

Intelligent control system

Full automatic control function

The AI(V3.0) control system has complete and strong functions: one-key start/stop, timing on/off, safety protection system, auto adjustment functions, system linkage control, expert system, human-machine dialogue and building automation interface etc.

Unique load-adjusting function

This function automatically regulates the output load of the Unit according to user's actual load, greatly reducing the start time, shutdown dilution time, idle work, and energy consumption

Unique circulating solution amount control technology

The circulating amount of the solution is regulated by controlling the HPG level, concentration and temperature of the concentrated solution, in stead of by simply controlling the HPG level alone. And the solution pump is controlled by an inverter. All these techniques ensure the Unit operates with appropriate circulating solution amount, improve the operating efficiency, and reduce the start time and energy use.

Cooling water temperature limit control technology

By controlling the steam amount, AI (V3.0) limits the cooling water inlet temperature within the range between 18 and 34°C, ensuring safe and efficient operation of the Unit.

Complete self-diagnosis and protection functions

AI(V3.0) has 34 self-diagnosis and protection functions and can automatically takes protective measures according

to fault degrees. This effectively prevents accidents, eases the labor of operators and guarantees long-term stable running of the Unit.

Intelligent Automatic purge system

AI(V3.0) monitors the content of non-condensable gases inside the unit in real time(during operation) and starts or stops the purge system automatically, or gives an instruction if manual purge is required.

Unique shutdown dilution control technology

Based on various conditions such as the concentration of the concentrated solution, ambient temperature and current amount of refrigerant water(in cooling cycle), AI (V3.0) can control the run time of each pump during dilution operation, ensuring an optimum concentration after shutdown of the Unit. This not only prevents crystallization, but also shortens the restart time of the Unit.

Parameter management system

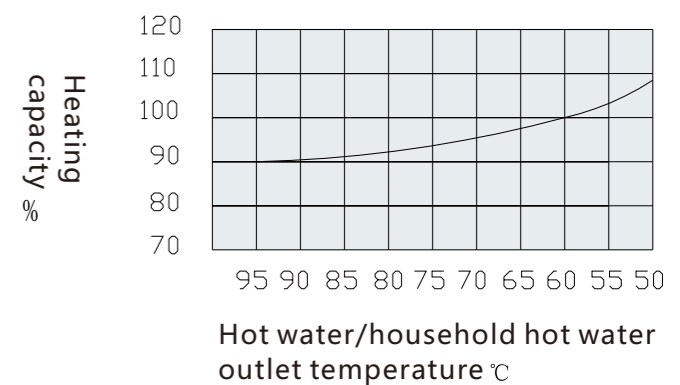
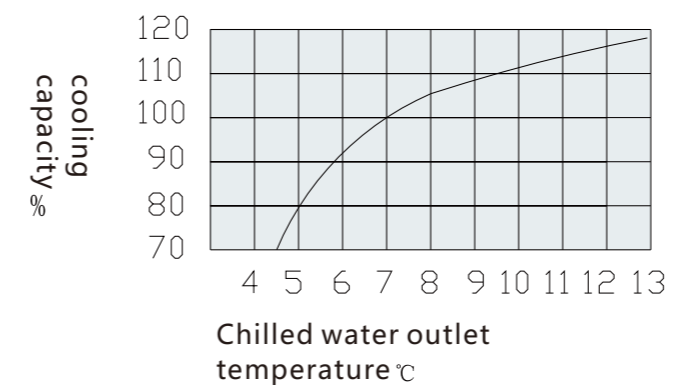
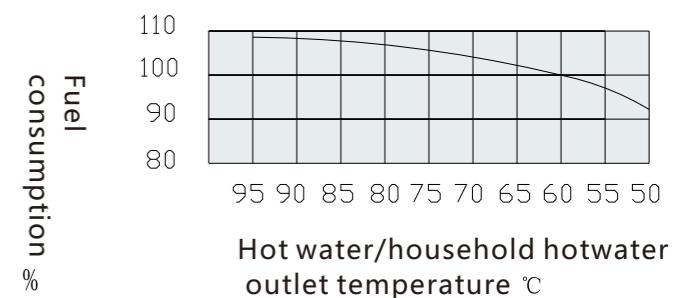
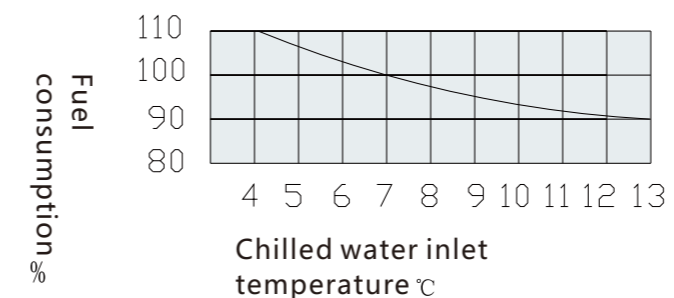
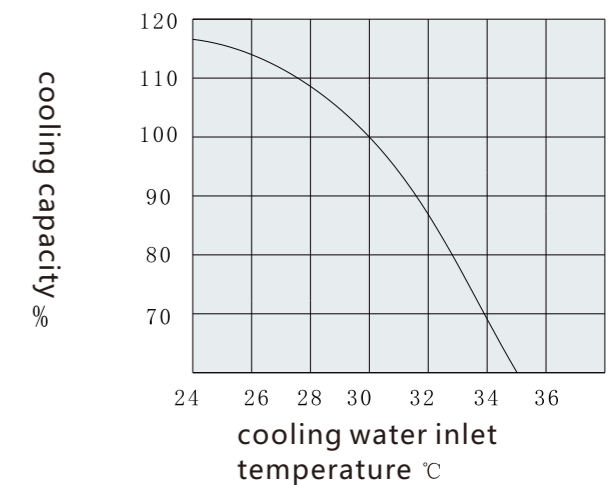
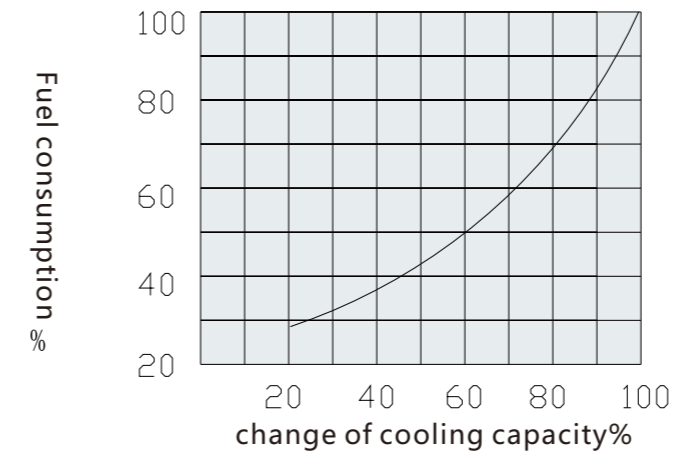
AI(V3.0) is able to display, correct and set 12 key performance parameters of the Unit through the operation interface in real time, and record the operation history.

