	1280	1380	1805	1805	1805
	Heigh mm	1800	1800	1930	2200	2250	2310	2310	2380	2380	2180	2180	2190
Unit Shipping Weight	kg	1820	1900	2090	2420	2520	2700	2750	2900	3060	4350	4820	5000
Unit Operation Weight	kg	1920	2030	2240	2570	2690	2900	2980	3150	3330	4680	5200	5410
R134a Charge	kg	90	100	120	120	120	140	140	170	180	240	240	270

Description:

1. The above data are for superior models with 2-pass evaporator and condenser , the standard rating conditions are as below : Chilled water inlet/outlet temperature 12/7°C， cooling water inlet/outlet temperature 30/35°C; the fouling factor on the water side of the evaporator is 0.018m^2.°C/kW, and the fouling factor on the water side of the condenser is 0.044m^2.°C/kW.
2. The length and dimension in the table are based on the vessels with 2 passes on the right side connections. Please consult Dunham-bush local offices for the specific size after changing the vessel pass number and connection direction.
3. The above selection is for reference only. According to the different combinations of Evap.&Cond., there will be multiple chiller models with the same cooling capacity. For specific projects, please contact the Dunham-bush local offices.
4. The water quality should not cause corrosion, blockage and other hazards to the unit. For projects whose water quality does not meet the requirements of national standards, it is recommended to install an intermediate heat exchanger or conduct water treatment to ensure long-term reliable use of the unit.
5. The pressure on the water side of the vessels of the standard unit is 1.0MPa, and there are other specifications of 1.6MPa and 2.0MPa for users to choose.

Technical Parameters

WCFXR-S SERIES SPECIFICATIONS

Unit Type WCFX		38 TRS	40 TRS	46 TRS	50 TRS	54 TRS	57 TRS	60 TRS	66 TRS	73 TRS	75 TRS	81 TRS	87 TRS	90 TRS
Cooling Capacity	kW	762.5	943.5	1069.5	1171.8	1274.4	1354.7	1437.9	1522.7	1657.0	1773.4	1892.8	2049.5	2204.4
	RT	217	268	304	333	362	385	408	433	471	504	538	582	626
	10^4kcal/h	65.5	81.1	91.9	100.7	109.6	116.5	123.6	130.9	142.4	152.4	162.7	176.2	189.5
COP		5.72	5.71	5.85	5.87	5.94	5.91	5.93	5.81	5.85	5.85	5.85	5.88	5.87
Cooling Capacity Adjustment Range		12.5~100% stepless adjustment												
Power Supply		380V/3P/50Hz												
Compressor														
Quantity Of Compressors		2	2	2	2	2	2	2	2	2	2	2	2	2
total Input Power	kW	133.4	165.3	182.9	199.7	214.6	229.1	242.5	262.1	283.3	303.2	323.4	348.8	375.5
rated Current	A	232	288	316	345	372	398	421	456	493	529	565	577	590
The Maximum Starting Current Of The Unit	A	559	559	559	665	718	759	791	858	858	934	1007	1198	1267
Evaporator														
Chilled Water Flow Rate	m^3/h	130.9	161.9	183.5	201.1	218.7	232.5	246.8	261.3	284.4	304.3	324.8	351.7	378.3
Water Side Pressure Drop	kPa	75.4	83.2	83.4	81.6	81.2	81.0	80.2	71.7	75.6	75.4	75.5	75.3	71.6
Water Connection	DN	150	150	200	200	200	200	200	250	250	250	250	250	250
Condenser														
Cooling Water Flow Rate	m^3/h	155.1	192.0	216.9	237.5	257.9	274.3	291.0	309.1	336.0	359.6	383.8	415.3	446.8
Water Side Pressure Drop	kPa	61.4	63.3	67.5	75.6	66.4	65.9	66.4	50.5	52.5	53.0	53.3	53.6	51.2
Water Connection	DN	150	200	200	200	200	200	200	250	250	250	250	250	250
Assembly Parameters														
Unit Dimensions	Length mm	3950	4000	4015	4015	3895	3895	3895	4430	4430	4430	4430	4430	4430
	Width mm	1365	1365	1410	1410	1435	1435	1435	2265	2265	2265	2265	2265	2265
	Height mm	2310	2380	2430	2430	2480	2480	2480	2450	2450	2450	2450	2460	2530
Unit Shipping Weight	kg	4160	4400	4610	4730	5060	5240	5400	7020	7480	7780	8020	8220	8520
Unit Operation Weight	kg	4450	4560	5010	5150	5560	5760	5940	7670	8180	8540	8810	9070	9460
R134a Charge	kg	170	220	260	260	280	290	290	370	380	380	390	400	430