Fault management system

AI(V3.0) can provide detail information about failures when they occur, such as their locations and symptoms, and give treatment measures and alerts through the operation interface. In addition, it is capable of sorting and analyzing history failures, which would be helpful for repair and maintenance of the Unit.

Technical Parameters

Performance curve



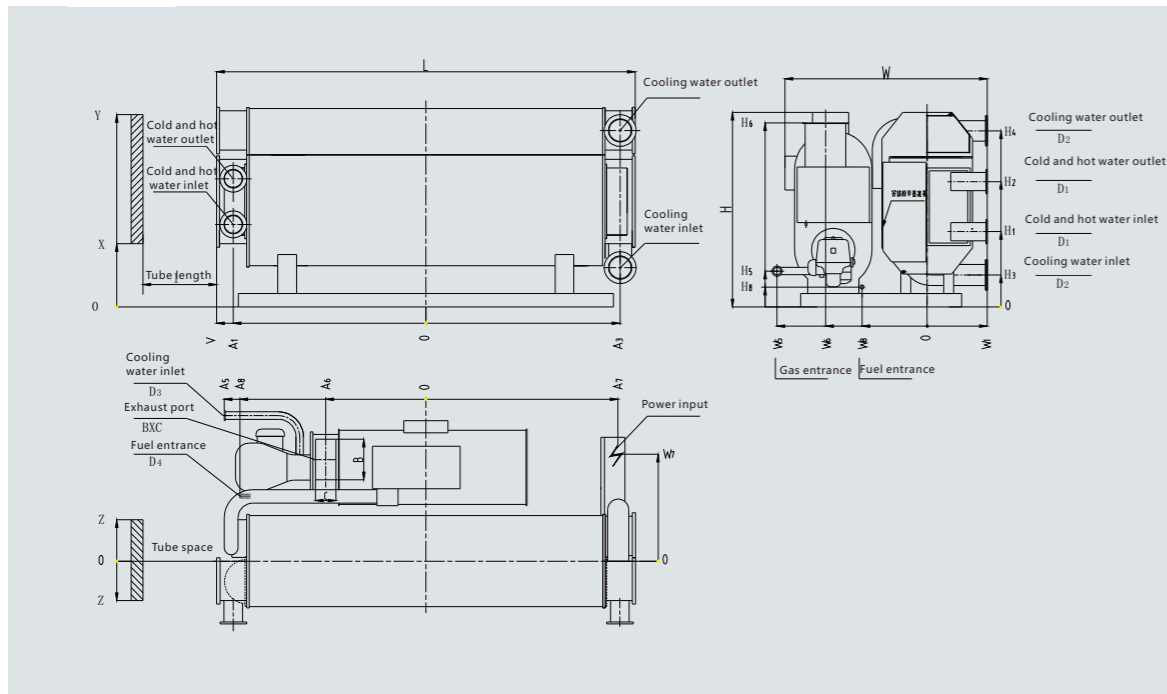
Rated parameters

Model		ZX-	23	35	47	58	70	81	93	105	116	
Cooling capacity		KW	233	350	470	580	700	810	930	1050	1163	
		×10 ⁴ Kcal/h	20	30	40	50	60	70	80	90	100	
		USRt	66	99	132	165	198	231	265	299	331	
Heating capacity		KW	195	293	391	488	586	684	782	879	977	
		×10 ⁴ Kcal/h	17	25	34	42	50	59	67	76	84	
Chilled water	Inlet/outlet temperature	℃	Chilled water 2→7(55. 8→60)									
	Flow rate	m ³ /h	40	60	80	100	120	140	160	180	200	
	Pressure drop	kPa	33	33	33	33	36	36	52	52	52	
	Pipe diameter	DN(mm)	80	100	100	125	125	150	150	150	150	
Cooling water	Inlet/outlet temperature	℃	30→36									
	Flow rate	m ³ /h	56	85	113	141	169	197	226	254	282	
	Pressure drop	kPa	82	82	82	85	62	62	62	91	91	
	Pipe diameter	DN(mm)	100	125	125	150	150	150	200	200	200	
Fuel	natural gas	Refrigeration	Nm ³ /h	14.7	22.1	29.4	36.8	44.1	51.5	58.8	66.2	73.5
		Heating	Nm ³ /h	17.9	26.8	35.7	44.7	53.6	62.6	71.5	80.4	89.4
		Pressure	kPa	2.5--25			3--25					
		Pipe diameter	DN(mm)	32	40	40	40	40	50	50	50	50
	Naphtha	Refrigeration	Kg/h	14.1	21.2	28.3	35.4	42.4	49.5	56.6	63.6	70.7
		Heating	Kg/h	17.2	25.8	34.4	43.0	51.6	60.1	68.7	77.3	85.9
		Pipe diameter	DN	1/2 "								
Electric	Total power	KW	3.2	3.4	3.6	4.6	4.9	4.9	5.3	5.7	5.7	
	Power supply		3-phase\380V\50HZ									
Dimension	Length(L)	mm	2900	2980	2980	2980	4020	4020	4020	4640	4640	
	Width(W)	mm	1680	1770	1890	1980	1988	2102	2222	2260	2422	
	Height(H)	mm	1960	2000	2160	2165	2165	2185	2350	2350	2438	
shipment			Assembled									
Total shipment weight		t	3.3	4.6	5.6	6.9	8.1	9.2	10.2	11.1	14.6	
Operating weight		t	3.7	5.1	5.9	8.1	9.2	10.2	11.4	14.8	16.2	

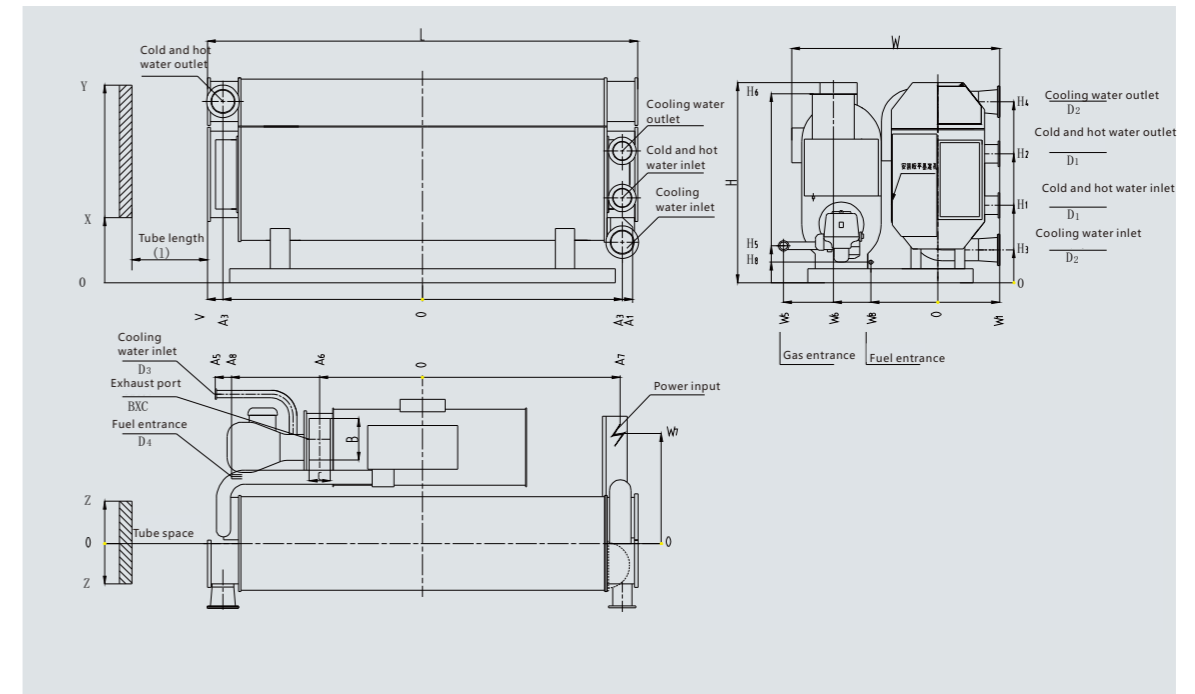
145	174	204	233	262	291	349	407	465	523	582	698
1450	1740	2040	2330	2620	2910	3490	4070	4650	5230	5820	6980
125	150	175	200	225	250	300	350	400	450	500	600
413	496	579	661	744	827	992	1157	1323	1488	1653	1984
1211	1465	1710	1954	2198	2442	2931	3419	3908	4396	4885	5862
105	126	147	168	189	210	252	294	336	378	420	504
Chilled water 2→7(55. 8→60)											
250	300	350	400	450	500	600	700	800	900	1000	1200
52	29	29	29	29	29	48	48	48	44	44	65
200	200	200	250	250	250	250	300	300	350	350	400
30→36											
353	423	494	564	635	705	846	987	1128	1296	1410	1692
91	91	58	58	58	58	58	51	51	63	63	76
250	250	250	300	300	350	350	350	400	400	400	500
91.9	110.3	128.7	147.1	165.4	183.8	220.6	257.4	294.1	300.9	367.6	441.2
111.7	134	156.4	178.7	201.1	223.4	268.1	312.8	357.4	402.1	446.8	536.2
5--30			7--30			8.5--30					
65	65	80	80	80	80	100	100	125	125	125	150
88.4	106.1	123.7	141.4	159.1	176.8	212.1	247.5	282.8	318.2	353.5	424.2
107.4	128.9	150.4	171.8	193.3	214.8	257.8	300.7	343.7	386.7	429.6	515.5
1 "											
6.6	10	10	10.7	15.2	16.1	16.6	21.9	22.4	23.4	32.9	34.9
3-phase\380V\50HZ											
4658	5740	5740	5770	5840	5920	6720	6720	6800	7800	7830	9610
2452	2490	2590	2720	2768	2910	3040	3450	3950	4040	4250	4470
2652	2652	2740	2890	3200	3315	3315	3585	3585	3585	3690	3690
Assembled											
14.6	17.2	19.6	22.1	24.3	26.9	31	35.6	40.1	47.3	54.1	62.9
16.2	19.2	21.6	24.9	26.1	29.7	34.8	39.7	44.7	54.3	61.1	69.5