Description:

1.The above data are for superior models with 2-pass evaporator and condenser, the standard rating conditions are as below :
Chilled water inlet/outlet temperature 12/7°C, cooling water inlet/outlet temperature 30/35°C; the fouling factor on the water side of the evaporator is 0.018m^2.°C/kW, and the fouling factor on the water side of the condenser is 0.044m^2.°C/kW.

2. The length and dimension in the table are based on the vessels with 2 passes on the right side connections. Please consult Dunham-bush local offices for the specific size after changing the vessel pass number and connection direction.

3. The above selection is for reference only. According to the different combinations of Evap.&Cond., there will be multiple chiller models with the same cooling capacity. For specific projects, please contact the Dunham-bush local offices.

4.The water quality should not cause corrosion, blockage and other hazards to the unit. For projects whose water quality does not meet the requirements of national standards, it is recommended to install an intermediate heat exchanger or conduct water treatment to ensure long-term reliable use of the unit.

5. The pressure on the water side of the vessels of the standard unit is 1.0MPa, and there are other specifications of 1.6MPa and 2.0MPa for users to choose.

Technical Parameters

WCFXR-E SERIES SPECIFICATIONS

Unit Type WCFX		10 SRE	12 SRE	15 SRE	18 SRE	20 SRE	23 SRE	24 SRE	27 SRE	30 SRE	36 SRE	41 SRE	46 SRE
Cooling Capacity	kW	196.2	241.9	306.3	360.0	457.3	517.1	544.9	613.3	705.5	793.0	910.1	1060.0
	RT	56	69	87	102	130	147	155	174	200	225	259	301
	10^4kcal/h	16.9	20.8	26.3	30.9	39.3	44.5	46.8	52.7	60.6	68.2	78.2	91.1
COP		4.73	4.72	5.13	5.05	5.11	5.27	5.16	5.31	5.32	5.15	5.17	5.10
Cooling Capacity Adjustment Range		25-100% stepless adjustment											
Power Supply		380V/3P/50HZ											
Compressor													
Quantity Of Compressors		1	1	1	1	1	1	1	1	1	1	1	1
total Input Power	kW	41.5	51.3	59.7	71.3	89.5	98.2	105.6	115.6	132.5	154.1	176.1	207.9
rated Current	A	74	92	108	129	155	169	184	200	229	266	305	327
The Maximum Starting Current Of The Unit	A	206	283	311	355	355	355	461	461	493	494	570	761
Evaporator													
Chilled Water Flow Rate	m^3/h	33.7	41.5	52.6	61.8	78.5	88.7	93.5	105.3	121.1	136.1	156.2	181.9
Water Side Pressure Drop	kPa	28.5	30.6	62.5	86.2	87.1	85.2	87.0	84.9	86.2	39.6	43.0	43.4
Water Connection	DN	100	100	100	100	125	125	125	125	150	150	150	200
Condenser													
Cooling Water Flow Rate	m^3/h	41.2	50.8	63.4	74.7	94.7	106.6	112.7	126.2	145.1	164.0	188.1	219.6
Water Side Pressure Drop	kPa	52.4	54.6	56.9	77.7	81.2	76.8	77.3	78.3	80.6	55.6	55.1	56.1
Water Connection	DN	80	80	100	100	125	125	125	125	150	150	150	200
Assembly Parameters													
Unit Dimensions	Length mm	2585	2585	3250	3250	3290	3290	3205	3205	3355	3960	3970	4015
	Width mm	1130	1130	1130	1130	1190	1190	1215	1215	1265	1805	1805	1805
	Height mm	1800	1800	1920	1920	2210	2210	2260	2260	2310	2180	2180	2170
Unit Shipping Weight	kg	1770	1800	2020	2290	2430	2510	2610	2770	2900	4070	4240	4440
Unit Operation Weight	kg	1850	1890	2120	2380	2540	2630	2740	2920	3060	4320	4500	4750
R134a Charge	kg	70	70	90	90	120	120	120	140	150	220	230	270

Description:

The above data are for superior models with 2-pass evaporator and condenser, the standard rating conditions are as below :
Chilled water inlet/outlet temperature 12/7°C, cooling water inlet/outlet temperature 30/35°C; the fouling factor on the water side of the evaporator is 0.018m^2.°C/kW, and the fouling factor on the water side of the condenser is 0.044m^2.°C/kW.