Pipe connection diagram

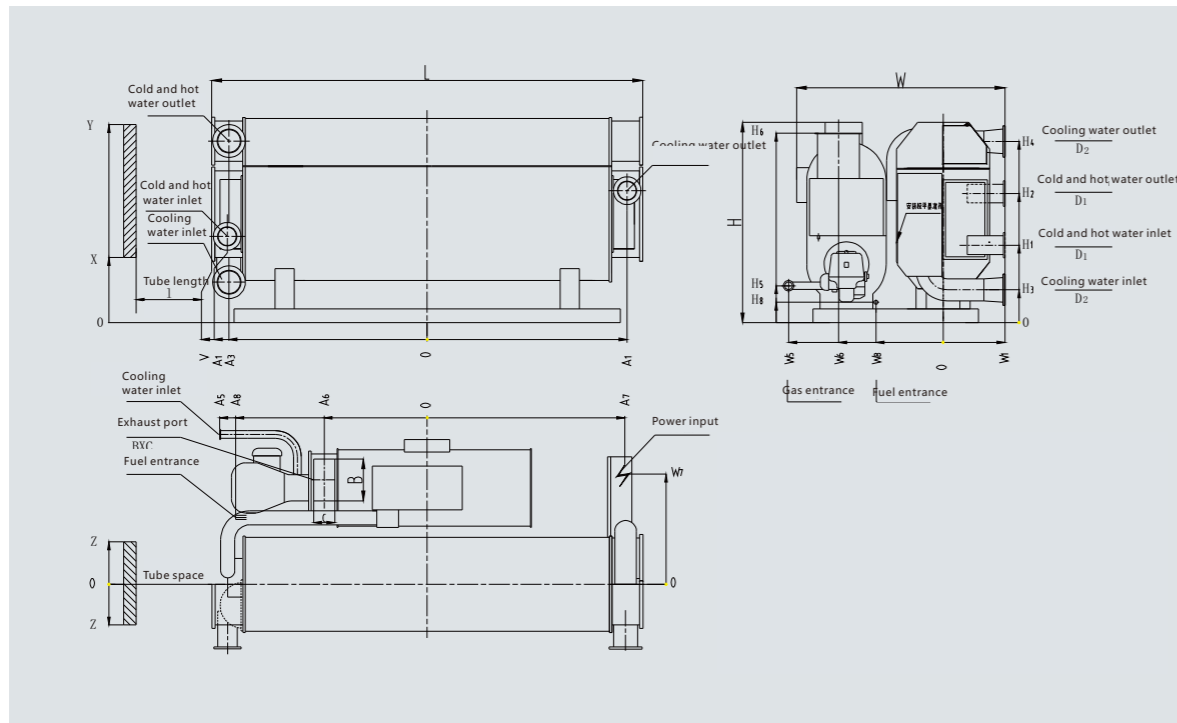
ZX-23~58



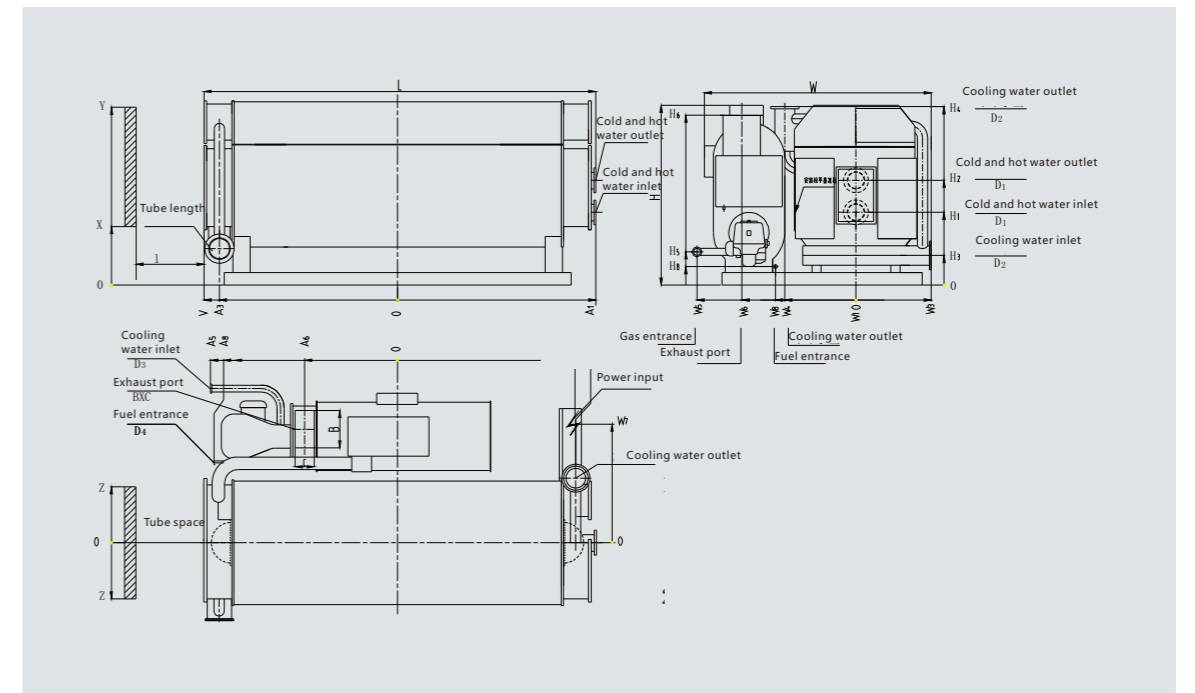
ZX-174~291



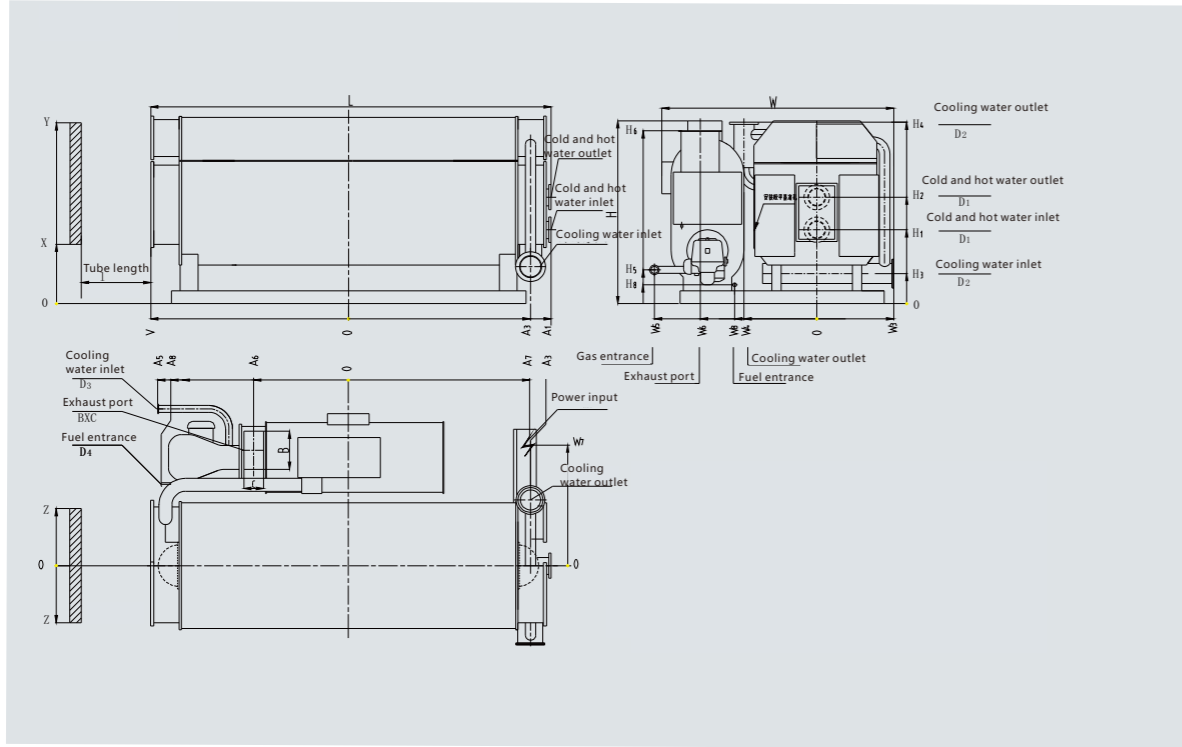
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ZX-349~465