2. The length and dimension in the table are based on the vessels with 2 passes on the right side connections. Please consult Dunham-bush local offices for the specific size after changing the vessel pass number and connection direction.

3. The above selection is for reference only. According to the different combinations of Evap.&Cond., there will be multiple chiller models with the same cooling capacity. For specific projects, please contact the Dunham-bush local offices.

4.The water quality should not cause corrosion, blockage and other hazards to the unit. For projects whose water quality does not meet the requirements of national standards, it is recommended to install an intermediate heat exchanger or conduct water treatment to ensure long-term reliable use of the unit.

5. The pressure on the water side of the vessels of the standard unit is 1.0MPa, and there are other specifications of 1.6MPa and 2.0MPa for users to choose.

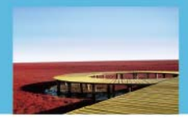
Technical Parameters

WCFXR-E SERIES SPECIFICATIONS

Unit Type WCFX		38 TRE	40 TRE	46 TRE	50 TRE	54 TRE	57 TRE	60 TRE	66 TRE	73 TRE	75 TRE	81 TRE	87 TRE	90 TRE
Cooling Capacity	kW	736.0	910.0	1032.1	1136.5	1233.7	1312.1	1406.1	1464.2	1604.6	1717.5	1834.3	1984.8	2136.2
	RT	209	259	293	323	350	373	399	416	456	488	521	564	607
	10⁴kcal/h	63.3	78.2	88.7	97.7	106.1	112.8	120.9	125.9	137.9	147.6	157.7	170.6	183.6
COP		5.09	5.07	5.16	5.24	5.25	5.23	5.37	5.22	5.31	5.31	5.31	5.28	5.29
Cooling Capacity Adjustment Range		12.5-100% stepless adjustment												
Power Supply		380V/3P/50HZ												
Compressor														
Quantity Of Compressors		2	2	2	2	2	2	2	2	2	2	2	2	2
total Input Power	kW	144.7	179.6	199.9	216.7	234.9	250.8	261.7	280.7	302.2	323.5	345.3	375.8	403.7
rated Current	A	250	310	342	372	404	432	452	484	522	560	599	619	634
The Maximum Starting Current Of The Unit	A	559	559	559	665	718	759	791	858	858	934	1007	1198	1267
Evaporator														
Chilled Water Flow Rate	m³/h	126.3	156.2	177.1	195.0	211.7	225.2	241.3	251.3	275.4	294.7	314.8	340.6	366.6
Water Side Pressure Drop	kPa	41.2	43.0	44.1	43.0	43.3	42.3	48.2	53.4	50.2	48.8	47.7	49.3	46.6
Water Connection	DN	150	150	200	200	200	200	200	200	200	200	250	250	250
Condenser														
Cooling Water Flow Rate	m³/h	152.5	188.7	213.3	234.3	254.3	270.7	288.8	302.1	330.2	353.4	377.4	408.8	439.8
Water Side Pressure Drop	kPa	56.3	57.7	57.1	58.6	58.8	58.3	55.1	61.8	59.0	59.6	60.4	60.6	56.6
Water Connection	DN	150	150	200	200	200	200	200	200	200	200	250	250	250
Assembly Parameters														
Unit Dimensions	Length mm	3960	3970	4015	4015	4025	4025	4125	4430	4430	4430	4430	4430	4430
	Width mm	1285	1380	1410	1410	1405	1405	1435	2265	2265	2265	2265	2265	2265
	Height mm	2380	2380	2430	2430	2480	2480	2480	2400	2390	2390	2440	2440	2550
Unit Shipping Weight	kg	4220	4430	4650	4620	4840	5080	5360	6380	6710	6930	7340	7520	7720
Unit Operation Weight	kg	4470	4720	4990	4930	5180	5470	5770	6820	7190	7450	7890	8140	8230
R134a Charge	kg	220	220	270	270	270	280	310	320	360	360	470	470	490

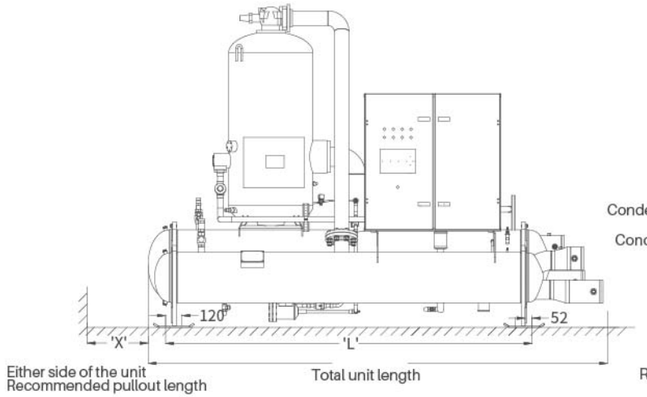
Description:

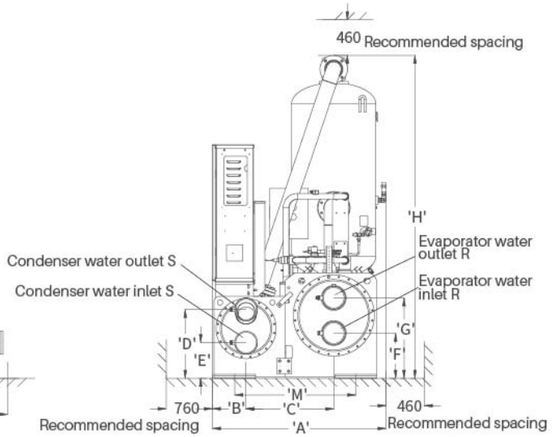
1. The above data are for superior models with 2-pass evaporator and condenser , the standard rating conditions are as below : Chilled water inlet/outlet temperature 12/7°C， cooling water inlet/outlet temperature 30/35°C; the fouling factor on the water side of the evaporator is 0.018m².°C/kW, and the fouling factor on the water side of the condenser is 0.044m².°C/kW.
2. The length and dimension in the table are based on the vessels with 2 passes on the right side connections. Please consult Dunham-bush local offices for the specific size after changing the vessel pass number and connection direction.
3. The above selection is for reference only. According to the different combinations of Evap.&Cond., there will be multiple chiller models with the same cooling capacity. For specific projects, please contact the Dunham-bush local offices.
4. The water quality should not cause corrosion, blockage and other hazards to the unit. For projects whose water quality does not meet the requirements of national standards, it is recommended to install an intermediate heat exchanger or conduct water treatment to ensure long-term reliable use of the unit.
5. The pressure on the water side of the vessels of the standard unit is 1.0MPa, and there are other specifications of 1.6MPa and 2.0MPa for users to choose.