ZX-523~582



ZX-698

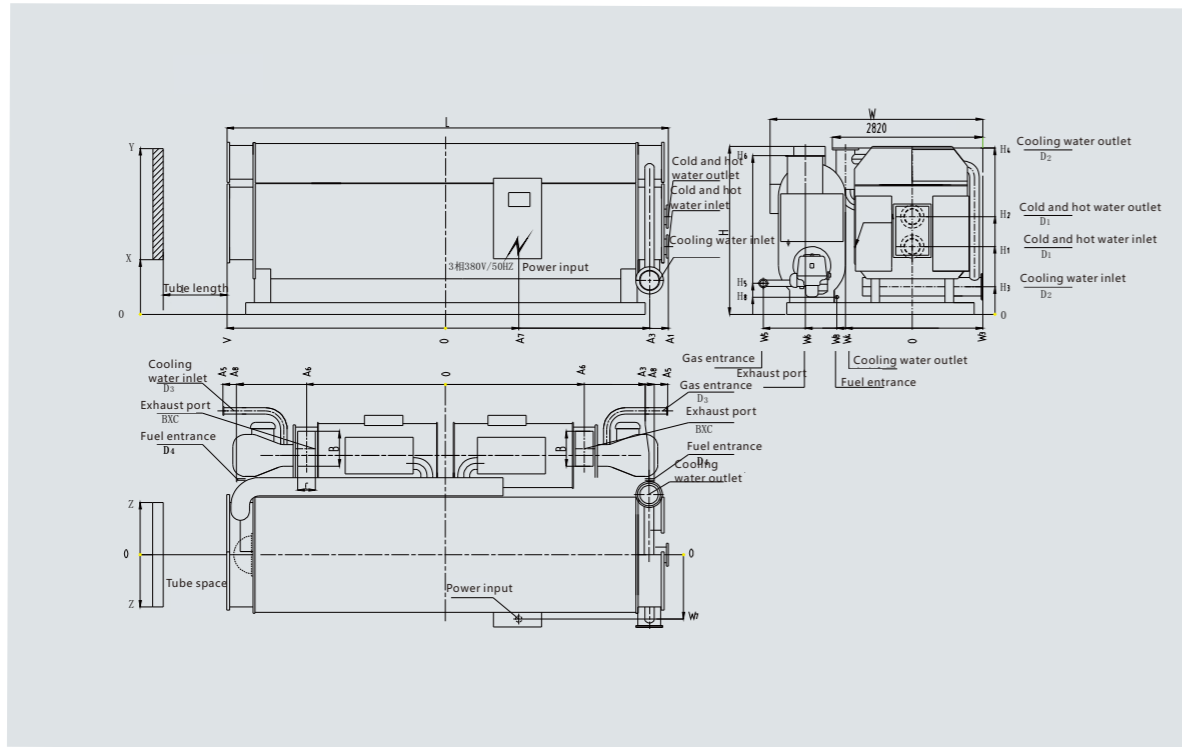
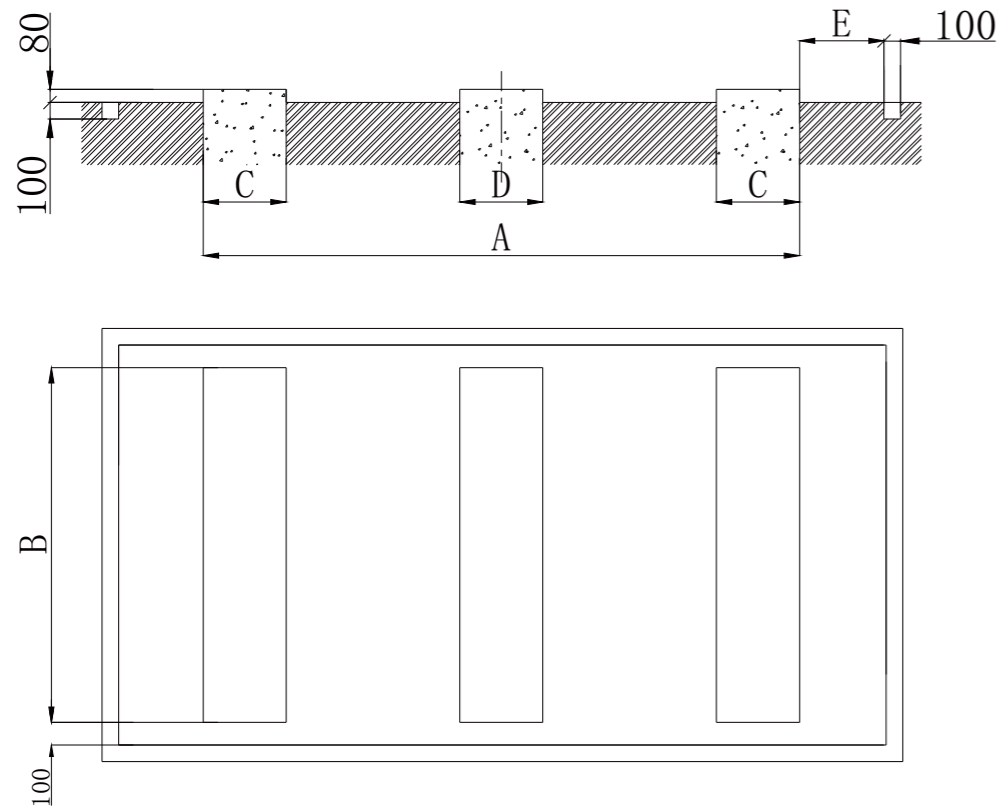