Outline Dimensions

WCFX10~30SRS/SRE SERIES OUTLINE DIMENSIONS

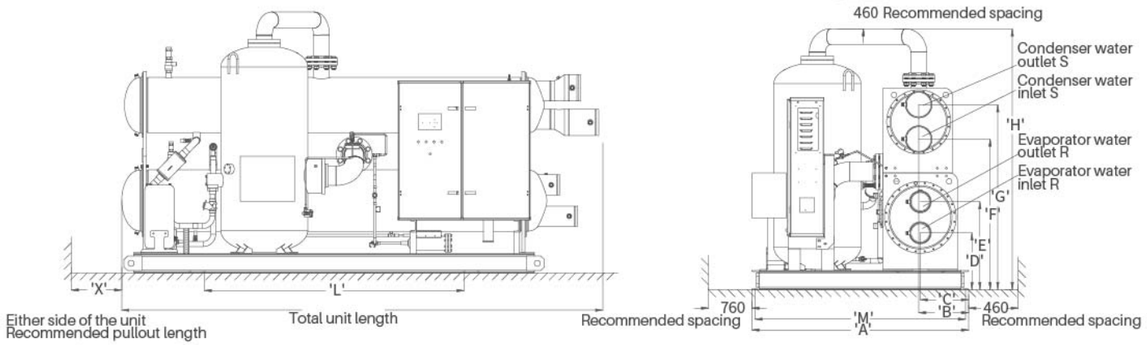




Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
10SRS	3250	1150	176	574	404	222	268	478	1800	2693	681	100	100	2600
12SRS	3290	1135	215	590	445	238	268	478	1800	2693	736	100	125	2600
15SRS	3290	1160	215	590	445	238	272	497	1930	2693	736	125	125	2600
19SRS	3305	1295	230	595	475	240	272	497	2200	2693	756	125	125	2600
20SRS	3305	1300	230	596	475	240	284	504	2250	2693	777	125	125	2600
23SRS	3320	1265	230	646	475	240	299	535	2310	2693	853	150	125	2600
24SRS	3355	1270	236	630	506	263	299	535	2310	2693	843	150	150	2600
27SRS	3380	1280	236	644	506	263	332	592	2380	2693	890	150	150	2600
30SRS	3390	1380	256	715	515	268	332	592	2380	2693	981	150	150	2600

Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
10SRE	2585	1130	226	554	393	234	268	478	1800	2134	711	100	80	2100
12SRE	2585	1130	226	554	393	234	268	478	1800	2134	711	100	80	2100
15SRE	3250	1130	176	574	404	222	268	478	1920	2694	681	100	100	2600
19SRE	3250	1130	176	574	404	222	268	478	1920	2694	681	100	100	2600
20SRE	3290	1190	215	590	445	238	272	497	2210	2694	736	125	125	2600
23SRE	3290	1190	215	590	445	238	272	497	2210	2694	736	125	125	2600
24SRE	3205	1215	236	580	501	276	284	504	2260	2694	767	125	125	2600
27SRE	3205	1215	236	580	501	276	284	504	2260	2694	767	125	125	2600
30SRE	3355	1265	236	630	506	263	299	535	2310	2694	843	150	150	2600

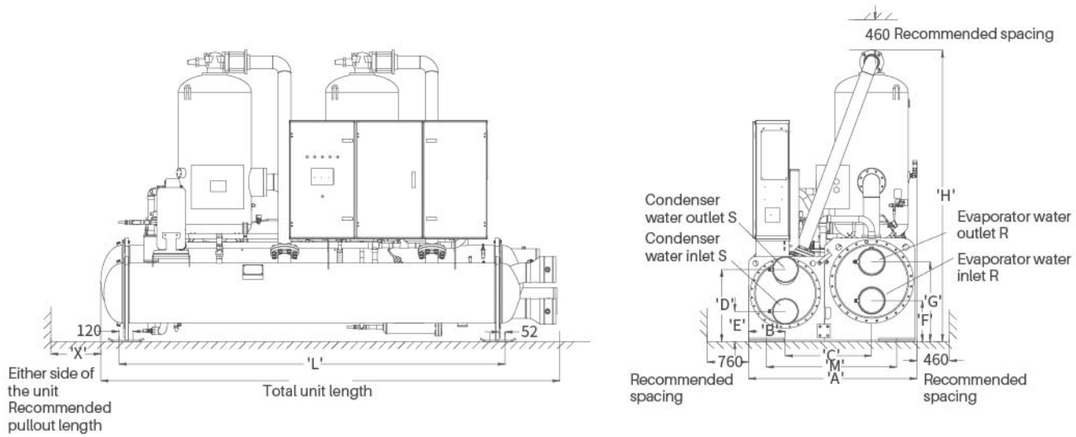
WCFX36~46SRS/SRE SERIES DIMENSIONS



Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
36SRS	4000	1805	416	403	472	732	1253	1539	2180	2160	1740	150	200	3200
41SRS	4000	1805	416	403	472	732	1253	1539	2180	2160	1740	150	200	3200
46SRS	4015	1805	345	403	507	862	1329	1615	2190	2160	1740	200	200	3200

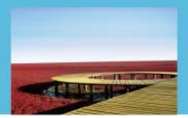
Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
36SRE	3960	1805	430	403	472	732	1293	1536	2180	2160	1740	150	150	3200
41SRE	3970	1805	430	403	472	732	1284	1531	2180	2160	1740	150	150	3200
46SRE	4015	1805	345	403	507	862	1329	1615	2170	2160	1740	200	200	3200