Table of pipe connection size

Model ZX-	23	35	47	58	70	81	93	105	116	145	174	204	233	262	291	349	407	465	523	582	698
L	2900	2900	2900	2980	2980	4020	4020	4640	4640	4658	5740	5740	5770	5840	5920	6720	6720	6800	7800	7830	9160
W	1680	1770	1890	1980	1988	2202	2222	2260	2422	2452	2490	2590	2720	2768	2910	3040	3450	3950	4040	4250	4470
H	1960	2000	2160	2185	2185	2165	2350	2350	2438	2652	2652	2740	2890	3200	3315	3315	3585	3585	3690	3690	3690
V	1458	1483	1510	1510	2020	2020	2020	2270	2330	2330	2900	2900	2900	2900	2940	3420	3480	3480	3885	4050	4660
Z	358	358	390	420	390	420	450	450	469	520	520	560	600	620	650	650	7450	900	900	960	1060
X	628	628	628	628	628	628	728	728	720	740	740	810	800	780	910	910	910	910	910	910	910
Y	1860	1910	2055	2055	2055	2055	2235	2235	2260	2540	2540	2600	2800	2930	3170	3170	3170	3350	3350	3350	3350
I	2440	2440	2440	2440	3440	3440	3440	3940	3940	3940	4930	4930	4930	4930	4930	5930	5930	5930	6930	6930	7930
A ₁	1340	1350	1360	1373	1868	1880	1880	2160	2160	2160	2660	2660	2660	2660	2690	3192	3218	3510	4000	4000	4500
W ₁	628	628	667	690	667	690	719	719	739	790	790	829	870	890	920	0	0	0	0	0	0
H ₁	956	956	915	968	915	968	1092	1092	1058	1140	1140	1170	1218	1310	1365	1330	1350	1395	1395	1410	1460
H ₂	1365	1365	1410	1420	1400	1420	1542	1542	1535	1717	1717	1775	1911	2060	2120	2080	2132	2100	2100	2270	2330
D ₁	80	100	100	125	125	125	150	150	150	200	200	200	200	250	250	300	350	350	350	350	400
A ₃	1338	1338	1345	1361	1845	1845	1845	2125	2125	2125	2625	2625	2625	2625	2680	3150	3180	3305	3680	3830	4280
A ₄																3150	3180	3175	3550	3720	4300
W ₃																795	1095	1120	1120	1180	1220
W ₄																1030	1030	1130	1130	1176	1245
H ₃	488	488	560	488	505	465	529	529	529	530	537	537	565	542	553	553	553	560	560	560	560
H ₄	1853	1853	1980	1980	1940	1980	2160	2160	2160	2436	2436	2490	2710	2905	3060	3200	3200	3400	3400	3400	3400
D ₂	100	125	125	150	150	150	200	200	200	250	250	250	300	300	350	350	350	400	400	400	400
A ₅	1500	1500	1500	1500	1980	1980	1980	2300	2300	2300	2740	2740	2850	2850	2850	3480	3480	3480	3880	3800	4200
W ₅	1100	1190	1260	1370	1420	1420	1422	1486	1566	1610	1800	1820	1920	2010	2120	2210	2400	2780	2960	2960	2850
H ₅	490	490	490	490	580	580	580	580	580	600	940	940	960	960	910	950	950	950	950	950	950
D ₃	32	40	40	40	40	40	50	50	50	65	65	80	80	80	80	100	100	125	125	125	100
A ₈	1450	1450	1450	1450	1920	1920	1920	2160	2160	2160	2705	2705	2705	2705	2705	3400	3400	3400	3720	3720	4300
W ₈	830	830	830	830	830	900	900	900	900	1060	1060	1120	1120	1160	1205	1300	1400	1400	1510	1560	1560
H ₈	300	300	300	300	300	300	300	300	300	400	400	400	400	400	400	400	400	400	400	400	400
D ₄																					
A ₆	962	962	962	962	973	1000	1040	1040	1120	1380	1420	1420	1610	1670	1740	1950	2155	2340	2770	3100	3750
W ₆	980	980	980	980	1104	1104	1150	1160	1160	1160	1320	1326	1410	1410	1450	1470	1550	1740	1890	1970	1850
H ₆	1800	1850	1850	1950	1890	1920	2100	2100	2100	2270	2215	2520	2620	2930	3040	3040	3040	3040	3040	3040	3040
B	250	250	250	300	300	300	376	376	396	446	500	500	550	550	600	696	750	750	750	750	696
C	170	170	170	200	200	200	266	266	246	246	300	300	360	400	400	416	416	416	550	550	416
A ₇	1400	1400	1400	1400	1870	1870	2100	2100	2100	2100	2600	2600	2600	2600	2600	3150	3150	3150	3650	1800	3000
W ₇	1000	1000	1000	1000	1150	1150	1150	1150	1150	1150	1200	1200	1350	1350	1350	1420	1420	1550	1680	1680	1110

Diagram of base size



Note:

- 1、 The levelness of the base shall be within 2/1000.
- 2、 The drainage trenches around the Unit shall be connected to the gutter.

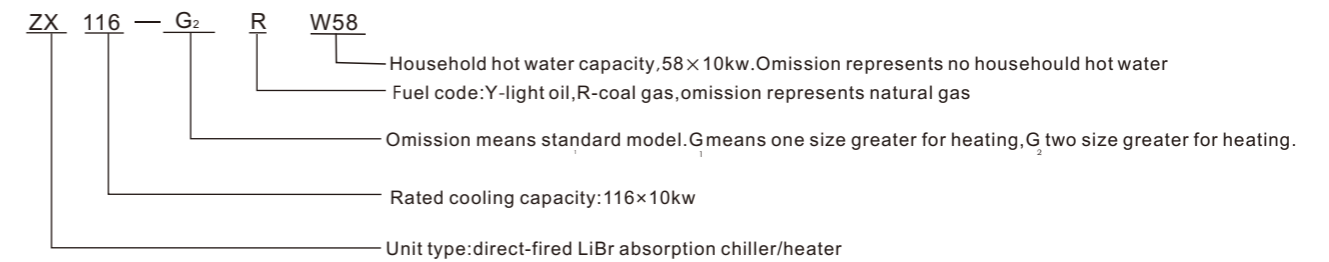
Table of base size

Model ZX-	23	35	47	58	70	81	93	105	116	145	174	204	233	262	291	349	407	465	523	582	698
A	2600	2600	2600	2600	3700	3700	3700	4200	4200	4200	4600	4600	4600	4600	5100	5100	6200	7200	7200	7300	
B	1480	1570	1690	1780	1780	1900	2000	2000	2200	2200	2250	2250	2400	2400	2600	2800	3400	3400	3800	3900	4100
C	250	250	250	250	300	300	300	400	400	400	500	500	500	600	600	600	700	700	700	600	700
D	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	600	600	700
E	200	200	200	200	200	200	200	200	200	400	400	400	400	400	400	400	200	200	200	200	200
Total shipment weight	3.6	5	6.2	7.5	8.8	10.2	11.6	12.6	13.7	16.3	19	22.2	15.3	27.6	30.1	34	40.4	45.1	49.5	53.2	64.3

High-quality Product And Service



Model number description



Model selection guideline

Model No.selection

Lode determination

select a model based on the cooling load of the building or the process cooling load,then check if its heat supply can meet the requirement of the heating load.if not,select an heating-enlarged model.

Unilt function

According to application requirment,the direct-fired unit falls into three series,i.e.standard (cooling/heating),cooling-only and triple-use.

Fuel type

A direct-fired unit can use many kinds of fuels such as natural gas,coal gas,liquefired petroleum gas,light oil and heavy oil,and different fuels have different heating values and require different burners. therefore,the fuel type and heating value shall be determined before selection of a unit, and the pressure of the fuel shall be provided if the fuel is of gas type.

Chilled water outlet temperature

The chilled water outlet temperture can be different from that of a standard mode,but shall not be lower than 6°C.

Number pressure requirement

The standard design pressure of the chilled water and cooling water systems is 0.8MPa,if the actual pressure exceeds this value,a high-pressure model shall be select.

Number of units

When more than one unit are needed,the number of the units shall be determined based on the match condition between maximum load and partial load,the inspection and reair period,and area of the machine room.

Control method

Each standard unit has the AI control function and is equipped with control interfacesfor chilled water pump,cooling water pump and tower fan.And options such as building control interface, PC monitoring system,telephone networking function,etc.are also available

Equipment supply scope

Equipment supply scope(direct-fire unit)		
Name	Quantity	Description
Main body	1 unit	Including HPG,LPG,condenser,evaporator,absorber, solution heat exchanger,automatic purge system,etc.
HPG	1 unit	Patented technology,high thermal efficiency, Triple-use type includes household hot water heater.
Burner	1 unit	including complete set of safety devices,filters,etc
LiBr solution	Sufficient	
Canned pump	2 units	
Vacuum pump	1 unit	
Control system	1 set	Including level/pressure/flow/temperature sensors,program controllers,touch screena,etc
Inverter	1 unit	
Measuring tools	1 set	Including thermometer,ordinary tools,etc.
Spare parts	1 set	Seeing packing list(can meet 5-year maintenance demand)

Model selection table

Model selection table			
Classification	Type	Feature	Remark
Function	Standard	Providing cooling(heating)0	
	Triple-use	Providing cooling(heating)plus household hot water	Specify heating capacity of household hotwater while placing an order
	Cooling-only	Providing cooling only	
Fuel	Light oil	-35-10#light diesel oil	
	Heavy oil	Heavy diesel oi;,residue oil,mixed oil	Specify viscosity while placing an order
	Fuel gas	Various natural gas, coal gas and liquefied petroleum gas	Specify heating value and pressure while placing an order
	Dual fuel	Light oil/fuel gas,coal gas and liquefield petroleum gas	
Special order	Enlarged high-pressure generator	Heating capacity of the unit increases a grade for each one bigger size of the enlarged high-pressure generator	
	High-pressure	If the preesue of the chilled/coolingwater system is equal to or greater than 0.8MPa,the high-pressure water chamber can be adopted.Water chamber has two types:0.8-1.6MPa,1.2-2MPa.	
	Low-grade fuel gas	Fuel gas with lower heating value or lower pressure can be used.	
	Classification	Applicable to slightly shaking conditions.Sea water can be used as cooling water	specify heating value and pressure while placing an order
	Disassembled shipment	The unit can be shipped with the HPGapart from the main body.	