WCFX38~60TRS/TRE SERIES DIMENSIONS



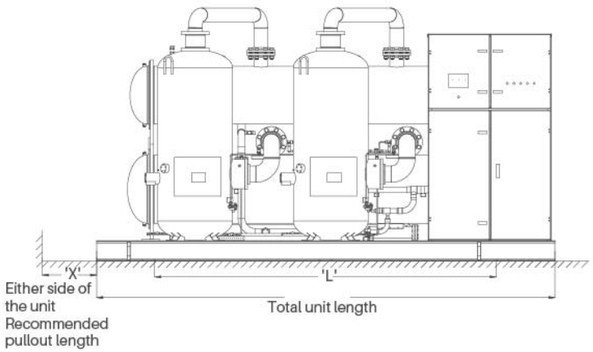
Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
38TRS	3950	1365	256	701	515	268	299	535	2310	3277	934	150	150	3200
40TRS	4000	1365	282	695	530	244	332	592	2380	3277	987	150	200	3200
46TRS	4015	1410	282	742	530	244	352	707	2430	3277	1058	200	200	3200
50TRS	4015	1410	282	742	530	244	352	707	2430	3277	1058	200	200	3200
54TRS	3895	1435	314	732	612	257	348	678	2480	3277	1107	200	200	3200
57TRS	3895	1435	314	732	612	257	348	678	2480	3277	1107	200	200	3200
60TRS	3895	1435	314	732	612	257	348	678	2480	3277	1107	200	200	3200

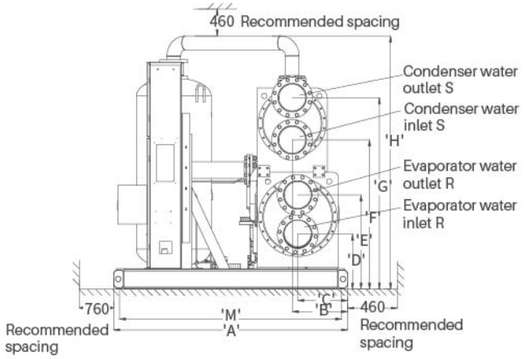
Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
38TRE	3960	1285	236	644	506	263	332	592	2380	3269	890	150	150	3200
40TRE	3970	1380	256	715	515	268	332	592	2380	3269	981	150	150	3200
46TRE	4015	1410	282	742	530	244	352	707	2430	3277	1058	200	200	3200
50TRE	4015	1410	282	742	530	244	352	707	2430	3277	1058	200	200	3200
54TRE	4025	1405	282	737	530	244	348	678	2480	3277	1080	200	200	3200
57TRE	4025	1405	282	737	530	244	348	678	2480	3277	1080	200	200	3200
60TRE	4125	1435	314	732	612	257	348	678	2480	3506	1107	200	200	3500


Outline Dimensions

WCFX66~90TRS/TRE SERIES DIMENSIONS





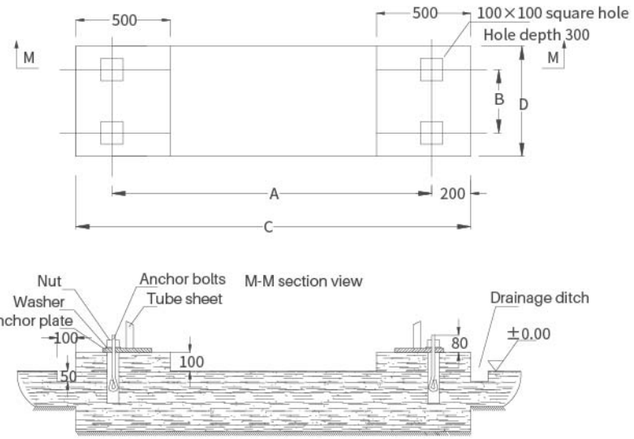
Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
66TRS	4430	2265	537	484	533	913	1445	1854	2450	3300	2145	250	250	3200
73TRS	4430	2265	512	484	533	913	1445	1854	2450	3300	2145	250	250	3200
75TRS	4430	2265	512	484	533	913	1441	1855	2450	3300	2145	250	250	3200
81TRS	4430	2265	562	509	558	910	1511	1925	2450	3300	2145	250	250	3200
87TRS	4430	2265	509	457	558	910	1511	1925	2460	3300	2145	250	250	3200
90TRS	4430	2265	548	484	529	949	1536	1966	2530	3300	2145	250	250	3200

Model	Total unit length	A	B	C	D	E	F	G	H	L	M	R	S	X
66TRE	4430	2265	556	484	558	888	1407	1762	2400	3300	2145	200	200	3500
73TRE	4430	2265	556	484	510	886	1407	1762	2390	3300	2145	200	200	3500
75TRE	4430	2265	556	425	510	886	1762	2390	2390	3300	2145	200	200	3500
81TRE	4430	2265	547	509	559	910	1545	1954	2440	3300	2145	250	250	3500
87TRE	4430	2265	509	471	558	910	1545	1954	2440	3300	2145	250	250	3500
90TRE	4430	2265	548	471	539	959	1601	2015	2550	3300	2145	250	250	3500



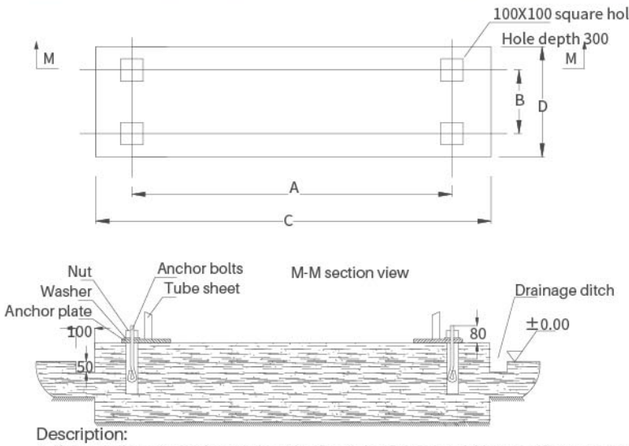
Foundation Installation

WCFX10SRS~60TRS/WCFX10SRE~60TRE FOUNDATION DRAWING



Unit model	A	B	C	D
10SRS	2693	681	3093	1200
12SRS	2693	736	3093	1200
15SRS	2693	736	3093	1200
19SRS	2693	756	3093	1300
20SRS	2693	777	3093	1300
23SRS	2693	853	3093	1400
24SRS	2693	843	3093	1400
27SRS	2693	890	3093	1400
30SRS	2693	981	3093	1500
38TRS	3277	934	3677	1500
40TRS	3277	987	3677	1500
46TRS	3277	1058	3677	1600
50TRS	3277	1058	3677	1600
54TRS	3277	1107	3677	1600
57TRS	3277	1107	3677	1600
60TRS	3277	1107	3677	1600
10SRE	2134	711	2534	1200
12SRE	2134	711	2534	1200
15SRE	2694	681	3094	1200
18SRE	2694	681	3094	1200
20SRE	2694	736	3094	1200
23SRE	2694	736	3094	1200
24SRE	2694	767	3094	1300
27SRE	2694	767	3094	1300
30SRE	2694	843	3094	1300
38TRE	3269	890	3669	1400
40TRE	3269	981	3669	1500
46TRE	3277	1058	3677	1600
50TRE	3277	1058	3677	1600
54TRE	3277	1080	3677	1600
57TRE	3277	1080	3677	1600
60TRE	3506	1107	3906	1600

WCFX36SRS~90TRS / WCFX36SRE~90TRE FOUNDATION DRAWING



Unit model	A	B	C	D
36SRS	2160	1740	3700	2200
41SRS	2160	1740	3700	2200
46SRS	2160	1740	3700	2200
66TRS	3300	2145	4600	2600
73TRS	3300	2145	4600	2600
75TRS	3300	2145	4600	2600
81TRS	3300	2145	4600	2600
87TRS	3300	2145	4600	2600
90TRS	3300	2145	4600	2600
36SRE	2160	1740	3700	2200
41SRE	2160	1740	3700	2200
46SRE	2160	1740	3700	2200
66TRE	3300	2145	4600	2600
73TRE	3300	2145	4600	2600
75TRE	3300	2145	4600	2600
81TRE	3300	2145	4600	2600
87TRE	3300	2145	4600	2600
90TRE	3300	2145	4600	2600

Description:
1. If the chiller room is located on the floor, the floor should have sufficient strength to withstand the operating weight of the chiller.
2. When building a concrete foundation, a drainage ditch should be built around the foundation to facilitate drainage, and the edge of the foundation should be smooth.
3. This foundation drawing is for reference only; the specification of anchor bolts is M18×300.
4. This foundation drawing is only used for the installation method without spring isolator. If you need the foundation drawing with spring isolator, please contact Dunham-bush local offices.